Title: Parents' Choice Criteria for Infant Food Brands: A scale development and validation

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Corresponding Author: Dr. Sergio Roman,

Corresponding Author's Institution: UNIVERSITY OF MURCIA

First Author: Sergio Roman

Order of Authors: Sergio Roman; Luis M Sánchez-Siles, Dr.

Abstract: The study of the motives that parents take into account when making commercial infant food choices is important because these choices determine what infants eat. Food given to children during infancy has a major impact on their health, development and growth. This article describes the development and validation of an instrument for capturing parent's choice criteria for infant food brands (PCCIFB). A structured empirical scale development procedure was followed to develop this new tool. Items were generated from 18 in-depth interviews and one focus group with parents of children under 18 months in Spain. The psychometric properties of the scale were successfully assessed on two samples of parents (n=197 and n=649). The multidimensional 11-item scale offers insights into the most relevant attributes, grouped in three factors (reputation/liking, environmental/social and convenience/price), that determine parents' brand choice of commercial infant foods (i.e., formula milk, infant cereals and jarred baby foods). The scale dimensions were significantly and positively correlated to key brand variables, namely, brand familiarity, brand satisfaction and brand loyalty. Implications and future research opportunities are discussed.

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***Highlights (for review)**

- A new tool is proposed for measuring parent's choice criteria for infant food brands
- Qualitative and quantitative data were used to develop and validate the scale
- The scale is significantly correlated to brand familiarity, satisfaction and loyalty

Parents' Choice Criteria for Infant Food Brands: A scale development and validation

ABSTRACT

The study of the motives that parents take into account when making commercial infant food choices is important because these choices determine what infants eat. Food given to children during infancy has a major impact on their health, development and growth. This article describes the development and validation of an instrument for capturing parent's choice criteria for infant food brands (PCCIFB). A structured empirical scale development procedure was followed to develop this new tool. Items were generated from 18 in-depth interviews and one focus group with parents of children under 18 months in Spain. The psychometric properties of the scale were successfully assessed on two samples of parents (n=197 and n=649). The multidimensional 11-item scale offers insights into the most relevant attributes, grouped in three factors (reputation/liking, environmental/social and convenience/price), that determine parents' brand choice of commercial infant foods (i.e., formula milk, infant cereals and jarred baby foods). The scale dimensions were significantly and positively correlated to key brand variables, namely, brand familiarity, brand satisfaction and brand loyalty. Implications and future research opportunities are discussed.

Keywords:

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1. Introduction

Food given to children during the first two years of life plays a key role in influencing infants' nutritional status, which in turn will determine their health, development and growth (Lange, Visalli, Jacob, Chabanet, Schlich, & Nicklaus, 2013; Nicklaus, 2016). During the first 2 years of life, Commercial Infant Foods (CIF) are widely used in developed countries. For example, results from a German study shows that 94.4% of the 3-day diet records of infants aged 6 to 24 months included at least one CIF (Foterek, Hilbig, & Alexy, 2014). Similarly, almost half (45%) of mothers of infants aged 8-10 months use CIF at least once per day in the UK (McAndrew et al., 2012). A study conducted in the USA revealed that the five most frequently consumed vegetables by infants (4-9 months) were commercially prepared, rather than fresh (Siega-Riz et al., 2010). Brand choice is one of the very first decisions that parents have to make when feeding their infants with CIF (Maslin and Venter, 2017). Parents are increasingly exposed to a large quantity of food information, advertising, variety of stores and manufacturer and distributor brands and have a wider choice of purchasing opportunities (Dawson, 2013; Mesch et al., 2014). Therefore, the purchase of commercial infant foods can be considered as a complex, high-involvement purchase (Zaichkowsky, 1985).

Parents' assessment of perceived risks associated with each of the possible choice alternatives can be particularly salient for infant food brands (Conchar, Zinkhan, Peters, & Olavarrieta, 2004; Mitchell, 1998). Parents may perceive that their final choices can result in negative consequences in this critical stage of child development (e.g., the child does not like and/or eat the food, the food does not agree with the child, the child is not gaining enough weight), which in turn will affect parents' concerns about their child being underweight or not getting the necessary nutritional requirements (Holub & Dolan, 2012; Ma et al., 2012). Also, in this context, higher involvement (i.e., perceived relevance of the purchase for the consumer) leads to greater perception of attribute differences and commitment to brand choice (Zaichkowsky, 1985).

Unlike previous research, the present study is focused on *parents*' choice of infant food *brands*, rather than adult food product choices or children's brand choices. Brands help to differentiate a product from competing offers in the product category (Srinivasan & Till, 2002). In the context of food products, "branding generally acts to reduce risks" (Mitchell, 1998, p.180). More specifically, research indicates that brand name is regarded as being very valuable when individuals (and also children) are choosing between competing food products (Di Monaco, Cavella, Di Marzo, & Masi, 2004, Hartmann et al., 2017; Pelsmaeker, Schouteten, & Gellynck, 2013, Wyma et al., 2012). In fact, even children aged 2 to 3 years old are able to recognize food brands (Valkenburg & Buijzen, 2005).

The examination of the motives that lead to consumers' food choices has received substantial attention from the food literature. Steptoe, Pollard and Wardle (1995) developed the food choice questionnaire (FCQ) with the aim of predicting general food choice (*not brands*). Nine dimensions were identified: health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity and ethical concern. This questionnaire has been used extensively in several countries (e.g., Ares & Gambaro, 2007; Biloukha & Utermohlen, 2000; Chryssohoidis, Krystallis, & Perreas, 2007; Eertmans, Victoir, Notelaers, Vansant, & Van den Bergh, 2006; Prescott, Young, O'Neill, Yau, & Stevens, 2002). Over the last fifteen years, increased attention has been devoted to the extent to which ethical and social issues (e.g., environmental protection, animal welfare, organic and sustainable food production) influence consumers' food choices. This stream of research reveals that consumers are generally concerned about these issues, yet its translation into actual food choice and consumption is not straightforward (Grunert, Hieke, & Wills, 2014; Hjelmar, 2011; Padilla-Bravo, Cordts, Schulze, & Spiller, 2013; Lee et al., 2018; Tobler, Visschers, & Siegrist, 2011; van Dam & van Trijp, 2013; Vermeir & Verbeke, 2006).

Overall, the aforementioned studies provide a comprehensive understanding of the reasons behind consumers' general food choice behavior. Nevertheless, these studies are focused on

consumers' own personal dietary choices. Surprisingly, empirical studies on parents' choices of CIF are extremely limited, exploratory in nature, and have relied on small sample sizes, as recently evidenced by the literature review conducted by Maslin and Venter (2017). For example, Rodriguez-Oliveros, Bisogni and Frongillo (2014) examined complementary food choices among forty-four Mexican mothers of infants under two years. They observed that mothers valued vitamin content, flavor, and convenience of processed foods, but some were suspicious about expiration date, chemical and excessive sugar content, preferring natural or home-made foods. Convenience was a key benefit for 108 parents with infants up to the age of 12 months in five European countries (Synnott et al., 2007). Cost and quality were also key factors as evidenced from the 32 interviews with Australian mothers of infants (4-15 months) conducted by Boak et al. (2016).

The current study is focused on parents' motives for choosing among alternative commercial infant food brands for feeding their children under 18 months. In short, parents' choice of infant food brands is particularly relevant, yet it is still an under-researched area. The main purpose of this study is to both develop and validate an instrument to measure parents' choice criteria for infant food brands (PCCIFB) of formula milk, infant cereals and jarred foods. Since this is, to our knowledge, the first attempt in the literature to specifically measure this construct, the multidimensional scale might be valuable for both the food choice literature as well as the consumer behavior and brand management literature. More specifically, the assessment of different attributes within the same instrument will allow us to make direct comparisons about the relative importance of attributes such as price, convenience, brand image, ethical/social issues. The measure can be a relevant tool to assess to what extent food choice motives for adult consumer's own dietary consumption is consistent to parents' infant food brand choice criteria. For example, in the light of the current interest in ethical and social food concerns, our study will allow researchers to investigate if parents also take these issues into account when choosing among

infant food brands for their children. In addition, we will prove that the scale dimensions are significantly related to key brand variables, namely, brand familiarity, brand satisfaction and brand loyalty.

In the following sections, we describe the development and validation of the scale. Items were generated from in-depth interviews and a focus group with parents of children under 18 months and a review of the literature. Next, the scale psychometric properties were assessed on two different samples of parents (n=197 and n=649). Finally, we discuss the results and their implications for theory and practice.

2. Methods

Different sizes of parent samples were studied during the steps of the scale development. This study belongs to a broader research project aimed at assessing infants eating behaviors and nutritional status in Spain. Participants consisted of parents who: (1) had at least one child aged 0-18 months, (2) had primary responsibility for their infant feeding, (3) their child was fed with at least one of the following infant food products: formula milk, cereals or baby jars. In addition, their children did not have severe food allergies or chronic medical problems affecting their food intake. Ethical approval was obtained from the Research Ethical Committee of the University of Murcia.

To develop the scale to measure parents' choice criteria for infant food brands (PCCIFB), we followed a structured empirical scale development procedure (Churchill, 1979; Gerbing, and Anderson, 1988; Netemeyer, Bearden, & Sharma 2003). Next, we provide details on each step of the process (summarized in Table 1).

Table 1
Steps in the scale development procedure.

Steps followed:	Study details:
1. Specification of the domain of the construct and item generation • Literature review • In-depth and Focus Group Interviews	Review of the food, marketing and consumer behavior literature and qualitative study (18 in-depth interviews and one focus group) Total number of items: 28
2. Item Judging • Expert Evaluation for face and content validity	9 specialists from different areas: marketing, food science and nutrition, psychology and sociology evaluated items for its representativeness, clarity and redundancy. Total number of items: 19
3. Pre-test (Scale Purification) • Exploratory Factor Analysis • Factor Loadings • Item-to-total correlation statistics • Reliability (Cronbach alpha)	Survey 1 *n* = 197 (face-to-face survey) Total number of items: 14
4. Validation • Exploratory Factor Analysis • Factor Loadings • Confirmatory Factor Analysis • Reliability (Cronbach alpha; composite reliability index; average variance extracted) • Convergent Validity • Discriminant Validity • Nomological Validity	Survey 2 *n* = 649 (online survey) Total number of items: 11

2.1. Specification of the domain of the construct and item generation

In this study, parents' choice criteria for commercial infant food brands refers to the brand attributes that parents consider most relevant when choosing among different infant food brands of formula milk, cereals and baby jars for their children aged 0 to 18 months. Throughout the item generation phase we took care in balancing the exhaustiveness of the item listings with the need to generate a set of items with limited redundancy that could be transformed into an actionable, short-form scale. A set of items related to the parents' choice criteria for infant food product brands was generated based on: (1) a literature review of several research streams such as nutrition and food choice, consumer and marketing (e.g., Baker, 2001; Hjelmar, 2011; Danelon & Salay, 2012; Honkanen & Frewer, 2009; Booth, 2014; Ngobo, Legohérel, & Guéguen, 2010; Lindeman & Vaananen, 2000; Pohjanheimo, Paasovaara, Luomala & Sandell, 2010; Rozin, Fischler, Shields,

& Masson, 2006; Samu & Shanker, 2010; Steptoe et al., 1995) and (2) a qualitative investigation with parents particularly designed for this study.

First, eighteen in-depth interviews with parents were carried out by the same researcher. Interviewees were recruited using the snowball technique (Biernarcki & Waldorf, 1981), in which the first interviewee is asked about other person he/she knows who also meet the inclusion criteria, who in turn names another and so on and so forth. The number of interviews stopped when a point of diminishing returns in terms of novel aspects was reached ("data saturation[1]" as established by Guest, Bunce & Johnson, 2006). In addition, nine mothers took part in a focus group session conducted by an experienced, professional market research firm. Participants were recruited from the market research firm database. The focus group complements previous interviews effectively (Griffin & Hauser, 1993), since group synergies produce more and varied participant insights as each individual can build upon the ideas of the others. Most of the participants in this qualitative phase of the study were female (92.6%), their age ranged from 25 to 42 with a mean of 33.2 years. The subjects chosen represented a wide range of geographic (rural and urban) and educational backgrounds (29.6% had a low education level; 22.2% had a medium education level and 36.4% had a high education level).

The in-depth interviews took on average from 45 minutes to one hour. Some respondents agreed to the recording of the interview. During the interaction, written notes were taken on the information being provided. The two-hour focus group session was video-recorded and transcribed. The interviews and the focus group followed carefully designed guidelines. Respondents were asked to describe their last purchase of infant food products (i.e., formula milk, cereals or baby jars), which ensure that the analysis is based on concrete descriptions of practical events. In other words, it "helps to ensure that statements from respondents are in accordance with what

[1] It was not the aim of the qualitative interviews to generate grounded theory. Interviews were used to generate potential, relevant items for the scale. Similar to prior research in scale development (e.g., Jenkinson et al., 1999), the point at which no new significant themes appeared to emerge from the interviews determined the number of interviews to be conducted.

158 respondents actually do" (Hjelmar, 2011, p.337). Then, respondents were specifically asked for
159 the reasons why they had chosen that particular brand of infant food product. Sample in-depth
160 interviews and focus group questions included, "What infant food brand of (formula
161 milk/cereals/jars) are you currently buying? Why did you choose this brand? What aspects do you
162 usually take into account when buying these products? What are your main concerns? Are
163 environmental and social issues important for you in this regard?" Transcripts and field notes from
164 the in-depth interviews and the focus group were read, analyzed (i.e., aggregating similar data and
165 looking for common emerging themes and patterns) and discussed among the researchers to
166 minimize bias.

167

168 *2.2. Item Judging*

169 A panel of nine expert judges from different areas (marketing, food science and nutrition,
170 psychology and sociology) assessed the content and construct validity of the items by rating the
171 extent to which the items were representative of the concept of parent's choice criteria of infant
172 food brands. In particular, following Zaichowsky (1985), judges were asked to rate each of the
173 items as either "clearly representative", "somewhat representative", or "not representative". The
174 decision to keep an item in the scale was contingent on having the majority of the judges agreeing
175 with the item being "clearly representative" of the concept of parent's choice criteria of infant food
176 brands (Zaichkowsky, 1985). In addition, they evaluated items for clarity and redundancy.

177

178 *2.3. Pre-test (Scale purification)*

179 Purification of the scale items consisted of a face-to-face survey with 214 parents recruited in
180 four Spanish cities (Madrid, Barcelona, Sevilla and Murcia). 17 questionnaires were eliminated for
181 subsequent analysis because these children were fed with homemade jars, but not commercial jars.

The final sample size (n= 197) exceeded the conventional requirement that at least five observations per scale item are needed for conducting factor analyses (Stevens, 1996). A market research firm was hired to assist with the data collection process. Trained interviewers randomly approached parents who were with their infant/s in parks or at the entrance of the kindergarten. 89.3% of the respondents were females. The mean age was 33.89 (sd=4.59) with a range of 21-48 years. Socio-demographic characteristics of the respondents are shown in Table 1. Also, quota sampling was used to have a similar representation of the infant food products considered in this study (formula milk, cereals and commercial baby jars). Accordingly, parents were specifically asked for their current infant food brand within one of the aforementioned product categories.

Items were purified based on the examination of the results of (1) the exploratory factor analysis (EFA), through varimax rotation, (2) the average corrected item-to-total correlation, and (3) internal consistency analysis through Cronbach's alpha. The purpose of EFA is to summarize the information contained in the items generated in earlier steps into a smaller set of factors/dimensions (Hair et al., 1998). Items were retained if: (1) they loaded 0.40 or more on one factor, (2) did not load more than 0.40 on two factors, and (3) if the reliability analysis indicated an item-to-total correlation of more than 0.40 (Hair et al., 1998).

In addition, the Bartlett's test of sphericity and Kaiser–Meyer–Olkin – KMO test were used to determine the adequacy of the sample and data set for the exploratory factor analysis. Finally, scale internal consistency of each factor was assessed through Cronbach's alpha coefficients. An alpha coefficient of 0.7 or greater is considered acceptable (Nunnally & Bernstein, 1994).

2.4. Scale validation

Cross-sectional data were collected through an online survey to validate the scale. A research firm collected the data and randomly selected a sample of Spanish parents whose infant (aged 0 to 18 months) were representative for gender and Spanish Region from their online national panel. The initial sample consisted of 749 respondents. 34 cases were eliminated because of incomplete

208 or inconsistent responses. 66 cases were not considered for data analysis in this study because
209 parents fed their children with homemade baby jars, but not commercial ones. The final sample
210 consisted of 649 respondents of which 77.3% were female (demographic characteristics are shown
211 in Table 2). The mean age was 34.59 (sd=4.26) with a range of 22-50 years. Household monthly
212 income was from 1000 to 2000 € for 29.4% of the sample, and 2001 to 3000€ euros for 32.8% of
213 the sample[2]. In addition to the questions regarding reasons to choose among alternative infant food
214 brands, other questions of the survey are relevant to the analyses conducted in this study. In
215 particular parents were asked with 5-point agree/disagree Likert statements about their brand
216 familiarity (one item[3] from Laroche, Chakon, & Lianxi, 1996), brand satisfaction (three items[4]
217 from Román & Iacobucci, 2010) and brand loyalty (two items[5] from Chaudhuri & Holbrook,
218 2001) to their current infant food brand of formula milk, cereals or baby jars. Demographic
219 questions (e.g., gender, age, marital status, education, household income, number of children, etc.)
220 were also asked[6].
221

222 **Table 2**
223 Sociodemographic characteristics of survey participants

Variables	Face-to-face survey (n=197)	Online survey (n=649)
Gender (%)		
Female	89.3	77.3
Male	10.7	22.7
Mean age (sd)	33.89 (4.59)	34.59 (4.26)
Education (%)		
Low	14.2	2.3
Medium	26.9	22.8
High (university degree or higher)	58.9	74.9
Marital status (%)		
Single/divorce	5.6	6.2
Married	61.4	65.9
Domestic partnership	33	27.9
Work dedication (%)		
Not working	25.8	20.3
Working part-time	29.5	16.8
Working full-time	44.7	62.9
Mean number of children (sd)	1.53 (0.64)	1.55 (0.70)

224

[2] Household income was not asked in the first survey since it is a highly sensitive question and the survey was administered face to face.
[3] "I have a lot of previous experience with this brand".
[4] "I am pleased with this brand", "Overall, I am satisfied with this brand", "This brand is a good choice" (Cronbach's alpha coefficient=0.92).
[5] "I intend to keep purchasing this brand", "I will buy this brand the next time I buy infant food products" (Cronbach's alpha coefficient= 0.90).
[6] The questionnaire also included questions related to breast-feeding, complementary feeding (food variety, time of introduction, frequency), homemade food, feeding practices (i.e., parental pressure to eat) and parents' concerns regarding child weight.

225 Data analyses were conducted through EFA and confirmatory factor analyses through LISREL
226 8.8 (Jöreskog & Sörbom, 2006). Maximum likelihood estimation was used to estimate parameters
227 and evaluate model fit. The following fit indices[7] were used: Model chi-square ($\chi 2$), CFI
228 (comparative fit index), GFI (adjusted goodness of fit index), NNFI (non-normed fit index),
229 RMSEA (root mean square error of approximation) and RMSR (standardized root mean square
230 residual). The Chi-Square value is the traditional statistic for evaluating overall model fit and
231 "assesses the magnitude of discrepancy between the sample and fitted covariances matrices" (Hu
232 & Bentler, 1999, p.2), yet it is very sensitive to sample size, which means that the Chi-Square
233 statistic nearly always rejects the model when large samples (n>200) are used (Bentler & Bonnet,
234 1980), which is the case in our study. As for the remaining indices, CFI, GFI, NNFI values greater
235 than 0.90 and RMSEA and RMSR values not greater than 0.08 indicate a reasonable good fit of
236 the model (Hair, Anderson, Tatham, & Black, 1998).
237 Reliability of the measures was tested by calculating the composite reliability index and the
238 average variance extracted for each scale dimension. Research recommends cut-off values of 0.60
239 (Bagozzi & Yi, 1988) and 0.50 (Hair et al., 1998) respectively. Convergent validity was assessed
240 by looking at the significance of the *t* values associated with the parameter estimates (Bagozzi &
241 Yi, 1988). Discriminant validity was tested by comparing the average variance extracted by each
242 construct to the shared variance between the construct and all other variables. Fornell and Larcker
243 (1981) established that discriminant validity is achieved when the explained variance exceeds all
244 combinations of shared variance.
245 The final step was to obtain insights into the nomological validity of the scale, which implies to
246 assess the extent to which the dimensions of the scale are related to other theoretical constructs,
247 namely, brand familiarity, brand satisfaction and brand loyalty, as predicted by theory (Peter,
248 1981). The developed scale in this study is related to the purchase decision (brand choice made)

[7] For a detailed explanation of these fit indices see Bagozzi and Yi (1988).

stage in the consumer decision process. The marketing literature has long indicated that brand familiarity, which refers to consumer's previous experience with the brand, has a major influence on purchase decision (Samu & Shanker, 2010). Thus we expect the PCCIFB dimensions to be correlated to brand familiarity. The marketing literature (Selnes, 1993) also notes that the final decision/purchase made by consumers is going to influence their brand satisfaction (the extent to which the brand product meets or exceeds consumers' expectations) and brand loyalty (the extent to which consumers are willing to keep purchasing the same brand in the future). In addition, the relationship of the scale dimensions with parents' demographics (age, education, income, gender and number of children) were examined since prior research (e.g, Grunert et al., 2014; Honkanen & Frewer, 2009; Steptoe et al., 1995) shows that food choice, to some extent, is related to these variables.

3. Results

3.1. Construct specification and item generation

Results from the in-depth interviews and the focus groups revealed that parents take into account several attributes when choosing infant food brands. In what follows, we summarize findings from this qualitative phase of the study and we report several quotes from the interviews and the focus group session for a better assessment of our interpretations and conclusions (Kirk & Miller, 1986).

With no exemption, parents argued that the most important attribute for choosing among infant food brands was that the brand had to agree with their children. One subject was very clear about this: "I just bought this brand of jars once and no more because it didn't agree with my child at all" (mother of a 16 month-old child). Other said: "it all depends on your child characteristics; for example, mine has constipation problems and when buying cereals I just choose among those with

high fiber content" (mother of a 6 month-old child). Related to this, several parents argued that their children had to enjoy eating the brand's products, because they are the "ultimate consumers" as one mother of a 14 month-old child observed: "my child has her own taste, so I have to take this into account when buying jars for her". Also, parents were concerned about the food texture "it has to have a smooth and fine texture, rather than a pasty texture... particularly when the baby is very young" (mother of an 8 month-old child referring to infant cereals), as well as the degree to which the food was easy to dissolve: "you want the cereals to easily dissolve when preparing the cereals mix with milk, particularly when you are running out of time" (mother of a 7 month-old child).

Issues such as brand trust, reputation and credibility were other key considerations relevant to infant food brand choice among parents interviewed. Some examples follow: "I feel safe when I buy brand X because I've known it since I was a child myself" (mother of a 16 month-old child), "I wouldn't try a new brand unless I trust it 100%" (mother of a 6 month-old child).

Natural and organic attributes also influenced infant brand choice. In this regard, there was general agreement in that parents wanted infant food products to be as natural as possible without artificial additives. Yet, they found some trouble in distinguishing between organic and naturalness of food. For example, in the focus group session when asked about the meaning and importance of organic infant food products, one mother observed: "It implies that manufacturers use natural ingredients, like the lettuces that my grandpa grows in his own garden without chemicals" (mother of a 6 month-old child); another mother referring to organic jars said: "it is just like homemade jars". In addition, most of them believed that in order to be organic, the infant food products "need to go through special inspections and supervisions when being processed". Parents also thought that organic infant food was more expensive and difficult to find, as compared to non-organic food. Interestingly, ethical/social issues were raised by some mothers: "under similar price and quality characteristics, I look for brands that support social causes in some way" (mother of a 10 month-old child).

Many of the subjects interviewed argued that brand choice was also motivated by convenience and product variety. Several examples came out in the in-depth and focus-group interviews: "it is very important that your brand's products are available in most supermarkets as well as pharmacies, and particularly in your local supermarket, because it is a high-frequent purchase and you need to have the product (formula milk) to feed your child" (father of a 5 month-old child). As for product variety, one mother of an 11 month-old child pointed out: "they (referring to the children) are just like us, they do not want to eat the same food every single day, so it is important that the brand you buy has a wide range of flavors. For instance, I buy brand X because it has several flavors, other than the typical 5-cereals, such as biscuit or chocolate".

Another point raised by many parents was the price/quality relation as well as the characteristics and frequency of brand promotions. Typical comments in this regard were: "Brand X has good quality at reasonable prices" (mother of a 10 month-old child referring to baby jars), "when you do not know much about the product and your child agrees with several brands, you look for one with an intermediate price, not too low, not too expensive" (mother of a 6 month-old child referring to formula milk); "Brand Y is very active in social networks, and they keep sending me coupons for future purchases" (mother of a 9 month-old child).

The transcribed interviews as well as the notes we took were content-analyzed by carefully inspecting the texts to identify relevant attributes parents take into account when choosing among infant food brands. Overall, 28 items were generated as a result of this qualitative phase of the study along with the review of the relevant literature.

3.2. Item Judging

Nine items were eliminated because the judges identified them as not representative, ambiguous or redundant. In addition, judges suggested to rewrite 5[8] items. Nineteen items remained as a result of this stage.

3.3. Pre-test (Scale purification)

Respondents (n=197) were asked to indicate to what extent the issues shown had been relevant for them in order to choose their current infant food brand on a 5-point scale that ranged from 1 = "Not relevant at all" to 5 "Extremely relevant". Results of the initial exploratory, principal components factor analysis using varimax rotation yielded three factors with eigenvalues higher than 1. Five items with high factor loadings (>0.4) in more than one factor were eliminated. Yet, one item ("Brand's products are 100% natural, with no additives") with high cross-loading was retained due to its theoretical relevance (Hair et al., 1998), as evidenced in the qualitative phase of this study, as well as the literature review.

Results of the final exploratory factor analysis are shown in Table 3. Item-total correlation values were satisfactory and varied from 0.43 to 0.80. The Bartlett's test of sphericity was significant ($p < 0.001$) and the KMO value was 0.81, which indicates that the factor analysis was appropriate for the data set.

The three factor solution explained 64.41% of the variance. The first factor was labeled "Reputation/liking" (α=0.84) and explains 35.06% of the total variance. The factor includes items related to both brand reputation (e.g., "the brand is trustworthy", "the brand is safe") and the extent to which the child likes and tolerates the brand products (e.g., "my child seems to enjoy eating these brand's products", "these brand products agree with my child"). The second factor, "Convenience/price" (α=0.82), consists of 4 items accounting for 16.7% of the variance. These items refer to brand attributes that can be easily evaluated by parents before the purchase (e.g.,

[8] Only minor wording adjustments were made in these items. For example, some judges proposed to use "trustworthy" instead of "reliable".

345 "brand promotions are attractive"). The third factor was termed "Environmental/social" (α=0.81)
346 and accounted for 13.3% of the variance. These items included a cluster of attributes related to
347 organic, naturalness of food, environmental protection and social causes.

348

349 **Table 3**
350 Mean values of scale items, item-total correlation, Cronbach alpha and results of exploratory factor analysis
351 (first survey, n=197).

To what extent the following issues [a] have been relevant for you in order to choose your current brand of formula milk/ infant cereals/baby jars:	Mean values[a]	Corrected item-total correlation	Factor 1: Reputation/ liking	Factor 2: Convenien-ce/price	Factor 3: Environmental/ social
It is a good brand	4.07	0.72	0.75[b]		
The brand is trustworthy	3.75	0.69	0.69		
The brand is safe	4.16	0.78	0.82		
Brand's products are easy to dissolve /have a good texture	4.14	0.48	0.53		
My child seems to enjoy eating these brand's products	4.64	0.68	0.84		
These brand's products agree with my child	4.73	0.52	0.75		
The brand is available in many stores	2.88	0.59		0.77	
Brand promotions are attractive	2.25	0.58		0.76	
The brand has a good price/quality relation	3.26	0.77		0.84	
The brand has a wide range of infant food products	3.52	0.63		0.73	
Brand's products are organic	2.62	0.60			0.81
Brand's products are 100% natural, with no additives	3.93	0.43	0.44		<u>0.54</u>
The production process of the brand's products protects the environment	2.91	0.80			0.90
The company is socially responsible	2.65	0.68			0.84
Eigenvalues			4.90	2.24	1.86
% of variance accounted for			35.06	16.04	13.30
Cronbach coefficient (α)			0.84	0.82	0.81

352 [a] The means could vary between 1="not relevant at all" and 5="extremely relevant"
353 [b] Factor loadings less than 0.40 were excluded.
354 [c] Underlined values indicate the factor in which the item was allocated in cases where the item presented elevated loadings on more than one factor.
355

356 *3.4. Scale validation*

357 We used data from the second survey (n=649) to first confirm the factor structure of the scale
358 through exploratory factor analysis (EFA). Consistent to findings obtained earlier with the first
359 survey data (n=197), three factors, which accounted for 62.13% of the total variance, emerged
360 from the analysis (see Table 4). The Bartlett's test of sphericity was significant ($p < 0.001$) and the
361 KMO value was 0.89.

362

Table 4

Mean values of scale items, item-total correlation, Cronbach alpha and results of exploratory factor analysis (second survey, n=649).

To what extent the following issues have been relevant for you in order to choose your current brand of formula milk/infant cereals/baby jars:	Mean values [a]	Corrected item-total correlation	Factor 1: Reputa-tion/ liking	Factor 2: Environ-mental /social	Factor 3: Convenience/ price
It is a good brand	4.06	0.59	0.65[b]		
The brand is trustworthy	4.15	0.68	0.72		
The brand is safe	4.20	0.70	0.75		
Brand's products are easy to dissolve /have a good texture	4.09	0.56	0.54		
My child seems to enjoy eating these brand's products	4.47	0.61	0.78		
These brand's products agree with my child	4.56	0.60	0.81		
Brand's products are 100% natural, with no additives	4.14	0.55	0.54	0.44	
The brand is available in many stores	3.78	0.59			0.70
Brand promotions are attractive	3.35	0.58			0.69
The brand has a good price/quality relation	3.93	0.77			0.81
The brand has a wide range of infant food products	3.61	0.63			0.58
Brand's products are organic	3.08	0.55		0.79	
The production process of the brand's products protects the environment	3.36	0.74		0.80	
The company is socially responsible	3.43	0.64		0.72	
Eigenvalues			5.54	2.10	1.04
% of variance accounted for			39.63	15.07	7.43
Cronbach alpha (α)			0.85	0.80	0.77

[a] The means could vary between 1="not relevant at all" and 5="extremely relevant"

[b] Factor loadings less than 0.40 were excluded.

[c] Underlined values indicate the factor in which the item was allocated in cases where the item presented elevated loadings on more than one factor.

Interestingly, the item "The infant food product is 100% natural, with no additives" had high cross-loadings in the Reputation/liking (loading of 0.54) and Environmental/social (loading of 0.44) factors.. Again, due to its relevance, this item was retained for subsequent analysis.

We then subjected the data set to an initial confirmatory factor analyses (CFA) by means of LISREL 8.80. The fit of the three-factor model using all 14 indicators was poor ($\chi^2_{(74)}$= 877.87 $p<0.01$; CFI=0.93; GFI=0.83; NNFI=0.91; RMSEA=0.13; RMSR=0.08). Standardized residuals provided by LISREL output were taken into account for item deletion (Bagozzi and Yi, 1988). Problematic items were removed one at a time, and each time the model fit was reevaluated. This process resulted in the deletion of 3 items. The final three-factor model with 11 items (shown in Table 5) provided a good fit ($\chi^2_{(41)}$= 232.33 $p<0.01$; CFI=0.97; GFI=0.93; NNFI=0.95; RMSEA=0.08; RMSR=0.07).

Table 5
Final confirmatory factor analysis (second survey, n=649).

Item description (dimensions in italics)	Std. Loading (*t*-value)
Reputation/liking	
It is a good brand	0.80 (23.57)
The brand is trustworthy	0.86 (26.23)
The brand is safe	0.87 (26.61)
These brand's products agree with my child	0.67 (18.46)
Environmental/social	
Brand's products are organic	0.56 (13.82)
The production process of the brand's products protects the environment	0.84 (23.76)
The company is socially responsible	0.89 (25.56)
Convenience/price	
The brand is available in many stores	0.77 (21.22)
Brand promotions are attractive	0.69 (17.67)
The brand has a good price/quality relation	0.72 (18.63)
The brand has a wide range of infant food products	0.73 (19.44)
$\chi^2_{(41)}$= 232.33 p<0.01; CFI=0.97; GFI=0.93; NNFI=0.95; RMSEA=0.08; RMSR=0.07	

Next, we compared the three-factor model to a one-factor model ($\chi^2_{(44)}$= 998.04 p<0.01; CFI=0.85; GFI=0.73; NNFI=0.88; RMSEA=0.18; RMSR=0.12), where all factors were collapsed into one dimension. Our final model provided a significantly better fit ($\Delta\chi 2$ = 765.71 *df* = 3; p<0.01) than the one-factor model, thus providing additional support for the three dimensions of the PCCIFB scale.

Reliability of the measures was confirmed with composite reliability index higher than the recommended level of 0.60 and average variance extracted for each dimension higher than the recommended level of 0.50 (see Table 6) All items loaded highly (lowest t-value was 13.82) and significantly (p<0.01) on their specified constructs, thus providing support for convergent validity (see Table 5). We evaluated the discriminant validity of the PCCIFB dimensions, by comparing the average variance extracted to the squared correlations between the dimensions. As shown in Table 6, all AVE values exceeded the phi squared for each pair, thus supporting discriminant validity.

Table 6

Scale reliability and correlations (second survey, n=649)

	AVE [a]	Reputation/ liking	Environmental /social	Convenience /price
Reputation/liking	0.65	**0.88**[b]	0.24[d]	0.39
Environmental/social	0.60	0.49[c]	**0.82**	0.51
Convenience/price	0.53	0.63	0.72	**0.82**

[a] Average variance extracted.

[b] Scale composite reliability is reported in bold along the diagonal.

[c] Correlations are reported in the lower half of the matrix (all correlations are significant at $p < .01$)

[d] Shared variances are reported in the upper half of the matrix.

Evidence of nomological validity is provided since all PCCIFB dimensions were significantly and positively correlated to brand familiarity, satisfaction and loyalty. As shown in Table 7 reputation/liking was strongly correlated to brand satisfaction and loyalty. The remaining correlations were moderate to weak. Regarding the relationships with parent's demographic, we found that convenience/price attributes weakly and negatively correlated to parent's education. Age was negatively and marginally correlated ($p < 0.1$) to environmental/social and convenience/price attributes, whereas household income and reputation/liking attributes were significantly and positively correlated. A very weak and positive correlation was found between convenience/price attributes and number of children.

Table 7

Correlations between PCCIFB dimensions, brand-related variables and parent's demographics

	Reputation/liking	Environmental/social	Convenience/price
Brand familiarity	[a]0.18***	0.35***	0.37***
Brand satisfaction	0.57***	0.13***	0.18***
Brand loyalty	0.52***	0.12***	0.16***
Parent's age	0.01 (ns)	-0.07 (ns)	-0.06 (ns)
Parent's education	-0.03 (ns)	-0.06 (ns)	-0.12***
Household income	0.08**	0.01 (ns)	-0.01(ns)
Number of children	0.03 (ns)	0.06 (ns)	0.09***

[a] Pearson coefficient values are reported where values <0.1 (very weak), 0.1 to 0.3 (weak), 0.3 to 0.5 (moderate) and >0.5 (strong).

ns: not significant

** significant at p<0.05

*** significant at p<0.01

Differences in the PCCIFB dimensions based on parent's gender were determined by independent t-test[9]. Reputation/liking was significantly (t-value=3.49, p=0.001) higher for women (mean value=4.30±sd=0.61) than men (mean value=4.08±sd=0.65). Similarly, environmental/social was significantly (t-value=2.60, p=0.01) higher for women (mean value=3.69±sd=0.80) than men (mean value=3.60±sd=0.67). No gender differences were found for the convenience/price dimension. These results are discussed in the next section.

4. Discussion

The goal of this scale development effort was to develop a short-form scale that could reliably and validly measure the brand attributes that determine parents' choice of infant food brands. The psychometric properties, assessed on two samples of parents of children under 18 months, show that the PCCIFB scale can be useful for theory and management. The developed scale has 11 items grouped in three dimensions (Reputation/liking, environmental/social and convenience/price).

4.1. Research implications

Our findings show that reputation and liking attributes are among the most important factors motivating the purchase of infant food brands. Liking characteristics can be evaluated only after the purchase/consumption (e.g., taste), unless tasting is allowed before the purchase, but this is not frequently the case for the infant food products considered in this study. Reputation attributes are not reflected in objective characteristics of the final product, and therefore, refer to attributes that cannot normally be evaluated, even after purchase and consumption. This may create uncertainty among consumers that can lead to the use of surrogate indicators or cues such as the brand name

[9] Following one reviewer suggestion, we conducted additional analysis to test if breast-feeding of the child could have an influence on the importance given to each scale dimension and/or item. Interestingly, results from independent t-test revealed that one of the items of the final scale ("These brand's products agree with my child") was significantly higher (t=2.05; p=0.04) in children who had never been breastfed (mean value=4.71±sd=0.56; n=78) as compared to those who had been breastfed (mean value=4.54±sd =0.68; n=571). No differences were found in the remaining scale dimensions or items.

443 with an established record of credibility (Grunert, Bredahl, & Brunsø 2004). Thus, brand features
444 (e.g., brand reputation) fall within these credence attributes, as they are built upon consumer trust
445 and relationships (Kapferer, 2004), and represent a question of credibility of the seller vis-à-vis the
446 buyer (Grunert, 1997). Reputation is an aggregate composite of all previous experiences with the
447 brand and requires consistency of the brand actions over a prolonged time for its formation
448 (Milewicz & Herbig, 1994). Our findings show that previous positive experiences with the brand
449 (e.g., the child tolerates well the brand products) and brand reputation attributes (e.g.,
450 trustworthiness, safety) are aggregated into one dimensional quality attribute, which has a
451 significant impact on parents' brand choice.
452 Interestingly, we found that environmental/social attributes, the second dimension of the
453 PCCIFB scale, plays a major role explaining infant food brand choice. This factor includes
454 attributes that reflect parents' concerns for organic foods as well as corporate social responsibility
455 and environmental issues. First, this is somehow consistent to Hjelmar's (2011, p.339) study who
456 found that: "many consumers linked the issue of organic foods to broader environmental issues".
457 In a similar fashion, recent findings from Hidalgo-Baz, Martos-Partal and González-Benito (2017)
458 revealed that environmental protection explains consumers' perceptions of the quality of organic
459 products. Second, results from our qualitative and quantitative studies are consistent to several
460 scholars who view ethical/social food issues as a separate credence attribute. For example, Grunert
461 (1997, p.158) observed that: "whether a vegetable has been ecologically produced, or whether a
462 piece of meat was produced with due respect for animal welfare, are product characteristics which
463 are not reflected in objective characteristics of the final product, and which may be either
464 impossible to verify due to a lack of tracing possibilities or may be verifiable only at prohibitive
465 costs for the consumer". Similarly, a recent review of the literature conducted by Fernqvist and
466 Ekelund (2014, p.344) concluded that organic, which included a cluster of attributes ranging from

467 food safety, ethic values, health and environmental concern, was "accounted for as a separate
468 credence category".

469 Research has found that consumers' positive attitudes toward sustainable organic food do not
470 necessarily translate into food purchase intention and behavior (Hjelmar, 2011; van Dam & van
471 Trijp, 2013; Vermeir & Verbeke, 2006). This inconsistency is referred to as the attitude-behavior
472 gap (Vermeir & Verbeke, 2006). In particular, consumers generally have positive attitudes towards
473 social/ethical food issues (e.g., organic production), but convenience problems (e.g., limited
474 availability and variety of organic products) and higher prices, as compared to non-organic food,
475 remain important perceived barriers to consumption (Padilla-Bravo et al., 2013). For example,
476 findings from Vermeir and Verbeke (2006), on a sample of 456 young consumers, revealed that
477 "low perceived availability of sustainable products explains why for some consumers intentions to
478 buy remain low, although their attitudes might be positive" (p.188). Interestingly, we found that
479 ethical/social issues are indeed relevant attributes that parents consider when purchasing infant
480 food brands. One possible reason stems from the "turning point" in the food purchasing pattern as
481 a consequence of having children. In particular, some mothers interviewed in our qualitative study,
482 argued that when they did not have children they "couldn't be bothered" to buy organic foods for
483 their own consumption, because they were more "expensive" and "difficult to find". Yet, when
484 they had children, they were willing to make such "extra effort" in time and money to get organic
485 food (e.g., jars) for their children. This behavioral pattern is consistent to findings from Hjelmar's
486 (2011) qualitative study in Denmark, as one woman observed: "'before we had children we just
487 bought the cheapest. Now we need to take health considerations, we also bought less organic
488 products before'' (p.340).

489 On a related issue, the item "brand's products are 100% natural, with no additives" was
490 considered very relevant by parents as the mean values were high in the two samples surveyed
491 (3.93 and 4.14 respectively out of 5 points). Still, this item had cross-loadings in the

environmental/social and reputation/liking factors, and therefore it was eliminated from the final scale. From a theoretical perspective, on one hand, extant research (e.g., Brunner, Horst, & Siegrist, 2010; Hjelmar, 2011; Román, Sánchez-Siles & Siegrist, 2017), as well as feedback from our qualitative study, suggest that naturalness of food is closely related to environmental/social and organic food attributes. For example, the "natural concern" factor from the Eating Motivation Survey (Renner, Sproesser, Strohbach, & Schupp, 2012), conducted on several samples of German consumers, assessed "the preference for natural foods from fair trade or organic farming" (p.124). On the other, naturalness of food can be considered as a reputational, reliability attribute in that consumers have to rely that the ingredients qualify as being 'natural' and the food contains no additives (Rozin, Fischler & Shields-Argelès, 2012; Lee & Hwang, 2016).

Finally, the developed scale shows that convenience and price attributes (i.e., brand availability, promotions, price and range of products), which can be easily evaluated before the purchase/consumption, are also significant factors motivating the purchase of infant food brands. The significance of this factor is, to some extent, consistent to Carruth, Skinner, Moran and Coletta (2000, p.150), who found among 34 mothers a "strong goal of the best buy for cost and value" when shopping food products for their children aged 60-69 months. Similarly, on a broader level, it is in line with several studies on consumers' own personal dietary choices which have found pricing and promotional activity to be key determinants of consumer's food choice (e.g, Dawson, 2013; Steptoe et al., 1995).

Importantly, the motives identified in our final scale were positively and significantly correlated to brand familiarity, satisfaction and loyalty. Experience/credibility attributes, as compared to the other two scale dimensions, were particularly important when it comes to establish brand satisfaction and brand loyalty. Brand familiarity, on the contrary, was highly correlated to environmental/social and convenience/price attributes, as compared to reputation/liking attributes.

The correlations between the PCCIFB dimensions and parent's demographics are in line with the literature, which shows that the relationship between consumers' demographics and their food choice (Contini et al., 2015; Rozin et al., 2006) and food brand preference (Cotes-Torres, Muñoz-Gallego, & González-Benito, 2015) is limited. In particular, we found that women assigned significantly more importance than men to environmental/social attributes, which is consistent to prior research (e.g., Grunert et al., 2014; Stranieri, Ricci, & Banterle, 2017). Also, convenience/price attributes were negatively correlated to parent's education, which is, to some extent, in line with Honkanen and Frewer (2009), who found that consumers with a low educational level tended to be more price sensitive. Overall, these findings confirm the nomological validity of the PCCIFB scale and also show that its dimensions are distinct manifestations of a broader, more general construct, namely parent's choice criteria for infant food brands (PCCIFB).

4.2. Practical implications

From a managerial perspective, identifying the motives that determine infant food brand choice can help companies to predict brand choice more reliably by knowing the importance parents assign to each attribute. Then, companies would be in a better position to establish their overall mission and develop products that ultimately satisfy consumers' needs in the long-term. In particular, infant food companies need to develop and sustain relationships with customers over time based on reputational attributes (i.e., trustworthiness, safety). Second, given the importance of natural as well as environmental/social issues, we encourage companies to design and manufacture their products in a sustainable way with a special emphasis on organic/natural properties. On a related issue, product labelling at the point of sale needs to clearly communicate and explain products' natural and organic properties, so that parents actually understand them. Finally,

companies need to place special emphasis to the choice and design of their traditional and online distribution channels since infant food product availability is a very important decisional factor.

4.3. Limitations and future research

This study can serve as a starting point for future research that could further validate or broaden our findings. We focused on parents of children under 18 months. Future studies could examine parents of older children, since these children are going to have an explicit and stronger influence and participation in food brand choice. Also, the three factors that emerged in this study (reputation/liking, environmental/social and convenience/price attributes) were endorsed by parentss of a society particularly concerned about sustainability issues regarding food products, as evidenced in prior research (e.g., Grunert et al., 2014). We encourage further research to validate the scale in less affluent or less developed countries. In addition, the scale was developed in Spain. Even though the scale items were back-translated into English, further studies are encouraged to validate the scale in non-Spanish language countries. Scholars may also examine how other relevant variables (e.g., length of the breast-feeding period, parents' knowledge of specific regulations regarding infant foods, parents' own memories of food eating during their childhood) are related to parents' infant food choice.

Our survey design was cross-sectional in nature, and purely causal inferences remain difficult to make. Therefore longitudinal studies that provide further evidence of the relationship between the scale dimensions and brand familiarity, satisfaction and loyalty are recommended.

4.4. Conclusion

This is the first study to develop and validate a scale to measure parent's choice criteria for infant food brands. The development and validation process of the scale was based on in-depth interviews, one focus group and two surveys. The multidimensional 11-item scale offers insights

into the most relevant attributes, grouped in three factors (reputation/liking, environmental/social and convenience/price attributes), that determine parents' infant food brand choice. Therefore, this study provides an increased understanding of parents' buying process when making complex, high-involvement purchase decisions for their children in their early stages of life.

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References

Ares, G., & Gambaro, A. (2007). Influence of gender, age and motives underlying food choice on perceived healthiness and willingness to try functional foods. *Appetite*, 49, 148–158.

Bagozzi, R.P. & Yi, Y. (1988). On the Evaluation of Structural Equation Models. *Journal of the Academy of Marketing Science*, 16, 74-94.

Baker, W.E. (2001). The Diagnosticity of Advertising Generated Brand Attitudes in Brand Choice Contexts. *Journal of Consumer Psychology*, 11(2), 129-139.

Bentler, P.M. & Bonnet, D.C. (1980). Significance Tests and Goodness of Fit in the Analysis of Covariance. *Psychological Bulletin*, 88(3), 588-606.

Biernarcki, P., & Waldorf, D. (1981). Snowball sampling-problems and techniques of chain referral sampling. *Sociological Methods and Research*, 10, 141–163.

Biloukha, O. & Utermohlen, V. (2000). Correlates of food consumption and perceptions of food in an educated urban population in Ukraine. *Food Quality and Preference*, 11, 475–485.

Boak, R. M. Virgo-Milton, A. Hoare, A. de Silva, L. Gibbs, L. Gold, M. Gussy H. Calache, M. Smith and E. Waters (2016). Choosing foods for infants: a qualitative study of the factors that influence mothers. *Child: care, health and development*. 42, 3, 359–369.

Booth, D.A. (2014). Measuring sensory and marketing influences on consumers' choices among food and beverage product brands. *Trends in Food Science & Technology*, 35, 129-137.

592 Brunner, T.A., Horst, K & Siegrist, M. (2010). Convenience Food Products. Drivers for Consumption.
593 *Appetite*, 55, 498–506.
594 Carruth, B.R., Skinner, J.D., Moran, J.D. & Coletta, F. (2000). Preschoolers' Food Product Choices at a
595 Simulated Point of Purchase and Mothers' Consumer Practices. *Journal of Nutrition Education*, 32 (3),
596 146–151.
597 Chaudhuri, A. & Holbrook, M.B. (2001). The chain of effects from brand trust and brand affect to brand
598 performance: the role of brand loyalty. *Journal of Marketing*, 65 (2), 81-93.
599 Chryssohoidis, G., Krystallis, A., & Perreas, P. (2007). Ethnocentric beliefs and country-of origin (COO)-
600 effect: impact of country, product and product attributes on Greek consumers' evaluation of food
601 products. *European Journal of Marketing*, 41, 1518–1544.
602 Churchill, G.A. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of*
603 *Marketing Research*, 16, 64-73.
604 Conchar, M.P. Zinkhan, G.M., Peters, C. & Olavarrieta, S. (2004). An integrated framework for the
605 conceptualization of consumers' perceived-risk processing. *Journal of the Academy of Marketing*
606 *Science*, 32(4), 418-436.
607 Contini, C., Casini, L., Stefan, V., Romano, C., Jørn, H., Lähteenmäki, L. Scozzafava, G. & Grunert, K.G.
608 (2015). Some like it healthy: Can socio-demographic characteristics serve as predictors for a healthy
609 food choice? *Food Quality and Preference*, 46, 103-112.
610 Cotes-Torres, A. Muñoz-Gallego, P., & González-Benito, O. (2015). Modeling store brand choice: Minimal
611 effects of households' demographic features. *Food Quality and Preference*, 46, 113-118
612 Danelon, M.S. & Salay, E. (2012). Development of a scale to measure consumer perception of the risks
613 involved in consuming raw vegetable salad in full-service restaurants. *Appetite*, 59 (3), 713-22.
614 Darby, M. R., & Karni, E. (1973). Free competition and the optimal amount of fraud. *Journal of Law and*
615 *Economics*, 16, 67–88.
616 Dawson, J. (2013). Retailer activity in shaping food choice. *Food Quality and Preference* 28, 339–347.
617 Di Monaco, R. Cavella, S. Di Marzo, S., & Masi, P.(2004). The effect of expectations generated by brand
618 name on the acceptability of dried semolina pasta. *Food Quality and Preference*, 15, 429–437.
619 Eertmans, A., Victoir, A., Notelaers, G., Vansant, G., & Van den Bergh, O. (2006). The Food Choice

Questionnaire: factorial invariant over western urban populations? *Food Quality and Preference*, 17, 344–352.

Fernqvist, F. & Ekelund, L. (2014), Credence and the effect on consumer liking of food – A review. *Food Quality and Preference*, 32, 340–353.

Fornell, C. & Larcker, D.F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research* 28, 39-50.

Foterek, F., Hilbig, A., & Alexy, U. (2014). Breastfeeding and weaning practices in the DONALD study. Age and time trends. *Journal of Pediatric Gastroenterology and Nutrition*, 58, 361–367.

Gerbing, D.W. & Anderson, J.C. (1988). An Updated Paradigm for Scale Development Incorporating Unidimensionality and its Assessment. *Journal of Marketing Research* 25, 186-92.

Grunert, K. (1997). What's in a steak? A cross-cultural study on the quality perception of beef. *Food Quality and Preference*, 8 (3), 157-74.

Grunert, K.G., Bredahl, L., & Brunsø, K. (2004). Consumer perception of meat quality and implications for product development in the meat sector. *Meat Science* 66, 259–272.

Grunert, K.G., Hieke, S., & Wills, J. (2014). Sustainability labels on food products. Consumer motivation, understanding and use. *Food Policy*, 44, 177–189.

Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. *Field Methods*, 18 (1), 59-82.

Hair, J.D., Anderson, R.E., Tatham, R.L. and Black, W.C.:1998, *Multivariate Data Analysis* (5th ed.), Prentice Hall, N.J.

Hartmann, M. Cash, S.B., Yeh, C.H., Landwehr, S.C., & McAlister, A.R. (2017). Children's purchase behavior in the snack market: Can branding or lower prices motivate healthier choices? *Appetite*, 117, 247-254.

Hidalgo-Baz, Martos-Partal and González-Benito (2017). Assessments of the quality of organic versus conventional products, by category and cognitive style, *Food Quality and Preference*, 62, 31-37.

Hjelmar, U. (2011). Consumers' purchase of organic food products. A matter of convenience and reflexive practices. *Appetite* 56, 336–344.

Holub, S. C., & Dolan, E. A. (2012). Mothers' beliefs about infant size: Associations with attitudes and infant feeding practices. *Journal of Applied Developmental Psychology*, *33*(3), 158–164.

Honkanen, P. & Frewer, L. (2009), Russian consumers' motives for food choice, Appetite, 52 (2), 363–371.

Hu, L.T. & Bentler, P.M. (1999), Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives, *Structural Equation Modeling*, 6 (1), 1-55.

Jenkinson, C., Fitzpatrick, R., Brennan, C., Bromberg, M. & Swash, M. (1999). Development and validation of a short measure of health status for individuals with amyotrophic lateral sclerosis/ motor neurone disease: the ALSAQ-40, *Journal of Neurology*, 246, pp III16–III21.

Jöreskog, K. & Sörbom, D. (2006). LISREL 8.80 for Windows [Computer Software]. Lincolnwood, IL: Scientific Software International, Inc

Kapferer, J.-N. (2004). *The new strategic brand management* (3rd ed.). London: Kogan Page.

Kirk, J. & Miller, M.L. (1986). *Reliability and validity in qualitative research*. Beverly Hills, Ca.: Sage Publications.

Lange, C. Visalli, M., Jacob, S., Chabanet, C., Schlich, P. & Nicklaus, S. (2013). Maternal feeding practices during the first year and their impact on infants' acceptance of complementary food. *Food Quality and Preference* 29, 89–98.

Laroche, M., Chankon,K., & Lianxi,Z. (1996). Brand familiarity and confidence as determinants of purchase intention: an empirical test in a multiple brand context. *Journal of Business Research,* 37(2), 120–155.

Lee, H-J & Hwang, J. (2016). The driving role of consumers' perceived credence attributes in organic food purchase decisions: A comparison of two groups of consumers. *Food Quality and Preference*, 54, 141-151.

Lee, H-C., Chang, C.-T., Cheng, Z.-H., & Chen, Y.-T. (2018). Will an organic label always increase food consumption? It depends on food type and consumer differences in health locus of control, *Food Quality & Preference*, 63, 88-96.

Lindeman, M., & Vaananen, M. (2000). Measurement of ethical food choice motives. *Appetite*, 34, 55–59.

673 Ma, J.-Q., Zhou, L.-L., Hu, Y.-Q., Liu, J.-R., Liu, S.-S., Zhang, J., & Sheng, X.-Y. (2012). Feeding and
674 growth of normal birth weight infants during the first year of life in Shanghai. *Early Human*
675 *Development*, 88(10), 831–836.
676 Maslin, K. & Venter, C. (2017). Nutritional aspects of commercially prepared infant foods in developed
677 countries: a narrative review. Nutrition Research Reviews, 30, 138-148.
678 McAndrew, F., Thompson, J., Fellows, L., Large, A., Speed, M., & Renfrew, M. J. (2012). Infant feeding
679 survey 2010. The Health and Social Care Information Center. Available at: http://content.digital.nhs.uk
680 Mesch, C.M., Stimming, M., Foterek, K., Hilbig, A., Alexy, U. Kersting M., & Libuda, L. (2014). Food
681 variety in commercial and homemade complementary meals for infants in Germany. Market survey and
682 dietary practice, *Appetite*, 76 (1), 113–119.
683 Milewicz, J. & Herbig, P. (1994). Evaluating the Brand Extension Decision Using a Model of Reputation
684 Building, *Journal of Product & Brand Management*, 3 (1), 39-47.
685 Mitchell, V.W. (1998). A role for consumer risk perceptions in grocery retailing, *British Food Journal*,
686 100/4, 171–183.
687 Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). *Scaling procedures—issues and applications*.
688 Newbury Park, CA: Sage
689 Ngobo, P.-V., Legohérel, P. & Guéguen, N. (2010). A cross-category investigation into the effects of nine-
690 ending pricing on brand choice. *Journal of Retailing and Consumer Services*, 17 (5), 374-385.
691 Nicklaus, S. (2016). The role of food experiences during early childhood in food pleasure learning. *Appetite*,
692 104, 3-9
693 Nunnally, J.C. & Bernstein, I.H. (1994), *Psychometric Theory*, 3rd Edn, Mcgraw-Hill. New York.
694 Padilla-Bravo, C., Cordts, A., Schulze, B, &, Spiller, A. (2013). Assessing determinants of organic food
695 consumption using data from the German National Nutrition Survey II. *Food Quality and Preference*,
696 28(1), 60–70. ·
697 Pelsmaeker, S. Schouteten, J. & Gellynck, X. (2013). The consumption of flavored milk among a children
698 population. The influence of beliefs and the association of brands with emotions. Appetite 71 279–286
699 Peter, J.P. (1981). Construct Validity: A Review of Basic Issues and Marketing Practices. *Journal of*
700 *Marketing Research*, 18 (2), 133-145.

Pohjanheimo, T., Paasovaara, R., Luomala, H., & Sandell, M. (2010). Food choice motives and bread liking of consumers embracing hedonistic and traditional values. *Appetite*, 54 (1), 170–180.

Prescott, J., Young, O., O'Neill, L., Yau, N. J. N., & Stevens, R. (2002). Motives for food choice: A comparison of consumers from Japan, Taiwan, Malaysia and New Zealand. Food Quality and Preference, 13, 489-495.

Renner, B. Sproesser, G., Strohbach, S. & Schupp H.T. (2012). Why we eat what we eat. The Eating Motivation Survey (TEMS). *Appetite*, 59, 117-28.

Rodriguez-Oliveros, M.G., Bisogni, C.A. & Frongillo, E.A. (2014). Knowledge about food classification systems and value attributes provides insight for understanding complementary food choices in Mexican working mothers. *Appetite*, 83, 144–152.

Román, S. & Iacobucci, D. (2010). Antecedents and Consequences of Adaptive Selling Confidence and Behavior: A Dyadic Analysis of Salespeople and Their Customers. *Journal of the Academy of Marketing Science*, 38, 363-382.

Román, S., Sánchez-Siles, L.M. & Siegrist, M. (2017). The importance of food naturalness for consumers: Results of a systematic review. *Trends in Food Science & Technology*, 67, 44-57.

Rozin, P. Fischler, C., Shields, C., & Masson, E. (2006), Attitudes towards large numbers of choices in the food domain: A cross-cultural study of five countries in Europe and the USA. *Appetite* 46, 304–308.

Rozin, P., Fischler, C. & Shields-Argelès, C. (2012). European and American perspectives on the meaning of natural. *Appetite*, 59, 448–455.

Samu, S., & Shanker K., H. (2010). Brand related information as context: The impact of brand name characteristics on memory and choice. *Journal of the Academy of Marketing Science*, *38*(4), 456-470.

Selnes, F. (1993). An examination of the effect of product performance on brand reputation, satisfaction and loyalty. *European Journal of Marketing*, 27(9), 19-35.

Siega-Riz A.M., Deming, D.M., Reidy, K.C., Fox M.K., Condon E. & Briefel, R.R. (2010). Food consumption patterns of infants and toddlers: where are we now? *Journal of American Diet Association* 110, 38–51.

Srinivasan, S.S. & Till, B.D. (2002). Evaluation of search, experience and credence attributes: role of brand name and product trial. *Journal of Product & Brand Management*, 11 (7), 417-431.

729 Stranieri, S. Ricci, E.C., & Banterle, A. (2017). Convenience food with environmentally-sustainable
730 attributes: Aconsumer perspective. *Appetit*e, 116, 11-20.
731 Steptoe, A., Pollard, T. M., & Wardle, J. (1995). Development of a measure of the motives underlying the
732 selection of food. The Food Choice Questionnaire. *Appetite*, *25*, 267–284
733 Stevens, J. (1996), *Applied Multivariate Statistics for the Social Sciences*. Mahwah, Lawrence Erlbaum.
734 N.J.
735 Synnott, K., Bogue, J., Edwards, C.A., Scott, J.A., Higgins, S. Norin, E. et al. (2007). Parental perceptions
736 of feeding practices in five European countries: an exploratory study. *European Journal of Clinical*
737 *Nutrition* 61, 946–956.
738 Thompson, A.L., Mendez, M.A., Borja, J.B., Adair, L.S., Zimmer, C.R. & Bentley, M.E. (2009).
739 Development and validation of the Infant Feeding Style Questionnaire. *Appetite* 53, 210–221
740 Tobler, C., Visschers, V. H. M., & Siegrist, M. (2011). Eating green. Consumers' willingness to adopt
741 ecological food consumption behaviors. *Appetite*, 57, 674-682.
742 Valkenburg, P.M., & Buijzen, M. (2005). Identifying determinants of young children's brand awareness:
743 Television, parents, and peers. *Journal of Applied Developmental Psychology* 26, 456-468.
744 van Dam, Y. K., & van Trijp, H. C. M. (2013). Relevant or determinant. Importance in certified sustainable
745 food consumption. *Food Quality Preference*, 30, 93–101.
746 Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption. Exploring the consumer "attitude-
747 behavioral intention gap. *Journal of Agricultural and Environmental Ethics*, 19(2), 169–194.
748 Wyma, L., Merwe, D., Bosman, M.J, Erasmus, A.C., Strydom, H., & Steyn, F. (2012). Consumers'
749 preferences for private and national brand food products. *International Journal of Consumer Studies*, 36,
750 432-439.
751 Zaichkowsky, J.L. (1985). Measuring the involvement construct. *Journal of Consumer Research*, 12 (3),
752 341-52.
753

Appendix 1
Item removal in each step of the development procedure

	Item judging	Pretest	Validation
It is not the least expensive brand in the market	X[a]		
Brand's products smell nice	X		
Brand's products are highly nutritious	X		
Brand's products take no time to prepare	X		
The brand has a reasonable price	X		
Brand's products are easy to prepare	X		
The brand uses raw materials from sustainable agriculture and farming	X		
It is a local brand	X		
My child likes these brand's products a lot	X		
Brand's products are packaged in an environmental way		X	
It is an innovative brand		X	
It is a high-quality brand		X	
The brand is well-established in the market[b]		X	
Brand's products are also sold in pharmacies		X	
Brand's products are easy to dissolve /have a good texture			X
My child seems to enjoy eating these brand's products			X
Brand's products are 100% natural, with no additives			X
It is a good brand[c]			
The brand is trustworthy			
The brand is safe			
These brand's products agree with my child			
Brand's products are organic			
The production process of the brand's products protects the environment			
The company is socially responsible			
The brand is available in many stores			
Brand promotions are attractive			
The brand has a good price/quality relation			
The brand has a wide range of infant food products			

[a] "X" implies that the item was eliminated at that stage of the development procedure.
[b] Items in italics were slightly re-written based on judges' feedback.
[c] Items in bold represent the final items of the scale.