



Working together
www.rcis.ro

Revista de Cercetare și Interventie Sociala

ISSN: 1583-3410 (print), ISSN: 1584-5397 (electronic)

THE ROLE OF CHILDREN IN THE FAMILY PURCHASE DECISION- MAKING PROCESS ABOUT HEALTHY *VERSUS* UNHEALTHY FOOD

*Gilberto GIGLIOTTI, Giulio D'URSO, Francesca LIONETTI, Mirco FASOLO,
Maria SPINELLI*

Revista de cercetare și intervenție socială, 2023, vol. 80, pp. 72-97

<https://doi.org/10.33788/rcis.80.5>

Published by:
Expert Projects Publishing House



On behalf of:
„Alexandru Ioan Cuza” University,
Department of Sociology and Social Work
and
HoltIS Association

The Role of Children in the Family Purchase Decision-Making Process About Healthy *Versus* Unhealthy Food

Gilberto GIGLIOTTI¹, Giulio D'URSO², Francesca LIONETTI³,
Mirco FASOLO⁴, Maria SPINELLI⁵

Abstract

This study explores how children are involved in the family decision-making process when buying healthy vs unhealthy food, and whether this involvement is influenced by family emotional climate. Participants are 239 parents of 7 to 13 years old children. They completed a set of self-report questionnaire related to healthy and unhealthy foods perception; consumer purchase decision making process; children's influences strategies in food purchase; influence exerted by children in the food purchasing process; family cohesion, flexibility, and communication. The results highlight how the children used influence strategies and became more involved in consumer purchasing decisions when they come to unhealthy food than healthy food. The emotional family climate also modifies both the frequency of use and the level of participation in the consumer purchase decision making process. This study provides insight into the key predictors of the development of certain consumption skills in children and how they use them to influence the family purchase of healthy and unhealthy foods.

Keywords: healthy food, children influence strategies, emotional climate, family purchase.

¹ Department of Neurosciences, Imaging and Clinical Sciences, G. D'Annunzio University of Chieti and Pescara, Chieti, ITALY. E-mail: gilberto.gigliotti@unich.it

² Department of Psychological, Health and Territorial Sciences, G. D'Annunzio University of Chieti and Pescara, Chieti, ITALY. E-mail: giulio.durso@unich.it

³ Department of Neurosciences, Imaging and Clinical Sciences, G. D'Annunzio University of Chieti and Pescara, Chieti, Chieti, ITALY. E-mail: francesca.lionetti@unich.it

⁴ Department of Neurosciences, Imaging and Clinical Sciences, G. D'Annunzio University of Chieti and Pescara, Chieti, ITALY. E-mail: mirco.fasolo@unich.it

⁵ Department of Neurosciences, Imaging and Clinical Sciences, G. D'Annunzio University of Chieti and Pescara, Chieti, ITALY. E-mail: maria.spinelli@unich.it

Introduction

Consumer socialization is the process by which children acquire competences to be competent and independent consumers in the marketplace (Ward, 1974a) participating in the purchasing decisions within families (Moschis & Churchill, 1978). This participation is described as the strategies the children use to influence family purchasing and how much parents accomplish children's requests (Erasmus *et al.*, 2010; Palan & Wilkes, 1997). The consumer purchasing decisions making process involves several stages can range from problem recognition among family members. In other words, family members agree that the product is worthy of consideration, to information seeking, the gathering of information about that product, to the final decision on whether and what product to purchase (Lee & Beatty, 2002; Talpade & Trilokekar-Talpade, 2015). Several studies suggested how children tacked part more in the first two stages of the process (Martensen & Grønholdt, 2008; Kaur & Singh., 2006), as the final purchase decision is up to the parents.

Moreover, another strand of studies highlighted how children become more involved in consumer purchasing decisions when it comes to products for their use and consumption, such as food (Aluvala & Varkala, 2020; Baldassarre *et al.*, 2016; Buijzen & Valkenburg, 2008). Families' unhealthy food choices are often influenced by children, who demand unhealthy foods high rich in sugar and fat, such as candies and snacks (Nørgaard *et al.*, 2007; McNeal, 1992). Parents need to balance their desire to provide healthy food with their desire to provide children with the food they love to promote family harmony (Gram & Grønhoj, 2016). However, the quality of influence exerted by children on parents depends on several factors as the child's characteristics (Marquis, 2004), and family's characteristics (Roedder John, 1999; Olson, 1986).

The current study wants to investigate the level of children's participation in the first two stages of the family purchasing decision-making process, the frequency of use of influence strategies, the level of influence concerning the healthiness of food, and the emotional family climate. Analyzing children's influence on (un)healthy food purchasing is important to understand in deep the mechanisms through which these influences are exerted and to help parents, and policymakers to maintain a more virtuous eating style for children, considering children have an ever-increasing influence on today's families' decision-making (Lawlor & Prothero, 2010; Belch *et al.*, 2005).

Literature Review

Children's Influence Strategies

The influence that children exert on family purchases can take many forms (Palan & Wilkes, 1997). Palan & Wilkes (1997) identified four groups of strategies most frequently used by children to influence the family to buy the products he wants: emotional strategies that include yelling, anger, and guilt; bargaining strategies that involve sharing reasoning and bargaining offers; simply request strategies that involve direct requests made by children; persuasive strategies that involve expressing one's personal opinions about a product. Children are able to discover effective strategies that give them greater confidence in their ability to influence, through the process of trial and error (Bao *et al.*, 2007; Palan & Wilkes, 1997). Arttachariya (2009) found that children were more likely to use persuasive influence than emotional or bargaining strategies when attempting to influence the purchase of unhealthy foods. Moreover, children were more likely to use influencing strategies to buy products that were relevant to them (e.g., snacks).

Several studies suggested that older children exert more influence than younger children (Atkin, 2018; Thaichon, 2017; Rozendaal *et al.*, 2009; Palan & Wilkes, 1997; Swinyard & Sim, 1987; Moschis *et al.*, 1986). Once children enter school age, instead of exerting their influence by simply pointing to the product or placing it in the cart (Rust, 1993), they begin to request products using strategies such as begging, yelling, and whining (McNeal, 1992). As they grow older and they develop the capacity to integrate both their own and their parents' points of view (Selman, 1975), children begin to use more sophisticated influence strategies such as persuasive, bargaining, and compromise strategies (Rust, 1993).

The literature also suggests how children learn which influence strategies prove effective in influencing decisions (Götze *et al.*, 2009; Thomson *et al.*, 2007). In other words, children tend to use a particular strategy more frequently if it has worked previously (e.g., Götze *et al.*, 2009; Palan & Wilkes, 1997). When this process of trial-and-error leads to the discovery of strategies that work, the children's confidence also grows concerning their self-perceived relative influence (Bao *et al.*, 2007), and children are believed to repeat rewarding behaviors until they are no longer successful (Flurry & Burns, 2005). Furthermore, children who provide information to support their purchase requests tend to encounter less resistance from their parents, and they will have more influence (Belch *et al.*, 2005). These mechanisms, however, appear to be correlated with children age (Kerrane *et al.*, 2012). Götze *et al.* (2009) suggested how children also tend to estimate expected levels of parental refractoriness to purchase requests, the frequency of use of specific strategies depends on the level of parental resistance to certain requests.

Family and Consumer Decision-Making Process

Consumer socialization occurs during the individual's interaction with the socialization agents who impart norms, attitudes, and behaviors to the individual (Basu & Sondhi, 2014; Moschis *et al.*, 1986; Ward, 1974b). Socialization agents can be any person, institution, or organization directly involved with the individual. For children, the primary socialization agent is the family (Ward *et al.*, 1977; Hota & Bartsch, 2019; Joy & Koshy, 2018; McNeal, 1987; O'Malley and Prothero, 2007; John, 2008). Parents educate their children on consumption concepts from their earliest years through adulthood (Ward *et al.*, 1977). This socialization process may occur in different ways (Ward *et al.*, 1977; Keller & Ruus, 2014), from the simple observation of parental purchasing behavior (Grossbart *et al.*, 1991; Buijzen & Valkenburg, 2008; Valkenburg & Cantor, 2000; Roedder John, 1999) to the communication relating both to the concepts of consumption, in general and to the products to be purchased, in particular (Moschis & Churchill, 1978). These aspects make the family the main social agent considering the extent and quality of children's involvement in consumer purchasing decisions also.

Moreover, the literature suggested how interpersonal communication between family members have a strong impact on the subsequent development of knowledge, attitudes, and skills in children (e.g., Theiss, 2018; Peterson & Rollins, 1987). Brown and Mann (1990) highlighted how good quality communication between parents and children is an essential factor in ensuring their competent participation in purchasing decisions. The Circumplex model (Olson *et al.*, 1979) may help to better understand this relationship, considering three family dimensions: cohesion, flexibility, and communication. Families with balanced dimensions of cohesion, flexibility, and communication interact with an appropriate level of emotional closeness and make decisions together, having a democratic leadership and stable family roles that can change when necessary (Olson, 2000). In this sense, if cohesion is strong, there is too much consensus and too little autonomy within the family. At the other end, if family members mind their own business, there is little engagement and strong personal independence, and members are unable to help each other and discuss issues (Olson, 2000). Flexibility refers to which leadership (control and discipline), role relationships, and relational rules change in the family. Families with an unbalanced level of flexibility tend to be rigid or chaotic (Olson, 2000). A rigid relationship is one in which a person is responsible and has a strongly control. Negotiations are generally limited, and the majority of t decisions are implemented by the leader. On the other hand, the chaotic relationship is characterized by impulsive and thoughtless decisions in which roles are not clear, and often change from one member to another one (Olson, 2000). Family relationships with a moderate level of flexibility are more capable to balance change and stability. Many relationships tend to have problems if they always function at one of the two extremes of the pattern (rigid and chaotic) over a long period of time (Olson, 2000).

Following this model, Lustig and Xu (2018) highlighted how families with high levels of family cohesion are associated with functional decision-making while no association between family flexibility and decision-making was reported. Families that behave democratically and are emotionally close but not uninvolved or enmeshed are more likely to encourage their children to gain the emotional stability necessary to initiate and sustain decisions, and to effectively integrate the contributions of others (Olson, 2000). It can be deduced how the quality of emotional climate also affects the level and the quality of children participation in the purchasing decision-making process.

The current study

Expanding the literature, the study examines how children may develop the skills that enable them to become competent and independent consumers. Considering the Olson's (2000) circumplex model, this study takes into account family factors also. Specifically, this study investigates how children behave when they want to influence their parents in the purchase of healthy and unhealthy foods, what is the level of their participation in the first two stages of the consumer purchase decision-making process regarding healthy and unhealthy foods, and the role of the familiar emotional climate.

The aims are operationalized as two research questions (RQs): whether the influence strategies used by the children differ according to the healthiness of the food and to the familiar emotional climate (RQ 1); whether the participation in the first two stages of the consumer purchase decision process and the influence the children exerts toward family food purchase are both influenced by the healthiness of food, and the family emotional climate (RQ 2). The rationale for both RQs is to identify possible protective factors towards the promotion of positive food purchase attitudes.

Methodology

Participants and Procedures

Parents completed an anonymous online set of questionnaires. Participation was voluntary and confidential, and active informed consent was obtained prior to participation. The survey with the questionnaire was shared via social media for a limited period (July 2021 to August 2021), including only parents of children aged 7 to 13. In the case of multiple children, the parent was asked to report on only one child. The parent completed all parent and child-related questionnaires. There was no monetary compensation for participation. A total of 315 parents completed the questionnaires, 239 of whom provided information on all study variables (88.8% were female; $M_{\text{age}} = 42.51$ years ($Sd = 5.30$), range: 24-51 years). Regarding the

educational level of parents, a majority (40.6%) achieved a high school diploma or less, 28.3% a bachelor's or master's degree, and 21.1% a higher education degree. The mean age of the children was 10.01 (SD = 2.08), 116 were male. The study was approved by the Department's ethics committee and was conducted according to the guidelines of the American Psychological Association in accordance with the 2013 Declaration of Helsinki.

Measures

Sociodemographic information. Parents were asked to provide age, gender, level of education, family economic status, number of children, as well as children age and gender.

Perceived Healthy and Unhealthy Foods. To create categories of foods (Healthy/Unhealthy), we created a list of 24 foods for daily use and participant can answer how much these foods were considered healthy or not using a rate on a 7-level Likert (from 1 = Absolutely unhealthy to 7 = Absolutely Healthy). Based on the responses (n = 349), we chose the six foods perceived as healthier and the six perceived as unhealthier. Then, we created two groups of healthy and two groups of unhealthy food with three foods per group. (Healthy food: fruits, fish, legumes; white meat, pasta and/or rice, cereals; Unhealthy food: aged cheeses, cookies, lunch meats and sausages; sweets, packaged ice creams, fruit juices in bricks). Each questions aimed to assess children's level of participation in the purchasing process and the strategies used by children to influence parent's behaviors were repeated for each of the food groups. Finally, we reduced answers to the four groups of foods to create two categories of foods, the healthy and the unhealthy.

Consumer Purchase Decision Making Process. To assess the levels of participation in the family purchase decision-making process, we considered the first two stages of consumer purchase decision-making process of the conceptualization proposed by Lee and Beatty (2002): (a) *need recognition*, (b) *information search*. For each stage of consumer purchase decision-making process, parents were asked to indicate on a 5-level Likert scale (1 = Very rarely to 5 = Very often) how often their children engaged in the following behavior. The level of involvement in the first phase was evaluated as follows: "When the following foods (e.g., fruits, fish, and legumes) are missing in the house my son/daughter is the first to point it out". The level of involvement in the second phase was evaluated as follows: "When we need to purchase the following foods aged cheeses, cookies, lunch meats and sausages my son/daughter searches and provides the information". These measures were repeated for the two food groups (i.e., healthy and unhealthy).

Children's influences strategies. To assess the strategies used by the children to influence the family food purchase, we used the eight strategies described by Shoham and Dalakas (2006). These strategies are grouped into four main categories (Palan & Wilkes, 1997): *Bargaining strategies* (composed by 2 categories: "Seeks agreement" and "Negotiates and/or provides the information") *Persuasion*

strategies (composed by 2 categories: “Insists”; “Brings up friends”) *Emotional strategies* (composed by 3 categories: “Whines”; “Yells and/or gets angry”; “Makes me feel guilty”) and *Simply request strategies* (composed by 1 single category: “Makes a direct request without providing information”). For each of the eight influence strategies, parents were asked to indicate how often their children uses them (5-level Likert; 1 = Very rarely to 5 = Very often) (e.g., “When my children try to convince me to buy fruits, fish, legumes for him/her that I don’t want to buy, he/she makes me feel guilty”). Questions regarding the frequency of use of the strategies were repeated for the 4 food groups (2 Healthy and 2 Unhealthy).

Index of the level of influence. To assess the level of influence exerted by the children in the food purchasing process, parents were asked how often their children asked them to purchase a particular food and how often they purchased it against their will at the request of their children (5-level Likert, 1 = very rarely - 5 = very often) (“*How often does your son/daughter consume the following foods (e.g., fruits, fish, legumes)?*”; “*How often do you purchase the following foods (e.g., fruits, fish, legumes) within a week, after your son/daughter requested them?*”). The index for the two food categories was calculated by taking the ratio of the frequency of purchase requests to the frequency with which parents consented to that request.

Family Cohesion, Flexibility, and Communication. The Family Adaptability and Cohesion Scale (FACES IV; Lorio et al., 2013; Olson et al., 2007) was used to assess the family emotional climate. For this study, we used a reduced 29-item version using dimensions of cohesion (12 items, e.g., “Family members feel very close to each other”) flexibility (12 items; e.g. “Our family tries new ways of dealing with problems”), and communication (5 items, e.g., “Family members are able to ask each other for what they want”). Parents can answer using a 5-point Likert scale (from 1 = Strongly disagree to 5 = Strongly agree). Cohesion, flexibility, and communication develop along a continuum with intermediate and extreme levels (low and high) and intermediate scores considered more adaptive. We computed the total score of each dimension and used the quadratic value in analyses because too low and too high levels of these factors were found to be dysfunctional. In particular, we were interested in understanding children behavior from families with average levels of cohesion, flexibility, and communication. Cronbach’s alphas were .762, .542, and .764 respectively for cohesion, flexibility, and communication.

Analysis Plan

Data were analyzed using IBM-SPSS 22.0. First of all, we conducted Pearson’s bivariate correlations, to explore the relationship between age and child gender, the level of participation in the first (need recognition) and second stages (providing Information) of consumer purchase decision making process, the frequency of use of influence strategies (bargaining, persuasion, emotional, and simply request),

and the levels of influence), family emotional climate (cohesion, flexibility, communication) in relation to healthy and unhealthy foods. The correlations were conducted one for each food group. Subsequently, we computed a series of linear mixed models, to explore the effects of the healthiness of food, the squared effect of each family's emotional climate scale separately (cohesion, flexibility, and communication), and their interactions, controlling for the effect of children's age, on each consumer purchase decision process outcome (the frequency of use of each influence strategies the level of participation in the first and second stage of the consumer purchase decision process, and the level of influence).

Results

Association between demographic variables, variables related to the child's consumption behavior and family's emotional climate

Healthy food. The level of participation in the first stage of the consumer purchase decision-making process was positively associated with the second stage, indicating that as the frequency with which the children express the need to purchase healthy foods increases, so does the frequency with which they provide information about those foods. The positive association between the level of participation in the first stage of the consumer purchase decision-making process and the level of influences indicated that the more the child expressed the need to purchase a healthy product, the more their level of influence increased. The level of participation in this stage was positively associated with the frequencies of use of the bargaining strategies, indicating that when the children's participation in this stage increases, the children will use more bargaining strategies. The level of participation in the second stage of the consumer purchase decision-making process was positively associated with the level of influences indicating that when the children provide information about a healthy food to purchase, its level of influence increases. In addition, the level of participation in the second stage of the consumer purchase decision-making process was positively associated with the frequencies of use of the bargaining strategies indicating that when the children's participation in this stage increases, the children will use more bargaining strategies. Moreover, we found a strong positive correlation among the frequency of use of each influence strategy.

Unhealthy food. The level of participation in the first stage of the consumer purchase decision making process was positively associated (with the level of participation in the second stage indicating that when the children is the first to express the need to purchase an unhealthy product, the frequency with which the children provide information about that type of food also increases. The level of participation in the first stage was negatively associated with the level

of influences indicating that when the children are the first to express the need to purchase an unhealthy product its level of influence decrease. Finally, the level of participation in this stage was positively associated with the frequencies of use of the bargaining strategies, persuasion strategies, and emotional strategies indicating that when the children's participation in this stage increases the frequency of use of these strategies also increase. The level of participation in the second stage of the consumer purchase decision making process was negatively associated with the level of influences indicating that when the children provide information about an unhealthy food to purchase, its level of influence decrease. In addition, the level of participation in the second stage was positively associated with the frequencies of use of the bargaining strategies, persuasion strategies, and emotional strategies indicating that when the children's participation in this stage increases the frequency of use of these strategies also increases.

The frequency of use of bargaining strategies was positively associated with the frequencies of use of the persuasion, emotional strategies, and simply request strategies, indicating that the frequencies of use of bargaining strategies increase together with the frequencies of use of the other three strategies. The frequency of use of persuasion strategies was positively associated with the frequencies of use of the simply request strategies indicating that the frequencies of use of persuasion strategies increase together with the frequencies of use of simply request strategies. Finally, the frequency of use of emotional strategies was positively associated with the frequencies of use of the simply request strategies, indicating how the frequencies of use of emotional strategies increase together with the frequencies of use of simply request strategies. The intercorrelations between all variables are presented in Table 1.

Table 1. Pearson's correlations between children's age and gender, family's emotional climate (flexibility, cohesion, and communication), and the level of participation in the first two-stages of the CPDMP, level of influence, and frequencies of use of influences strategies for healthy (below the diagonal) and unhealthy (above the diagonal) food

	1	2	3	4	5	6	7	8	9	10	11	12
Age	–	.020	-.043	.008.	.013	-	.029	.060	-	-	-	-
Gender	.012	–	.010	-.024	-.023	.006	.080	-	.017	.025	-	-
Family cohesion	-.043	-.011	–	.420 **	.609 **	.045	.157 *	-	-	-	-	-
Family flexibility	.008	-.023	.420 **	–	.454 **	.104	.142	-.028	.013	-.124	.142	.113
Family communication	.013	-.033	.609 **	.454 **	–	.050	.114	.026	-	.139	.162 *	-
Level of participation in first stage of CPDMP	.028	.021	.239 **	.311 **	.204 **	–	.426 **	-	.419 **	.377 **	.267 **	.118
Level of participation in second stage of CPDMP	-.007	.051	.259 **	.272 **	.250 **	.450 **	–	-	.340 **	.290 **	.167 *	.112
Level of influence	.016	.020	.123	.164 *	-.089	.288 **	.274 **	–	-	.144	.097	.047
Bargaining strategies	-.078	-.057	.064	.073	.033	.365 **	.226 **	.124	–	.756 **	.518 **	.292 **
Persuasion strategies	-.138	-.029	-.043	-.021	-.078	.141	.110	.042	.588 **	–	.767 **	.461 **
Emotional strategies	-.192 *	-.059	-.133	-.162 *	-.134	-	-.013	.016	.351 **	.736 **	–	.455 **
Simply request strategies	-.193 *	-.073	-.078	-.054	-.092	-	.047	.049	.130	.394 **	.477 **	–

Note: * = .05; ** = .001; CPDMP: consumer purchase decision-making process

Effects of Food Healthiness and Family Emotional Climate on the Frequency of Use of Influence Strategies

Main effect of healthiness. The main effect of the healthiness of food on the frequencies of use of bargaining, persuasion and emotional strategies was significant (Table 2). Children use more bargaining and persuasions strategies when they want to influence the purchase of unhealthy food (*Bargaining*; *M* for healthy food = 2.08 *SD* =.07; *M* for unhealthy food = 2.37 *SD* = .07; *Persuasion*; *M* for healthy = 1.85 *SD* =.07; *M* for unhealthy = 2.05 *SD* = .07). Children use more emotional strategies when they want to influence the purchase of healthy foods (*M* for healthy = 1.49 *SD* =.06; *M* for unhealthy = 1.58 *SD* = .06).

Family cohesion. The effect of the two-way interaction between the healthiness of food (Healthy/Unhealthy) and squared family cohesion on the frequency of use of emotional strategies was significant (Table 2). As showed in Figure 1, children from families with low- levels of squared cohesion use more emotional strategies than children from families with high-levels of squared cohesion if they want to influence the purchase of both unhealthy and healthy food, with a higher frequency for unhealthy food. The frequency of use of emotional strategies decreased according to the increase of squared family cohesion, with a stronger decrease for unhealthy food. No significant effects of the main effect of family cohesion and of the interaction were found on the frequency of use of persuasion, bargaining and simply request strategies.

Table 2. Mixed models explore the effects of the healthiness of food (Healthy/Unhealthy), squared family cohesion, and their interaction on the child's frequency of use of influence strategies

	<i>F</i>	<i>df</i>	<i>p</i>
Bargaining Strategies			
Healthiness of Food	5.26	163	.023
Squared Family Cohesion	.13	163	.890
Healthiness of food x Squared Family Cohesion	1.18	163	.227
Children Age	4.03	162	.046
Persuasion Strategies			
Healthiness of Food	7.18	162	.008
Squared Family Cohesion	1.05	163	.306
Healthiness of food x Squared Family Cohesion	2.83	162	.094
Children Age	5.32	161	.022
Emotional Strategies			
Healthiness of Food	9.95	160	.002
Family Cohesion	3.65	161	.058
Healthiness of food x Squared Family Cohesion	5.96	160	.016
Children Age	7.26	160	.008
Simply Request Strategies			
Healthiness of Food	2.71	162	.101
Family Cohesion	1.54	164	.216
Healthiness of food x Squared Family Cohesion	.67	162	.414
Children Age	6.56	162	.011

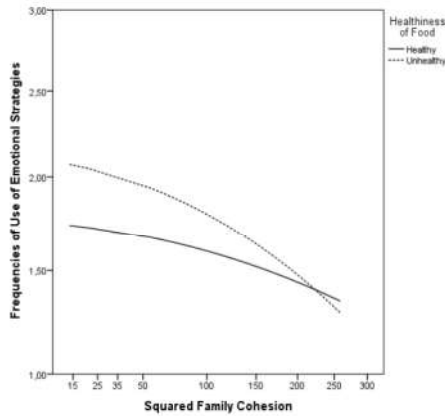
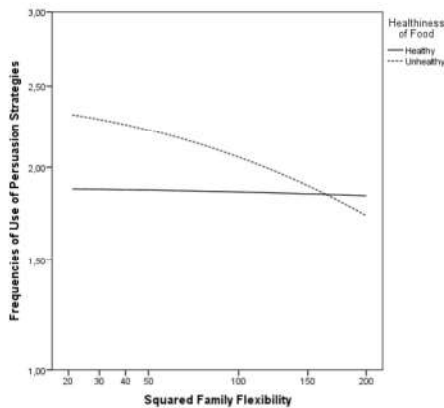


Figure 1. Predicted values for emotional strategies

Family Flexibility. The effect of the two-way interaction between the healthiness (Healthy/Unhealthy) of food and family flexibility was significant on the frequency of use of persuasion and simply request strategies. Children in the families with low levels of flexibility use persuasive and simply request strategies more frequently if they want to influence the purchase of unhealthy food than healthy food (cf. Figure 2 and 3). While children in the families with high flexibility use persuasive and simple request strategies similarly for both healthy and unhealthy food.

Figure 2. Predicted values for persuasion strategies



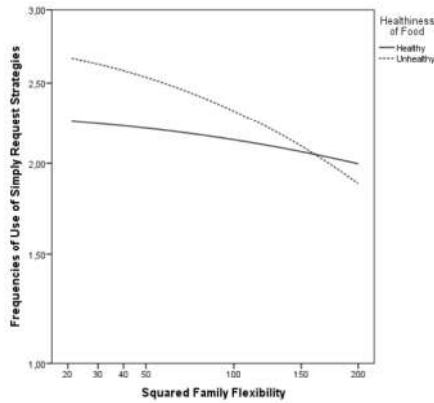


Figure 3. Predicted values for simply request strategies

	F	df	p
Bargaining Strategies			
Healthiness of Food	6.32	162	.013
Squared Family Flexibility	.29	162	.588
Healthiness of food x Squared Family Flexibility	1.05	162	.306
Children Age	4.05	162	.046
Persuasion Strategies			
Healthiness of Food	12.25	161	.001
Squared Family Flexibility	.92	161	.339
Healthiness of food x Squared Family Flexibility	5.30	161	.022
Children Age	5.20	161	.024
Emotional Strategies			
Healthiness of Food	5.24	160	.023
Squared Family Flexibility	4.50	160	.035
Healthiness of food x Squared Family Flexibility	1.95	160	.164
Children Age	7.03	160	.009
Simply Request Strategies			
Healthiness of Food	8.64	161	.004
Squared Family Flexibility	1.51	162	.220
Healthiness of food x Squared Family Flexibility	3.89	161	.050
Children Age	6.39	162	.012

Family Communication. The effect of the two-way interaction among healthiness (Healthy/Unhealthy) of food and squared family communication on the frequency of use of emotional strategies was significant. Children in the families with low level of communication use emotional strategies more frequently, for unhealthy food than for healthy food, than children in the families with high level of communication.

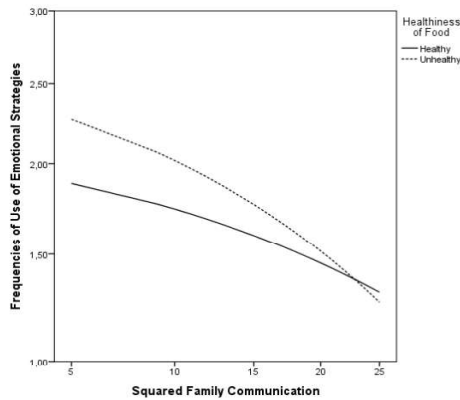


Figure 4. Predicted values for emotional strategies

Table 4. Mixed models result on the effect of the healthiness of food (Healthy/Unhealthy), squared family communication on the child's frequency of use of influence strategies

	F	df	p
Bargaining Strategies			
Healthiness of Food	2.64	162	.106
Squared Family Communication	.00	162	.976
Healthiness of food x Squared Family Communication	.63	162	.428
Children Age	4.05	162	.046
Persuasion Strategies			
Healthiness of Food	5.24	162	.023
Squared Family Communication	2.41	161	.122
Healthiness of food x Squared Family Communication	2.54	162	.113
Children Age	5.26	161	.023
Emotional Strategies			
Squared Healthiness of Food	8.88	160	.003
Family Communication	5.26	161	.023
Healthiness of food x Squared Family Communication	6.15	160	.014
Children Age	7.11	160	.008
Simply Request Strategies			
Healthiness of Food	2.22	161	.137
Squared Family Communication	2.28	163	.132
Healthiness of food x Squared Family Communication	.85	161	.357
Children Age	6.44	163	.012

Effects of Food Healthiness and Family Emotional Climate on the level of Participation in the First Two Stage of Consumer Purchase Decision-Making Process and on the level of Influence

The main effect of the healthiness of food on the level of participation in the first two stage of the consumer purchase decision process was significant. The children express to a greater extent both the need to buy unhealthy food compared to healthy food (M for healthy = 2.30 SD = .07; M for unhealthy = 2.91 SD = .07) and both provides more information when want to influence parents to buy unhealthy foods (M for healthy = 2.22 SD = .08; M for unhealthy = 2.56 SD = .08). In addition, the main effect of the healthiness of food was also significant regarding the level of influence exerted. Children exerts more influence when it comes to influencing the purchase of healthy products than the purchase of unhealthy products (M for healthy = 2.1 SD = .05; M for unhealthy = 1.48 SD = .05).

Interaction between Healthiness of Food and Family Emotional Climate in the First Two Stage of Consumer Purchase Decision-Making Process and on the Level of Influence

Cohesion. The two-way interaction between the healthiness (Healthy/Unhealthy) of food and squared family cohesion on the level of participation in the first stage of the consumer decision process was significant. As showed in Figure 5, in families with low levels of cohesion children's level of participation in the first stage of the consumer purchase decision process is lower for healthy than unhealthy food. Children express the necessity to purchase unhealthy food at higher level. As the family cohesion increases, the participation level in the purchase of healthy food strongly increases while the participation level on the purchase of unhealthy food remains high. In families with high levels of family cohesion, participation level is high for both types of food on this stage.

Table 5. Mixed models explore the effect of the healthiness of food (Healthy/Unhealthy), squared family cohesion, and their interaction on the level of participation in the first two stage of consumer purchase decision making process

	F	df	p
First stage: Need Recognition			
Healthiness of Food	16.65	179	.000
Squared Family Cohesion	5.97	178	.016
Healthiness of food x Squared Family Cohesion	5.15	179	.024
Children Age	.13	173	.718
Second stage: Providing information			
Healthiness of Food	6.90	182	.009
Squared Family Cohesion	11.49	179	.001
Healthiness of food x Squared Family Cohesion	1.92	182	.167
Children Age	.07	178	.787
Level of Influence			
Healthiness of Food	11.64	203	.001
Squared Family Cohesion	.60	209	.439
Healthiness of food x Squared Family Cohesion	.79	204	.374
Children Age	.59	189	.440

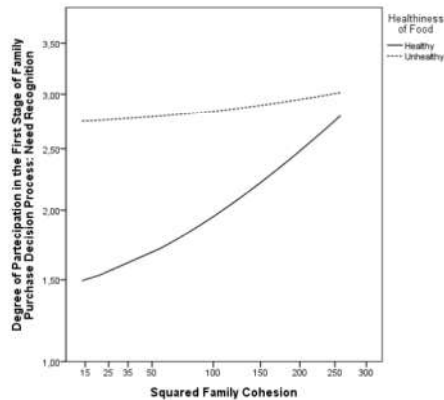


Figure 5. Predicted values of the level of participation of the children in the first stage of the consumer purchase decision process

Flexibility. The two-way interaction between healthiness (Healthy/Unhealthy) of food and squared family flexibility on the participation level in the first two stage of consumer purchase decision making process was significant. As showed in Figure 5, in families with low levels of flexibility the children participate more in the first stage of consumer purchase decision making process for unhealthy food. In families with high levels of family flexibility, the participation level is high for both types of food on this stage.

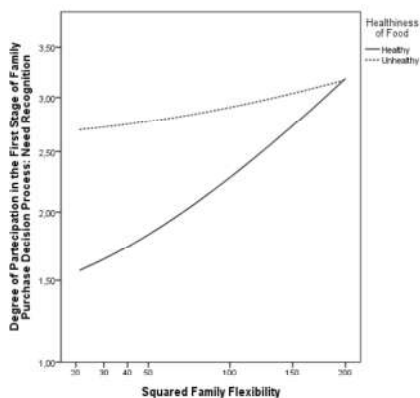


Figure 6. Predicted values for level of participation of the children in the first stage of consumer purchase decision process

Table 6. Mixed models explore the effect of the healthiness of food (Healthy/Unhealthy), squared family flexibility and their interaction on the level of participation in the first two stage of consumer purchase decision making process

	F	df	p
Consumer Purchase Decision Process: Need Recognition			
Healthiness of Food	19.51	179	.000
Squared Family Communication	1.75	178	.187
Healthiness of food x Squared Family Communication	10.04	178	.002
Children Age	.20	172	.652
Consumer Purchase Decision Process: Providing information			
Healthiness of Food	8.22	182	.005
Squared Family Communication	7.59	179	.006
Healthiness of food x Squared Family Communication	4.08	182	.045
Children Age	.02	177	.886
Level of Influence			
Healthiness of Food	1.87	203	.172
Squared Family Communication	1.01	218	.316
Healthiness of food x Squared Family Communication	.13	203	.719
Children Age	.51	191	.474

Communication. The two-way interaction between healthiness (Healthy/Unhealthy) of food and squared family communication on the level of participation in the first stage of the consumer purchase decision making process was significant. Children participate more in the first stage of family purchase decision making for unhealthy food within families with low levels of communication (Cf. Figure 7). In families with high levels of communication, the participation level is similar for both types of food in this stage.

The effect of two-way interaction between healthiness (Healthy/Unhealthy) of food and squared family communication on the level of participation in the second stage of the consumer purchase decision making process was significant. As showed in Figure 8, children participate more in the second stage of family purchase decision making for unhealthy food with families with low levels of communication. They provide more information about unhealthy product than for healthy ones. In families with elevated levels of communication, the participation level is high and similar for both types of food in this stage.

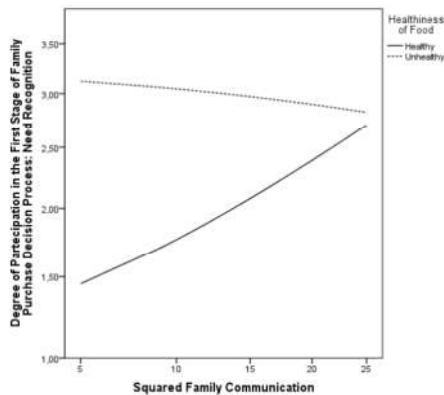


Figure 7. Predicted values for the level of participation of the children in the first stage of family purchase decision making process

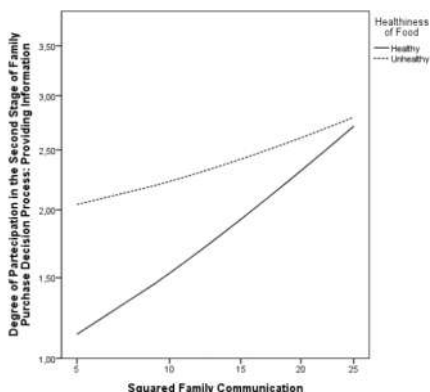


Figure 8. Predicted values for the level of participation of the children in the second stage of family purchase decision process

Table 7. Mixed models explore the effect of the healthiness of food (Healthy/Unhealthy), squared family communication on the level of participation in the first two stage of consumer purchase decision process

	F	df	p
Consumer Purchase Decision Process: Need Recognition			
Healthiness of Food	19.51	179	.000
Squared Family Communication	1.75	178	.187
Healthiness of food x Squared Family Communication	10.04	178	.002
Children Age	.20	172	.652
Consumer Purchase Decision Process: Providing information			
Healthiness of Food	8.22	182	.005
Squared Family Communication	7.59	179	.006
Healthiness of food x Squared Family Communication	4.08	182	.045
Children Age	.02	177	.886
Level of Influence			
Healthiness of Food	1.87	203	.172
Squared Family Communication	1.01	218	.316
Healthiness of food x Squared Family Communication	.13	203	.719
Children Age	.51	191	.474

Discussion

The aim of the present study was to investigate the children behavior concerning the purchase of healthy and unhealthy foods within the household. Specifically, it investigated the frequency of use of the influence strategies identified by Palan and Wilkes (1997), the participation level in the first two stages of the consumer purchase decision-making process (Lee & Beatty, 2002), and the influence level exerted change according to the healthiness of the food and the emotional family climate. Our study added to the body of evidence supporting the idea that children actively influence the purchase products for their use (Foxman & Tansuhaj, 1988).

Results showed how the frequency of use of influence strategies differed when children tried to influence the purchase of healthy or unhealthy food. The frequency of use of one influence strategy was strongly associated with the frequency of use of the other influence strategies. In other words, children try to influence their parents to buy food persistently by using all strategies anyway.

Our findings highlighted how the frequency of use of persuasive and bargaining strategies (e.g., pulling in friends or offering to do something in exchange for buying food) was higher for unhealthy foods. These results are consistent with the study by Arttachariya (2009) which found greater use of persuasive strategies by the child to influence the purchase of unhealthy products. It can be possible that the high frequency of use of persuasive and bargaining strategies reported for unhealthy food was a consequence of the fact that most children prefer unhealthy foods over healthy ones (McNeal, 1987; Nørgaard *et al.*, 2007). Parents also may tend to be reluctant to buy these types of foods making children more effort to try to convince parents as they have learned that these have greater effectiveness (Götze *et al.*, 2009, Thomson *et al.*, 2007). Increased use of emotional strategies for healthy foods, on the other hand, maybe be due to a similar reason. In other words, when children want to influence parents to purchase of healthy foods, they use emotional strategies (i.e., make the parent feel guilty) more frequently, which are used more by younger children and not to be as effective as persuasive or bargaining strategies (Kerrane *et al.*, 2012).

Regarding the family influence and decision-making, previous study found how the levels of family cohesion and flexibility relates to cognitive skill development. Specifically, Lin *et al.* (2019) found how levels of family cohesion positively predicted cognitive and decision-making, while levels of flexibility were negatively associated with the development of logical and reasoning skills. In line of this study, our results suggested that the frequency of the use of influence strategies varied with the family's emotional climate, especially concerning unhealthy foods. Children from families with low levels of cohesion more frequently used less effective influence strategies such as emotional (i.e., complaining, getting angry, or making parents feel guilty), supporting the fact that in this type of family it is difficult to address problems that arise through virtuous discussions among members (Olson, 2000).

Regarding the impact of family flexibility, previous studies highlighted a positively associated with decision-making abilities and the development of cognitive skills, i.e., Lin *et al.* (2019) showed how low levels of flexibility were associated with better cognitive functioning and better decision-making skills (Lin *et al.*, 2019) and higher levels of flexibility were associated with poorer cognitive skills.

However, our findings shown how the frequency of use of influence strategies for healthy products does not change as levels of flexibility change, as opposed to unhealthy products. Regarding unhealthy products for instance, we found that at low levels of flexibility, i.e., in rigid and controlling families, children were more likely to use persuasive and simple demand strategies (such as insisting and pressuring friends) more frequently. In this sense, children may ask insistently to obtain the purchase of a desired unhealthy product in this kind of families.

Considering the link between family communication and cognitive abilities (e.g., Patrikakou, 2004), our study farther suggested how children from families with low levels of communication used emotional and persuasive strategies more frequently, but only for unhealthy products. Low levels of communication within the household are associated with poor problem-solving skills (Olson, 2000) and this is probably because children use more emotional strategies, (e.g., making parents feel guilty), and persuasive strategies (e.g., insisting on a particular product).

Regarding the participation level in consumer purchase decision-making, our results suggested how children seek to exert more influence over the products intended for them and work harder to get them the more they want them (Nørgaard *et al.*, 2007; McNeal, 1992). Our results suggested how the children participate more in purchasing decision-making when they want to influence the purchase of unhealthy products. Children also emphasized the need to purchase food and provided more information about it when it was unhealthy food. This may be because, as shown in the literature (McNeal, 1992; Nørgaard *et al.*, 2007), In line with the literature (Aluvala & Varkala, 2020; Baldassarre *et al.*, 2016; Buijzen & Valkenburg, 2008), children may be more involved in decision-making when they want to influence the purchase of the products that they want most. Besides, children in the families with low levels of family cohesion participated more in the first stage of the family purchase decision-making process for unhealthy food. In line with the Olson's (2000) model, family cohesion may correspond to higher levels of member independence, and to the fact that families' members have difficulty supporting each other and discussing problems. Regarding the levels of family communication eventually, our findings showed that children in families with low levels of communication participated more in both the first and second phases of the purchasing process, but only regarding unhealthy food. Considering that high levels of communication within the family are associated with proper problem-solving skills, empathy, and shared of interests (Olson, 2000; Olson *et al.*, 1979), it can be deduced that the lack of these skills causes the children to express

the need to buy (1st stage) and provide information (2nd stage) only for those foods that they want most (Nørgaard *et al.*, 2007; McNeal, 1992).

Despite the strengths of the current study, some limitations should be considered when interpreting the results: the use of self-report questionnaires is subject to social desirability effects. Future studies could use implicit tools for instance. This kind of tools are more accurate than self-reports and can provide information as poor from social desirability. Furthermore, the geographic context and the size of the sample does not allow for generalizing the results obtained to a larger population. Future research could test the cross-cultural structure connected to these aspects in predicting decision in purchasing healthy vs. unhealthy food, considering the time of day when parents and children go shopping, parental stress and anxiety levels for instance, using a longitudinal design also.

Conclusion

This study investigates both the amount and how children attempt to influence their parents to buy healthy and unhealthy foods. The contribution made by this study is twofold: try to shift the focus of research on family consumption from an individualistic approach, where only the perspective of one of the family members is considered, to a contextual considering the family emotional climate is considered and conceptualize the intrafamilial processes that lead to the emergence of influence strategies and consumption behaviors. This study contributes to understanding the key role of the family participation during the purchase decision-making, how children participate into it, including the levels of family cohesion, flexibility, and communication within family. Therefore, this study could suggest the importance of considering the quality of family member's interactions in purchasing food, by expanding specific food policies that include together children and parents.

Ethical Approval

The study was approved by the ethical committee of the Department of Neurosciences, Imaging and Clinical Sciences – University “G. D’Annunzio” of Chieti-Pescara - and was conducted according to American Psychological Association guidelines in accordance with the 1964 Helsinki Declaration.

References

- Aluvala, D., & Varkala, D. (2020). A Study on Impact of Pester Power on Purchase Behaviour of Select FMCG Products in Hyderabad. *International Journal of Management*, 11(9).
- Annunziata, D., Hogue, A., Faw, L., & Liddle, H. A. (2006). Family Functioning and School Success in At-Risk, Inner-City Adolescents. *Journal of Youth and Adolescence*, 35(1), 100-108, DOI: 10.1007/s10964-005-9016-3.
- Arttachariya, P. (2009). The relationship between Thai parental styles, children's influence strategies and parental decisions for processed snacks. *AU Journal of Management*, 7(1), 1-14.
- Atkin, C. K. (1978). Observation of parent-child interaction in supermarket decision-making. *Journal of marketing*, 42(4), 41-45, DOI: 10.2307/1250084.
- Baldassarre, F., Campo, R., & Falcone, A. (2016). Food for kids: How children influence their parents' purchasing decisions. *Journal of Food Products Marketing*, 22(5), 596-609, DOI: 10.1080/10454446.2016.1141143.
- Bao, Y., Fern, E. F., & Sheng, S. (2007). Parental style and adolescent influence in family consumption decisions: An integrative approach. *Journal of Business Research*, 60(7), 672-680, DOI: 10.1016/j.jbusres.2007.01.027.
- Basu, R., & Sondhi, N. (2014). Child socialization practices: Implications for retailers in emerging markets. *Journal of Retailing and Consumer Services*, 21(5), 797-803, DOI: 10.1016/j.jretconser.2014.06.008.
- Belch, M. A., Krentler, K. A., & Willis-Flurry, L. A. (2005). Teen internet mavens: influence in family decision making. *Journal of Business Research*, 58(5), 569-575, DOI: 10.1016/j.jbusres.2003.08.005
- Brown, J. E., & Mann, L. (1990). The relationship between family structure and process variables and adolescent decision making. *Journal of adolescence*, 13(1), 25-37, DOI: 10.1016/0140-1971(90)90039-a
- Buijzen, M., & Valkenburg, P. M. (2008). Observing purchase-related parent-child communication in retail environments: A developmental and socialization perspective. *Human Communication Research*, 34(1), 50-69, DOI:10.1111/j.1468-2958.2007.00313.x
- Erasmus, A. C., Boshoff, E., & Rousseau, G. G. (2001). Consumer decision-making models within the discipline of consumer science: a critical approach. *Journal of Consumer Sciences*, 29, DOI:10.4314/jfec.v29i1.52799
- Flurry, L. A. (2007). Children's influence in family decision-making: Examining the impact of the changing American family. *Journal of Business Research*, 60(4), 322-330, DOI: 10.1016/j.jbusres.2006.09.029
- Foxman, E. R., & Tansuhaj, P. S. (1988). Adolescents' and mothers' perceptions of relative influence in family purchase decisions: patterns of agreement and disagreement. *ACR North American Advances*.
- Götze, E., Prange, C., & Uhrovská, I. (2009). Children's impact on innovation decision making: a diary study. *European Journal of Marketing*, DOI: 10.1108/03090560910923328
- Gram, M., & Grønhøj, A. (2016). Meet the good child. 'Childing' practices in family food co-shopping. *International Journal of Consumer Studies*, 40(5), 511-518, DOI: 10.1111/ijcs.12295.

- Grossbart, S., Carlson, L., & Walsh, A. (1991). Consumer socialization and frequency of shopping with children. *Journal of the Academy of Marketing Science*, 19(3), 155-163, DOI: /10.1007/BF02726492
- Hota, M., & Bartsch, F. (2019). Consumer socialization in childhood and adolescence: Impact of psychological development and family structure. *Journal of Business Research*, 105, 11-20, DOI:10.1016/j.jbusres.2019.07.035.
- John, D. R. (1999). Consumer socialization of children: A retrospective look at twenty-five years of research. *Journal of consumer research*, 26(3), 183-213, DOI: 10.1086/209559.
- John, D. R. (2008). Stages of consumer socialization: The development of consumer knowledge, skills, and values from childhood to adolescence. *Handbook of consumer psychology*, 221, 246.
- Joy, A., & Koshy, M. P. (2018). Parental consumption pattern-Children as change Agents. *ZENITH International Journal of Business Economics & Management Research*, 8(3), 53-59.
- Kaur, P., & Singh, R. (2006). Children in family purchase decision making in India and the West: A review. *Academy of marketing science review*, 2006, 1.
- Keller, M., & Ruus, R. (2014). Pre-schoolers, parents and supermarkets: co-shopping as a social practice. *International Journal of Consumer Studies*, 38(1), 119-126, DOI:10.1111/ijcs.12073.
- Kerrane, B., Hogg, M. K., & Bettany, S. M. (2012). Children's influence strategies in practice: Exploring the co-constructed nature of the child influence process in family consumption. *Journal of Marketing Management*, 28(7-8), 809-835, DOI: 10.1080/0267257X.2012.698633.
- Lawlor, M. A., & Prothero, A. (2011). Pester power—A battle of wills between children and their parents. *Journal of Marketing Management*, 27(5-6), 561-581, DOI: 10.1080/0267257X.2010.495281.
- Lee, C. K., & Beatty, S. E. (2002). Family structure and influence in family decision making. *Journal of consumer marketing*, DOI: 10.1108/07363760210414934.
- Lin, W. H., & Yi, C. C. (2019). The effect of family cohesion and life satisfaction during adolescence on later adolescent outcomes: A prospective study. *Youth & Society*, 51(5), 680-706, DOI: 10.1177/0044118X17704865.
- Loriedo, C., Di Nuovo, S., & Visani, E. (2013). FACES IV: Reliability and validity in an adult Italian sample. *Minneapolis, MN. Life Innovations*, DOI:10.13140/2.1.1866.1447.
- Lustig, D., & Xu, Y. (2018). Family-of-origin influence on career thoughts. *The Career Development Quarterly*, 66(2), 149-161, DOI: 10.1002/cdq.12129.
- Marquis, M. (2004). Strategies for influencing parental decisions on food purchasing. *Journal of Consumer Marketing*, 21(2), 134-143, DOI: 10.1108/07363760410525696.
- Martensen, A., & Grønholdt, L. (2008). Children's influence on family decision making. *Innovative Marketing*, 4(4).
- McNeal, J. (1992). *Kids as Customers*. New York: Lexington.
- McNeal, J. U. (1987). *Children as consumers. Insights and Implications*. Lexington Books.
- Moschis, G. P., & Churchill Jr, G. A. (1978). Consumer socialization: A theoretical and empirical analysis. *Journal of marketing research*, 15(4), 599-609, DOI: 10.2307/3150629.

- Moschis, G. P., Prahasto, A. E., & Mitchell, L. G. (1986). Family communication influences on the development of consumer behavior: Some additional findings. *ACR North American Advances*.
- Nørgaard, M. K., Bruns, K., Christensen, P. H., & Mikkelsen, M. R. (2007). Children's influence on and participation in the family decision process during food buying. *Young Consumers*, DOI: 10.1177/147078531987237.
- Olson, D. H. (1986). Circumplex model VII: Validation studies and FACES III. *Family process*, 25(3), 337-351, DOI: 10.1111/j.1545-5300.1986.00337.x.
- Olson, D. H. (1999). Empirical approaches to family assessment. *Journal of family therapy*, 22(4), 447-449.
- Olson, D. H., Gorall, D. H., & Tiesel, J. W. (2007). *FACES IV and the Circumplex Model: Validation study*. Minneapolis, MN: Life Innovations, DOI: 10.1111/j.1752-0606.2009.00175.x.
- Olson, D. H., Sprenkle, D. H., & Russell, C. S. (1979). Circumplex model of marital and family systems: I. Cohesion and adaptability dimensions, family types, and clinical applications. *Family process*, 18(1), 3-28, DOI: 10.1111/j.1545-5300.1979.00003.x.
- O'Malley, L., & Prothero, A. (2007). Contemporary families and consumption [Editorial]. *Journal of Consumer Behaviour*, 6(4), 159-163, DOI: 10.1002/cb.218.
- Palan, K. M., & Wilkes, R. E. (1997). Adolescent-parent interaction in family decision making. *Journal of Consumer Research*, 24(2), 159-169, DOI: 10.1086/209501.
- Patrikakou, E. (2004). *Adolescence: Are parents relevant to students' high school achievement and postsecondary attainment*. Harvard Family Research Project.
- Peterson, G. W., & Rollins, B. C. (1987). Parent-child socialization. In *Handbook of marriage and the family* (pp. 471-507). Springer, Boston, MA, DOI: 10.1007/978-1-4615-7151-3_18.
- Rozendaal, E., Buijzen, M., & Valkenburg, P. (2009). *Do children's cognitive advertising defenses reduce their desire for advertised products?*, DOI:10.1515/COMM.2009.018.
- Rust, L. (1993). Parents and children shopping together: A new approach to the qualitative analysis of observational data. *Journal of Advertising Research*, 33(4), 65-71.
- Selman, R. L. (1975). Level of social perspective taking and the development of empathy in children: Speculations from a Social-Cognitive viewpoint. *Journal of Moral Education*, 5(1), 35-43, DOI: 10.1080/0305724750050105.
- Shoham, A., & Dalakas, V. (2006). How our adolescent children influence us as parents to yield to their purchase requests. *Journal of Consumer Marketing*, DOI: 10.1108/07363760610701887.
- Swinyard, W. R., & Sim, C. P. (1987). Perception of children's influence on family decision processes. *Journal of Consumer Marketing*, DOI: 10.1108/eb008186.
- Talpade, S., & Trilokekar-Talpade, M. (1995). Development of a multi-item scale to measure teenager influence on family purchase decisions: An exploratory study. *Journal of Marketing Theory and Practice*, 3(4), 41-57, DOI: 10.1080/10696679.1995.11501705.
- Thaichon, P. (2017). Consumer socialization process: The role of age in children's online shopping behavior. *Journal of Retailing and Consumer Services*, 34, 38-47, DOI: 10.1016/j.jretconser.2016.09.007.
- Theiss, J. A. (2018). Family communication and resilience. *Journal of Applied Communication Research*, 46(1), 10-13, DOI: 10.1080/00909882.2018.1426706.

- Thomson, E. S., Laing, A. W., & McKee, L. (2007). Family purchase decision making: Exploring child influence behaviour. *Journal of Consumer Behaviour: An International Research Review*, 6(4), 182-202, DOI: 10.1002/CB.220.
- Valkenburg, P.M. & Cantor, J. (2000). *The development of a child into a consumer*, *Journal of Applied Developmental Psychology*, 22(1), 61-72, DOI: 10.1016/S0193-3973(00)00066-6.
- Ward, S. (1974). Consumer socialization. *Journal of consumer research*, 1(2), 1-14, DOI: 10.1086/208584.
- Ward, S., Wackman, D., & Wartella, E. (1977). The development of consumer information-processing skills: Integrating cognitive development and family interaction theories. *ACR North American Advances*.
- Wisnblit, J. Z., Priluck, R., & Pirog, S. F. (2013). The influence of parental styles on children's consumption. *Journal of Consumer Marketing*, DOI: 10.1108/JCM-02-2013-0465.