POLISH CONSUMER ATTITUDES AND BEHAVIOUR TOWARDS MEAT SAFETY RISK

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The aim of this study was to examine the perception of risk related to the presence of chemical hazards in meat and to establish the relationship between the risk perceived by Polish consumers and applied methods of its reduction, as well as the likelihood of recurring meat purchases. The research was carried out on a representative sample of 1075 respondents from Warmia and Mazury region. A quota sampling method was used with gender, age and educational level. The survey instrument consisted of three parts with questions assessing: risk perception, risk reducing strategies and likelihood of purchasing meat.

The research revealed that the risk perceived by Polish consumers was reflected in decisions concerning meat purchase. It was shown that assumptions of the perceived risk theory applied in the marketing theory of consumer purchasing behaviour can be used in the context of threat to the health safety of food. Guaranteed quality of meat is very important for purchasers since it provides a guarantee of a proper safety level. The research indicated that good branding can be one of the most effective strategies for meat producers, since in the opinion of consumers it is associated with high product quality and represents a low threat to consumer health safety.

INTRODUCTION

Due to the fact that consumer health is the highest priority, monitoring research concerning the level of chemical contaminants in food products, including meat and its products, is highly significant. This research makes it possible to establish the sources and causes of contaminants, which facilitates the efficient prevention of hazards to consumer health. It has been particularly important in recent years, when consumers' trust in meat and its products was abused by various scandals related to the contamination of these products. The results of research conducted by various authors confirm that consumers' perception of hazards related to food significantly affects their purchasing decisions, particularly during the occurrence of "food scandals". These events had a certain effect on consumer purchasing behaviour and on the reliability and reputation of the entire supply chain [Baker, 2003; Becker *et al.*, 2000; Hume, 2001; Knowles *et al.*, 2007].

Currently, consumers expect not only a wide choice of price-competitive, convenient and highly processed food products, but also fresh and tasty food with high nutritional values, but above all – safe food. They are not only the final recipients of food which they choose and for which they pay, but they also bear the entire risk of health and economic consequences related to its consumption [Ozimek, 2006a, b].

Risk in the context of consumer purchasing decisions is a kind of uncertainty which they meet when they cannot foresee important consequences of making a decision about the purchase of a product. They perceive the threat of a wrong decision and are afraid that consequences could be unfavourable for them, including *e.g.* loss of money, prestige, time and being an object of ridicule. Purchase risk perceived by the consumer is of a subjective character and is closely related to their psyche [Rudnicki, 2000]. In the face of risk, consumers use various methods to minimize it. As research has shown [Erevelles, 2001; Górska-Warsewicz, 2003; Krystallis & Chryssohoidis, 2005; Miller & Unneverhr, 2001], consumers perceive a higher price as a guarantee of quality of purchased products. It can be supposed that in the case of food, a reduction of prices does not have a positive effect on risk perception by consumers.

The quality assessment of a product by consumers is also affected by the familiarity with its brand [Górska-Warsewicz, 2003]. While purchasing a product of a specific brand, the consumer is aware of what quality and sensory values can be expected [Górska-Warsewicz, 2001]. As was observed by Tse [1999], perception of product safety is also related to the perceived quality of the brand, which is a combination of product features, price, brand, name of the shop, trust towards the producer and previous experience of the person testing the product.

A study by Ozimek *et al.* [2009] showed that Polish consumers are aware of the occurrence of certain threats in the food chain, especially associated with the use of bone meal in animal feeds and the use of chemical plant protection agents.

In the context of food-related hazards, researchers focus first of all on risk perception by consumers in relation to health aspects and product safety. However, there is little research considering the risk related to purchasing decisions of meat

consumers. Therefore, the aim of this study was to analyse the relationship between risk perception and strategies designed to reduce it as well as the relationship between the perception of chemical hazards in meat and the future likelihood of purchases.

MATERIALS AND METHODS

The research sample comprised 1075 respondents from Warmia and Mazury region. Face-to-face interviewing technique was used to collect data for the study. A regional representative sample of adults was undertaken with quotas for age, educational level and gender (these quotas reflected the distribution of the population of Poland's northeast region).

The sampling points for this research were randomly generated and respondents were surveyed at each sampling point location. Through this process each area in North East Poland had an equal chance of being selected and the population demographics were mirrored in the sample. All respondents were responsible for meat purchasing within their household and were a regular consumer of meat. The interviews were conducted in the homes of the respondents.

To ensure validity and relevance of the items included, the questionnaire was piloted (n=100) prior to the commencement of data collection. A quota sampling methods was used with gender, age and educational level. The demographic characteristics of the respondents are shown in Table 1.

The survey instrument consisted of four parts. The first part concerned questions assessing risk perception. Based on dimensions reported in the literature health, psychological, financial and time risks were included. Three indicators were used to capture health and psychological risks, two for financial risk and one for time risk [Yeung & Morris, 2006]. For each of the loss components of perceived risk, seven point Likert scales were used, where 1 represented the terms 'very unlikely' and 7 represented 'very likely' for probability and 'not at all' and 'very much' for severity. The second part concerned risk reducing strategies – 13 items [Roselius, 1971; Mitchell & McGoldrick, 1996; Yeung & Yee, 2003] and the third part concerned likelihood to purchase meat – 6 items (adapted from the pilot study). All items were measured with reference to a seven-point Liker-type scale (1 – very unlikely, 7 – very likely). The last part contained questions related to demographic characteristics of the respondents examined.

Data were described by means, standard deviations and medians. The relationship between risk perception and risk reducing strategies, as well as purchase likelihood were studied by the matrix of the correlation coefficients. Data were analysed with the computer software program Statistica, version 8.0.

RESULTS AND DISCUSSION

The perceived risk was defined as a function of the likelihood of an unfavourable effect on health and the importance of this effect resulting from threats related to the presence of chemical contamination in meat [Kołożyn-Krajewska, 2007]. Opinions of the respondents concerning the likelihood of a given type of risk and the amount of related loss are presented in Table 2. The results obtained on the basis of average answers provided by respondents show that they highly evaluated the likelihood of health risk (5.77±1.32) and time-related risk (5.53±1.46). Additionally, in the opinion of the respondents, these types of risk bring the largest losses (6.24±1.17 and 5.84±1.46, respectively).

The study focused on the issue of factors which, in the opinion of respondents, could result in a reduction of risk related

TABLE 1. Structure of study sample.

	Study sample	
	N	%
Gender		
Female	574	53.40
Male	501	46.60
Age (years)		
18-24	250	23.26
25-34	191	17.77
35-44	177	16.47
45-54	214	19.91
55-64	106	9.86
65 and over	137	12.74
Educational level		
Elementary school	219	20.37
High school	138	12.84
Vocational school	489	45.49
University degree	229	21.30

TABLE 2. Perceived risk in the opinion of the respondents.

Items for measuring perceived risk	Probability of risk occurrence *		Importance of risk consequences *	
	$\bar{x}\pm SD$	Median	$\bar{x}\pm SD$	Median
Health risk in total	5.77±1.32	6	6.24±1.17	7
Sick due to consuming contaminated food	5.88±1.23	6	6.28±1.09	7
Adverse effect on personal health	5.71±1.40	6	6.24±1.23	7
Adverse effect on health for long term	5.71±1.33	6	6.20±1.20	7
Financial risk in total	5.18±1.83	6	5.59±1.65	6
Money wasted	5.75±1.35	6	5.86±1.36	6
Lose income/job	4.61±2.06	5	5.33±1.86	6
Time risk	5.53±1.46	6	5.84±1.46	6
Psychological risk in total	4.43±2.05	5	4.86±1.94	5
Get cross or upset	5.24±1.76	6	5.30±1.76	6
Adverse effect on lifestyle	4.34±2.01	5	5.09±1.77	5
Let down or embarrassed among friends/family	3.70±2.06	4	4.20±2.10	4

* Evaluation done according to a 7 point scale, where "1" stands for very unlikely, and "7" stands for very likely.

to meat consumption (Table 3). The factors highly assessed by the respondents included choosing meat with quality assurance (5.63±1.44), inspecting the meat product before purchase (5.58±1.51) and taking the advice of family and friends (5.45±1.51). Research conducted by Ozimek [2006] confirmed the importance of information obtained from friends and family in the decision making process concerning food purchases.

Choosing a well-known or popular brand (5.40±1.54) as a method of reducing risk was also highly evaluated in the opinion of consumers. This diverges from the common opinion about the higher importance of the brand as an element affecting the purchasing decisions of consumers in the case of non-food products. As reported by Gutkowska & Walkowiak [2006] the effect of marketing activities on the behaviour of meat consumers is low, and respondents declare low loyalty towards the brand and low susceptibility to promotions. However, it should be noted that brands which

TABLE 3. Risk reducing strategies in the opinion of the respondents.

Risk reducing strategies	$\bar{x}\pm SD^*$	Median
Quality assurance	5.63±1.44	6
Product appearance	5.58±1.51	6
Recommendation of family and friends	5.45±1.51	6
Well–known brand	5.40±1.54	6
Government laboratory approval	5.32±1.67	6
Ecological production	5.32±1.68	6
Reputable store image	5.30±1.79	6
Buy expensive	4.83±2.15	6
Private laboratory approval	4.57±1.74	5
Label information	4.52±1.90	5
Money back guarantee	4.16±2.00	4
Shopping around	4.12±1.89	4
Available in all shops	2.75±1.78	2

*Evaluation done according to a 7 point scale, where "1" stands for very unlikely, and „7" stands for very likely.

are intensively advertised in the media are the best known among consumers.

Purchasing in the same store that they purchased before had a high importance in the respondents' opinion (5.30±1.79). The results obtained reveal a certain similarity to the results presented by Bukała & Świda [2000]. They observed that, in the opinion of consumers, the place and condition of sale can result, to a large extent, in deterioration of the quality features of meat products, which often are unpacked. As reported by Ozimek [2008], irregularities accompanying food trading are, in the consumers' opinion, a common phenomenon and occur in many stores.

The research also analysed issues of decision making by consumers as regards meat purchase when they are informed about the presence of high levels of chemical contamination. The likelihood of a repeated purchase of the examined products in such a case was examined (Figure 1).

It was shown that information about the presence of chemical contamination in meat would have a negative effect on the likelihood of a subsequent purchase of these products by consumers. About 70% of the respondents claimed that this kind of information would have a negative effect on their purchasing decision, while only 20% had a different opinion. It was found that over time the likelihood of purchasing examined products would grow. Most respondents expressed their willingness to buy meat products again if evidence was provided to confirm that the risk had been eliminated (76%). Only 18% of the respondents declared they would completely give up purchasing the products analysed, and as many as 67% excluded such possibility.

Table 4 shows the matrix of the correlation between the variables. Although the correlation coefficients indicate moderate relationships between the variables, the correlations should be considered statistically significant for the levels of $p<0.001$ point to a statistical significance of those dependencies. Components of perceived health risk (see components 1, 2 and 3) were positively correlated with the actions diminishing the risk and with the continuation of purchase, once evidence exists for the elimination of chemical hazards from meat. In turn, statistically significant negative correlations were noted between the perception of chemical hazards and declarations of purchase of meat products. The correlation coefficient between the health risk and the continua-
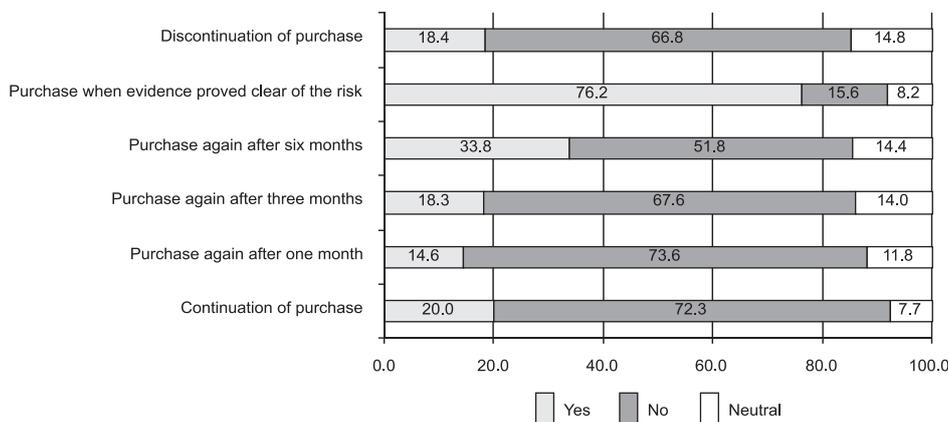

FIGURE 1. Consumer reactions to information about the presence of high levels of chemical contaminants in meat products (% of responses).

TABLE 4. Relationship between perceived risk components, risk reducing strategies and purchase likelihood.

Perceived risk components	Risk reducing strategies						Continuation of purchase		Purchase likelihood			
	Well – known brand		Quality assurance		Label information				Purchase again after few months		Purchase when evidence proved clear of the risk	
	Correlation coefficient	p-value	Correlation coefficient	p-value	Correlation coefficient	p-value	Correlation coefficient	p-value	Correlation coefficient	p-value	Correlation coefficient	p-value
Health risk												
Sick due to consuming contaminated food	0.48	<0.001	0.38	<0.001	0.06	> 0.05	- 0.20	< 0.001	-0.20	< 0.001	0.50	< 0.001
Adverse effect on personal health	0.55	<0.001	0.70	< 0.001	0.40	< 0.001	- 0.20	< 0.001	-0.20	< 0.001	0.40	< 0.001
Adverse effect on health for long term	0.45	<0.001	0.48	< 0.001	0.45	< 0.05	- 0.20	< 0.001	-0.20	< 0.001	0.40	< 0.001
Financial risk												
Money wasted	0.17	<0.001	0.30	< 0.001	0.19	< 0.001	- 0.19	< 0.001	-0.20	< 0.001	0.05	> 0.05
Lose income/job	0.30	<0.001	0.38	< 0.001	0.14	< 0.001	- 0.16	< 0.001	-0.20	< 0.001	0.05	> 0.05
Time risk												
Time lost	0.02	>0.05	0.03	> 0.05	0.12	> 0.05	- 0.04	> 0.05	-0.10	> 0.05	-0.02	> 0.05
Psychological risk												
Get cross or upset	-0.05	>0.05	0.03	> 0.05	0.06	> 0.05	- 0.05	> 0.05	-0.10	> 0.05	0.00	> 0.05
Adverse effect on lifestyle	0.01	>0.05	0.04	> 0.05	0.06	< 0.05	- 0.10	> 0.05	-0.08	> 0.05	0.01	> 0.05
Let down or embarrassed among friends/family	0.05	>0.05	0.08	> 0.05	0.11	> 0.05	- 0.10	> 0.05	-0.10	> 0.05	0.01	> 0.05

tion of purchase was − 0.20. Alike correlations were found in the case of risk linked with time, though linear correlations between the variables were weaker in that case. No linear correlation was demonstrated between components of risk linked with time and actions diminishing the risk nor with purchase decisions.

CONCLUSIONS

This study shows that the risk perceived and methods of its reduction play a significant role in everyday purchasing decisions made by consumers. It was shown that the assumptions of the perceived risk theory applied in the marketing theory of consumer purchasing behaviour can be used in the context of threats to the health safety of food. Consumers perceive potential losses related to health, time, finances and well-being resulting from the presence of harmful chemical compounds in meat.

The study analysed the relationship between the perceived health risk and methods of its reduction, mainly through the selection of guaranteed quality products. The research indicated that good branding can be one of the most effective strategies for meat producers, since in the consumers' opinion it is associated with high product quality and is therefore a low threat to consumer health safety. It is important to note that maintaining high quality of products is a significant element in this matter. One exception to this rule can destroy consumer confidence.

Negative relationships were found between the risk perceived and the likelihood of a recurring purchase of meat by consumers. A high level of risk in the consumers' opinion is related to a lower probability of repeated purchase of the products. On the other hand, factors which can positively affect the purchasing decisions of consumers when the information about a threat is revealed include evidence proving risk elimination. This indicates the high significance of precise and reliable information provided to consumers.

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