



Analysis of age differences in the risk perception of food additives: Results of focus group interviews

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Abstract. Hungarian consumers have a high level of worry about food additives, which shows differences according to various socio-demographic factors like age. Focus group interviews were conducted in order to analyse different age groups' risk perception as well as to recognize their knowledge, opinions and their information sources about food additives. Results revealed that young adults (18–24 yrs.) and elderly people (over 45 yrs.) did not care about foodstuff label information, including additives and “E-numbers”. Adults' (25–44 yrs.) shopping decisions were influenced by the ingredients (e.g. carbohydrates, gluten and additives); however, their exact knowledge about the avoided components was limited. Group members were able to list a number of negative information and food-related scandals, but just a few were acquainted with food additives (aspartame, guar gum). The main source of information about foodstuffs and additives is the Internet. Youths show negligent attitude

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regarding food additives, adults try to pay attention to the composition of their foodstuffs, while elderly people try to return to home-made production and preservation methods. Mistrust against foodstuffs and producers as well as the demand for accurate information is common. This can be decreased with the understandable and truthful information and furthermore with the indication of the proper sources.

1 Introduction

Only 64.4% of the Hungarian consumers believe that foodstuffs present on the market are safe (*Eurobarometer*, 2011), and most of them (82%) think that foods and drinks might contain chemicals (*Eurobarometer*, 2013). Hungarian consumers have a high worry about food additives (*Eurobarometer* 2006a, 2010; *Szűcs et al.*, 2012), in which the negative (e.g. polluted guar gum, colourings can cause hyperactivity (*McCann et al.*, 2007), carcinogenic sweeteners) and often enhancing effect of misleading media news may have a dominant role (*Kasza*, 2009). Due to this, consumers tend to change their consumption behaviour (e.g. change a shop or a product) (*Eurobarometer*, 2011). Furthermore, Hungarian consumers have ambiguous knowledge about food additives (*Tarnavölgyi*, 2003, 2004; *Szűcs & Bánáti*, 2010a; *Szűcs et al.*, 2012). For example, only 61.8% of them know correctly that every food additive can be linked to an “E-number” (*Szűcs et al.*, 2012). This may be due to the fact that they use inadequate information sources. As a result, these Hungarian consumers conceive that avoidance of food additives is part of the healthy diet (*Eurobarometer*, 2006b), and their shopping decisions are significantly influenced by the presence of food additives (*GfK*, 2007; *Marián et al.*, 2011; *Marketing Info*, 2013). Consumers’ uncertainty is verified by the fact that almost more than half of them trust in independent consumer organizations (66.5%), public authorities (68.5%) and that sellers/providers (61.4%) protect and respect their rights (*Eurobarometer*, 2011).

Risk perception of food additives shows differences according to the socio-demographic factors. A number of studies have stated that males (*Dosman et al.*, 2001; *Eurobarometer*, 2006a; *Dickson-Spillmann et al.*, 2011), youthful (*Eurobarometer*, 2006a; *Food Standard Agency*, 2010; *Szűcs et al.*, 2012), highly educated (*Kajane & Pirtillä-Backman*, 1999) and well-off people (*Dosman et al.*, 2001) perceive a lower level of risk in the case of food additives.

The aim of the present study was to analyse different age groups’ risk perceptions regarding food additives as well as to recognize their knowledge, opinions and information sources about this topic.

2 Materials and methods

In order to analyse our targets, focus group interviews were conducted with the help of three age-homogenous groups: young adults (18–24 years), adults (25–44 years) and elderly people (over 45 years). The separation of these age groups can be justified by the fact that these three groups use and accept different information sources as authentic concerning healthy nutrition (*Szűcs et al.*, 2010b; *Szakály*, 2011); furthermore, it was assumed that members of the same age range can communicate easier with each other (*Vicsek*, 2006). There were six members in each focus group, and they were mixed regarding genders and place of residence (capital and countryside). The interviews were semi-structured and the guidelines were planned ahead. Besides the raising of questions, word associations were also applied. This helps to form the feeling of active participation, gives energy, entertains the respondents and contributes to their “warming up” (*Gordon & Langmaid*, 1997). In order to explore the knowledge and to recognize differences between the associations about “E-numbers” and food additives, different questions were asked. Data analysis was conducted with a rapid method on the basis of the notes taken during the interviews (made by a note maker). The voice recordings were checked again to refine the citations. After the conversation, the note maker and the moderator briefly evaluated the interview (“debrief”) (*Vicsek*, 2006) in order to be taken into consideration during the data analysis. The word associations were analysed quantitatively, while other data were evaluated by qualitative content analysis.

3 Results

Factors effecting the shopping decisions

Young adults pay attention to the composition of foodstuffs. Some of them avoid certain substances (e.g. trans fatty acids), while others avoid well-specified food additives (e.g. aromas, colourings). The importance of the price–value ratio was mentioned only in one case. Enriching of the foodstuffs (e.g. with vitamin E) is not important for them.

“I avoid colourings if I can, but it is difficult.” (young adult)

“Do not contain smoke aroma!” (young adult)

Amongst the influencing factors, adults have also alluded certain substances like carbohydrates, gluten and ‘E-numbers’ as well as the price–value ratio.

The importance of packaging was mentioned in many cases. If the packaging is attractive for them, they are ready to pay more for that foodstuff. The expiration date and the origin (importance of Hungarian product) were mentioned in one case.

“It is hard to avoid ‘E-numbers,’ they are present in everything.”
(adult)

“I check what kind of ‘E’-s are there in it.” (adult)

The foodstuff shopping decisions of the elderly people are strongly influenced by the price. Ingredients were also mentioned many times; however, they noted that they are not always able to read the small letters on the labels. The origin of the foodstuffs is also a significant characteristic. The Hungarian products are more attractive for them, mainly in the case of fruits and vegetables.

“My glasses are not strong enough to see the ingredients.” (elderly).

“If I can choose, first of all, let it be Hungarian.” (elderly).

Associations and feelings regarding the “E-numbers”

The associations were grouped into six topics in order to facilitate their analysis. Young adults and elderly people linked “E-numbers” to food additives. The preservation effect of food additives was mentioned in all three interviews; furthermore, the colourings in the case of young adults and elderly people. A number of allusions referring to the harmful health effects and their uncertainty occurred many times amongst the young adults and adults, while less often amongst the elderly people. Additionally, a common observation was the query of their utilization’s reasonableness (*Table 1*).

“Not all of them are bad or harmful.” (young adult)

“In order to decide, it has to be known which one is which and what kind of effect they have. But this is impossible because there are a lot.” (young adult)

“There are changing and diverse information about them.” (adult)

“There are too much negative beliefs about them.” (adult)

“Negative feelings because the media enhance these.” (elderly)

“Eventually harmful substances should not be put in it.” (elderly)

Table 1: Associations and feelings of the age groups regarding “E-numbers”

Young adults	Adults	Elderly	Topics
“food additives” “abbreviation of substances”	“grouping” “product improver”	“food additives”	Meaning
“preservative” “colouring”	“preservation” “flavour enhancer”	“colouring” “preservative” “aroma”	Technological function
“can be harmful or not harmful” “carcinogenic” ”some of them are bad for the body”	“unhealthy” “there are some harmless ones” “harmful” “can cause hyperactivity” “risk”	“not all of them are harmful”	Health effect
“unknown effect” “negative”	“not understandable” “incomprehensive” “claptrap” “influencing” “mixed information” “uncertainty”	“mystic”	Uncertainty
“too much does not mean good” “must not buy products with too much ‘E’-s” “some of them is necessary” “bad but necessary”	“unnecessary” “artificial”	“good or bad, but necessary” “the less the better” “can be natural or artificial”	Judgement of their utilization
”I do not care about it”	–	“not important to me” “I do not care about it”	Neutrality

Associations and feelings regarding “food additives”

The connections of food additives and “E-numbers” were mentioned several times by the elderly participants. There was one person from the young adults who felt that food additives were more positive than “E-numbers,” while among the adults just the opposite was mentioned. Most of the associations were oriented towards the judgement of utilization and the technological functions of food additives. Utilization of food additives is not reasonable according to the participants. They feel that there are marketing aims, economic pressure and commercial needs behind their application.

Young adults feel that they are cheated because foodstuffs are modified by the additives like fruit yogurt without fruit, frankfurter which contains more soya than meat, ham which is coloured by artificial pickle. Adults consider food additives as artificial substances. During the interview with elderly people, the question came up that it was not necessary to buy foodstuffs containing additives; at home, you can prepare them without these (*Table 2*).

“Today, everything is too convenient and most of the food additives are in the ready-to-eat foods.” (young adult)

“We do not think that natural substances are applied nowadays.” (adult)

“If you do not like something, do it on your own.” (elderly)

Opinions about food additives

Food additives are harmful to health and risky substances according to the young adults. This is due to the lack of information on them. A member of the group mentioned that there are some food additives which have favourable effects; however, in the case of unknown components, they are ambiguous. They get their information from talking with their friends and from the Internet; however, they are not always sure in the truthfulness of the sites. Young adults are distrustful of producers. The opinion of the authorities is more acceptable for them. Independence is the most important in authenticity.

“More information is needed to decide about their harmfulness.” (young adult)

“The opinion of a professional is not always believable because you can never know what her/his position is linked to.” (young adult)

The application of food additives is not reasonable according to the adults.

Table 2: Associations and feelings of the age groups regarding “food additives”

Young adults	Adults	Elderly	Topics
“E-number” “only small amount of food components” “less negative than ‘E-numbers’”	“broad phrasing” ‘worst than the ‘E-numbers’” “product improver”	“E-numbers”	Meaning
“make products more appealing to the eye” “revise foodstuffs” “influence product characteristics” “stabilizers” “flavour enhancer”	“flavour enhancer” “preservative”	“improve/modify product characteristics”	Technological function
–	“unknown/not evidenced effect”	–	Health effect
–	“unknown”	“not sure that necessary”	Uncertainty
“ready-to-eat products” “unnecessary marketing aims”	“artificial” “not natural” “obligatory standard” “false/appearance/synthetic” “economic pressure/lobby”	“advance” “trade necessity” “not just in foodstuffs” “unnecessary” “unavoidable” “understandable”	Judgement of their utilization
–	–	“not important to me”	Neutrality

It is directed by economic reasons, and the aim is the rapid and cheap food production. Unhealthy effects of food additives were mentioned. The advantage of their utilization is that the storage life of the foodstuffs becomes longer. They try to avoid food additives mainly if they buy a foodstuff for their children. In the media, they continuously meet negative and contradictory news. Their main information source is the Internet, but the authenticity of the sites can be queried. Truth and reliable (e.g. trade, producers) information is missed.

“We continuously meet the negative information from the media.”
(adult)

“Probably they say today that it is healthy and after five years that they are not.” (adult)

The health risk of food additives according to elderly participants is mixed; however, they agree that children have to avoid these substances. Utilization of food additives is associated with mass production; thus, it is thought to be reasonable. As a disadvantage, it came up that consumers are damaged by their application as well as it can aggregate in the case of composite foodstuffs. However, they do not feel that they are cheated because everything is on the label. If they are interested in a concrete additive, they search it on the Internet, but they are not sure that the obtained information is always reliable.

“Foodstuffs cannot be produced without food additives in the mass production.” (elderly)

“Theoretically, the composites are written on it.” (elderly)

Perception of food scandals

In the course of the interviews, participants could recall only two scandals regarding food additives: the guar gum and the aspartame (however, much more in connection with foodstuffs). Food sophistications like meat (e.g. horse, beef), Hungarian red paprika and infant nutrition (melamin) were mentioned in all groups as well as the negative news about fast food restaurants (McDonald's) as among the young adults and adults. The main source of information in these topics is the TV, while in the case of the elderly people the newspaper was also mentioned.

The shopping decisions of the young adults and adults are strongly influenced by these media news; they avoid the named foodstuffs. The main reason of this is that they do not believe in the recall of the problematic products and they feel that the references are not independent and creditable enough (*Table 3*).

Table 3: Allusions regarding food scandals

Young adults	Adults	Elderly	Topics
“guar gum”	“guar gum” “aspartame”	“aspartame”	Food additives
“infant nutrition/melamine”	“McDonald’s”	“red paprika”	Other
“meat colouring (beef from pork)”	“chocolate santa”	“Chinese milk powder”	
“hygienic problems”	“beef sophistication”	“meat sophistication”	
“horse meet”	“horse meet scandal”	“beef sophistication”	
“trans fatty acids”	“cucumber scandal”	“cinnamon”	
“red paprika”	“organic product re-labelling”	“re-labelling”	
“McDonald’s”	“red paprika”	“horse meet scandal”	
“soya in infant nutrition”	“egg content of pastas”	“dioxin scandal”	
	“colouring of eggs”	“honey sophistication”	
	“animal traces in bread”	“wine sophistication”	
	“infant nutrition”	“syrup sophistication”	
	“mad cow disease”		

“It remains as a bad feeling.” (young adult)

“Other name is given to the foodstuffs, e.g. milk – morning drink, coffee – chicory coffee.” (adult)

Elderly people believe in the recall of the objected products; thus, their shopping habits are not influenced by these scandalous items of news. However, the accurate information is prominently important for them, while they also miss the appropriate punishment of the producers.

“Punishment does not have enough retentiveness.” (elderly)

4 Conclusions

The conducted focus group interviews pointed out many differences and identities among the age groups. The composition of the foodstuffs appeared as a remarkable factor in the shopping decision in all groups. However, the importance of food additives and “E-numbers” – contrary to other studies (*GfK*, 2007; *Marián et al.*, 2011; *Marketing Info*, 2013) – were mentioned only by the young adults and the adults. Elderly people showed a price-sensitive attitude.

The conception of “E-number” evoked health damaging and ambiguous feelings in the case of young adults and adults, while in the case of elderly people this was not so typical. Verifying the results of previous studies (*Tarnavölgyi*, 2003, 2004; *Szűcs & Bánáti*, 2010a; *Szűcs et al.*, 2012), participants had uncertain knowledge about food additives; there were queries about their application necessity, and it was a common view. Adults felt that food additives are artificial substances.

Respondents could not separate negative news about food additives from food scandals. According to this, it can be noted that – in spite of the uncertainty and negative feelings about food additives – they do not pay too much attention to negative news about food additives; they simply treat them as negative information about foodstuffs.

Furthermore, as a difference between the age groups, it can be stated that while young adults and adults try to avoid foodstuffs involved in negative news – as it was found in the survey of the *Eurobarometer* (2011) –, elderly people prefer home-made food production and think of it this as a solution. Mistrust against consumer organizations, authorities and producers was noticeable among the young adults and the adults (*Eurobarometer*, 2011).

Elderly respondents showed a lower level of worry about food additives, which is not in line with the results of the literature (*Eurobarometer*, 2006a;

Food Standard Agency, 2010; Szűcs et al., 2012).

Common mistrust found in the course of the interviews can be explained by the questionable reliability of the media news as well as by the utilization of improper information sources. In order to increase consumers' trust – which will lead to the decrease of consumers' risk perception –, the accurate information as well as the appropriate and truthful references have to be treated with a high priority. Further analysis of the topic is reasonable to identify additional differences and features of the age groups.

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