

## IMPACT OF BELIEFS AND ATTITUDES ON YOUNG CONSUMERS' WILLINGNESS TO USE FUNCTIONAL FOOD

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The aim of the study was to describe young consumers' attitudes toward functional food and to find the dimensions that can predict respondents' willingness to buy different functional food products. Five functional products were chosen as sample products, namely cholesterol lowering spreads, probiotic yoghurt, juice with added calcium, low-fat mayonnaise, and energetic beverage. Perceived familiarity, healthiness and willingness to use were assessed in relation to these products. Data were collected in the sample of 275 students by using self-administered questionnaire. The consumers' attitudes measured by three dimensions explained their willingness to buy functional food differently. The greatest effects on the willingness to use functional food were found between students who had different attitude toward its benefits. The respondents most willing to use cholesterol lowering spreads and probiotic yoghurts expected benefits from using functional to a greater extent. The need for functional food affected positively the willingness to use probiotic yoghurts. The willingness to use low-fat mayonnaise was affected by the confidence in functional food and the safety of functional food. The attitude represented by general health interest was positively correlated with the willingness to use probiotic yoghurts and low-fat mayonnaise. The scales used in this survey can be seen as a useful tool for monitoring the factors that determine consumers' behaviours on the market of functional food.

### INTRODUCTION

Functional food is a new category of products that promise health benefits. Although the concept of functional food is still unclear, there is a working definition of such products. Food can be regarded as functional if it is satisfactorily demonstrated to affect beneficially one or more target functions in the body [Diplock *et al.*, 1999].

When consumers made food choices, their reasons behind functional food choices were different within the various food categories [Urala & Lähteenmäki, 2003; Rowicka & Klemarczyk, 2007]. Therefore, functional food is usually studied not as one homogenous group but as separate products within the various category groups [Jeżewska-Zychowicz *et al.*, 2007; Flaczyk *et al.*, 2006; Wierzbicka & Woźniak, 2006; Patch *et al.*, 2005].

Factors affecting food choice can be divided into three central elements: the food, the consumers, and the environmental and economic issues. For predicting choices of functional food, personal attitudes and beliefs of consumers are important [Cox *et al.*, 2004; Urala & Lähteenmäki, 2003; Roininen *et al.*, 1999]. Appropriate scales have been developed to measure attitude towards health, which was termed General Health Interest scale [Roininen *et al.*, 1999], and attitude towards functional food [Urala & Lähteenmäki, 2004]. To better understand what drives consumers to choose various types of functional food, their attitudes behind choices can be explored by using both scales – General Health Interest scale and attitude toward functional food scale.

The aim of the study was to describe young consumers' attitudes towards functional food taking into account differences in their nutritional knowledge and to find the dimensions of attitude that can predict respondents' willingness to buy different functional food products.

### MATERIALS AND METHODS

In this study, the term "functional food" was used in a broad sense when consumers' beliefs and attitudes towards this food were assessed. Attitudes have been measured by functional food related statements originally formulated in various studies on functional food [Urala & Lähteenmäki, 2004]. The statements were evaluated on a 7-point Likert scale (1 – completely disagree and 7 – completely agree).

Five functional products were chosen as sample products, namely cholesterol lowering spreads, probiotic yoghurt, juice with added calcium, low-fat mayonnaise and energetic beverage. The perceived familiarity, the healthiness and the willingness to use were assessed in relation to these products.

The perceived familiarity of the sample products was evaluated on a 5-point scale, *i.e.*: 1 – I do not recognize this product, 2 – I recognize this product, but I have not tasted it; 3 – I have tasted this product, but I do not use it; 4 – I use this product occasionally, and 5 – I use this product frequently. The healthiness of the products was assessed on 7-point scale, *i.e.*: 1 – extremely unhealthy, and 7 – extremely healthy. The respondents were asked to evaluate on the 7-point scale

how willingly they would buy the products (1 – not at all willing and 7 – extremely willing).

The General Health Interest scale [Roininen *et al.*, 1999] was used as background and reference attitudes. Responses were given based on the 7-point Likert scale in which 1 denoted I completely disagree and 7 – I completely agree. The sum of the general health interest was computed after revising the negative statements. On the General Health Interest (GHI) scale the respondents scored in the middle (mean sum 37.5, standard deviation 7.7) of the scale (sum in the range 8–56). Using mean sum ( $\bar{x}$ ) and standard deviation (SD) three different attitudes toward health interests were differentiated ( $\bar{x} \pm SD$ ). The first attitude (range 8.0–29.8) called negative attitude toward health, the second one (range 29.9–45.2) called intermediate attitude and the third one (range 45.3–56.0) called positive attitude toward health. The negative attitudes were represented by 13.5% of the respondents, the intermediate ones by 73.7% of the respondents and positive attitudes by 12.8% of the students surveyed.

To measure attitudes toward functional food factor, an analysis was used for grouping the statements into independent subsets. Kaiser-Meyer-Olkin and Bartlett’s test were used for testing the suitability of the correlation matrix for factor analysis. According to the factor analysis (maximum likelihood, Varimax rotation), eight dimensions (eigenvalue greater than 1.0) were found. In order to diminish the number of dimensions some of them were loaded together. As a result of this decision three dimensions were created: expected benefit from using functional food, need for functional food, and confidence in functional food and safety of functional food (Table 2). These three dimensions explained 62.3% of the total variance. After the three scales had been constructed, they

were used to show their practical implication. The respondents were divided into three groups according to their scale mean in each scale (lowest 25%, middle 50% and upper 25%). The respondents in the lowest quartile experienced less benefits from using functional food (lower need for functional food; lower confidence in functional food and safety of functional food) as compared to the respondents in the middle and upper groups, *i.e.* the other 75% of the respondents. These attitude groups were used in predicting consumers’ willingness to use functional food and thus showing the effect of this attitude from the practical point of view.

The effects of functional food attitudes and general health interest on the willingness to use functional food products were assessed using a regression analysis. The frequency analysis, descriptive analysis, and Pearson correlation coefficient were used for data analysis.

Data were collected in the sample of 275 young consumers studying at the Faculty of Human Nutrition and Consumer Sciences, Warsaw University of Life Sciences, Poland. A majority (84.7) of the respondents were females and 15.3% of the respondents were males. Mean age of the respondents was 20.8 years ( $\pm 1.4$ ) with the range of 19–26 years. A slight majority (57.1%) of respondents were students of the third year and 42.9% of respondents studied on the first year.

**RESULTS AND DISCUSSION**

The respondents were quite familiar with functional food products. Nevertheless, these products were not used very frequently. Probiotic yoghurt was the product consumed frequently by the greatest group of students (Figure 1).

The mean scores of respondents’ willingness to use five

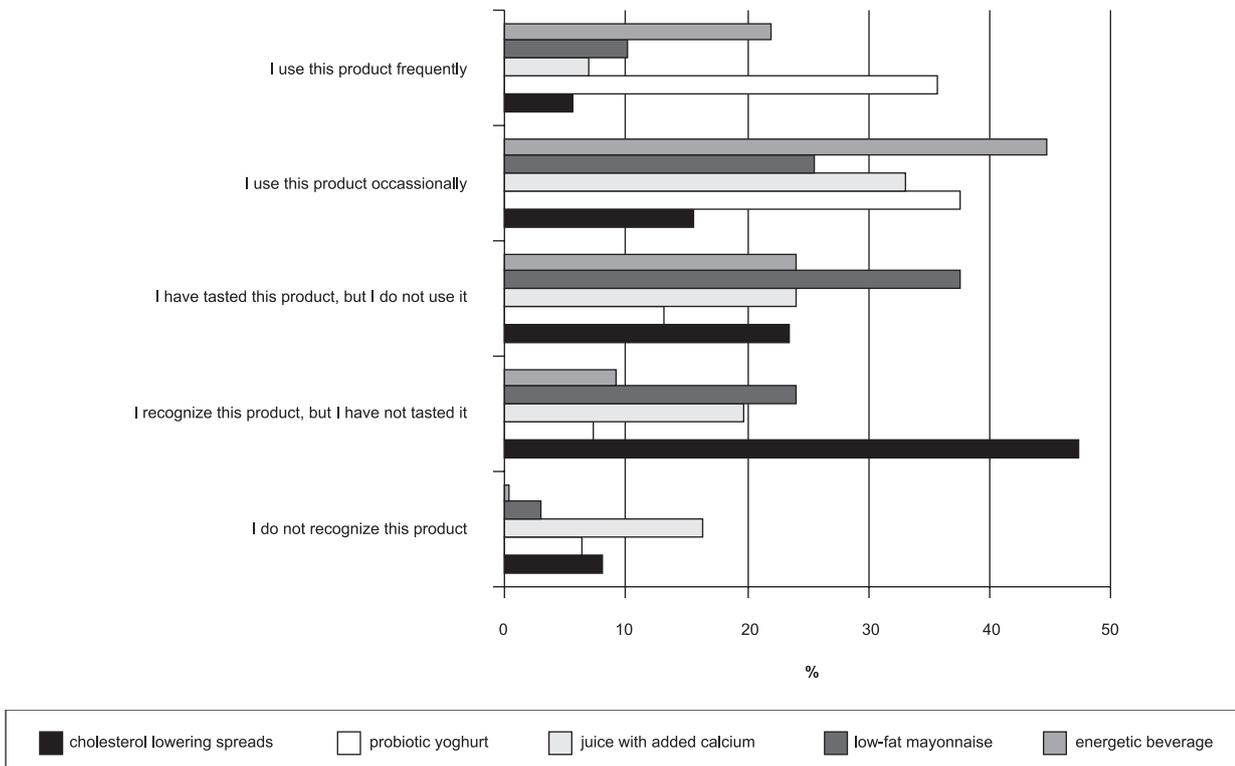


FIGURE 1. Perceived familiarity of the sample products (%).

functional food products and the perceived healthiness ratings of these products are presented in Table 1.

For assessing the respondents' attitudes toward functional food three dimensions were created. The first dimension contains items that describe the aspect of benefiting from the use of functional food. These seven positively worded statements reflected feelings derived from individual's consumption of functional food (Table 2). These dimensions termed "benefit from using functional food" explained 15.8% of the variance after Varimax rotation. Consumers who rated high on this "benefit" scale perceived the use of functional food to be more beneficial than the consumers rating lower.

The second dimension was termed "need for functional food". It describes how essential the consumers think that functional food is for themselves or for people in general. This factor describes the general need for functional products, the risk for people eating functional food who have no need for it and the necessity to add health effects to delicacies and to unhealthy food. All the items on this factor were negatively worded stating on potential side-effects of functional food. After recoding the data, the respondents who scored high on this scale were perceived as having a more positive attitude towards functional food.

The third factor contains items concerning the confidence in functional food and the safety of it. It describes how individuals trust the information, how strongly they believe in the scientific basis of promised health effects, and how they assess the potential detrimental effects of functional food (Table 2).

There were found statistically significant correlations between the scales. The strongest factor, *i.e.* expected benefit from using functional food, was correlated with the need (0.351;  $p < .01$ ), and the confidence and the safety (0.370;  $p < .01$ ). The need for functional food was, in turn, correlated with the confidence and the safety (0.338;  $p < .01$ ), whereas the general health interest was positively correlated only with one dimension of attitude towards functional food, namely expected benefit (0.292;  $p < .01$ ).

The consumers' attitudes measured by three dimensions explained their willingness to buy functional food differently (Table 3). Although the statistically significant correlations were weak (0.140–0.218), they showed the differences within the impact of particular attitude elements on declared willingness to buy functional products. The results of some other

TABLE 1. Descriptions of product categories, respondents' evaluations of willingness to use them and their perceived healthiness.

Category of product	Willingness to use <sup>a</sup>		Perceived healthiness <sup>b</sup>	
	Mean	SD	Mean	SD
Cholesterol lowering spreads	3.49	1.73	5.19	1.18
Probiotic yoghurt	5.68	1.42	6.31	0.99
Juice with added calcium	4.86	1.54	5.53	0.97
Low-fat mayonnaise	3.73	1.72	4.34	1.18
Energetic beverage	4.34	1.81	3.14	1.20

<sup>a</sup> evaluated on the 7-point scale (1 – not at all willing; 7 – extremely willing); <sup>b</sup> evaluated on the 7-point scale (1 – not at all healthy; 7 – extremely healthy).

TABLE 2. Description of functional food related scale.

Name and items	Mean	SD	Factor loading	Factor
<b>Benefit from using functional food (FF) (alpha – 0.72); variance explained – 15.8%</b>				
FF helps to improve my mood	4.10	1.30	0.77	3
My activity improves when I eat FF	4.31	1.23	0.79	3
The idea that I can take care of my health by eating FF gives me a pleasure	4.85	1.35	0.58	3
FF promotes my well-being	4.55	1.22	0.58	3
FF can repair the damage caused by an unhealthy diet	4.45	1.48	0.77	7
I am prepared to compromise on the taste of food if the product is functional	3.17	1.44	0.72	5
I actively seek out information about FF	3.30	1.62	0.70	5
<b>Need for functional food (alpha – 0.70); variance explained – 31.9%</b>				
(R)* FF is completely unnecessary	6.11	1.04	0.71	1
(R) FF is a total sham	5.98	1.18	0.75	1
(R) The growing number of FF on the market is a bad trend for the future	5.21	1.35	0.67	1
(R) For a healthy person it is worthless to use FF	5.44	1.13	0.60	1
(R) I only want to eat food that does not have any medicine-like effects	3.74	1.67	0.51	1
(R) Health effects are not appropriate in delicacies			0.86	8
(R) FF is consumed mostly by people who have no need for them	4.69	1.26	0.69	6
(R) It is pointless to add health effects to otherwise unhealthy foods	4.47	1.71	0.70	6
<b>Confidence in functional food and safety of it (alpha – 0.80); variance explained – 14.6%</b>				
The safety of FF has been very thoroughly studied	4.32	1.19	0.80	2
I believe that FF comes up to consumers' expectations	4.56	1.12	0.72	2
FF are science-based top products	4.68	1.06	0.77	2
(R) If used in excess, FF can be harmful to health	3.56	1.35	0.77	4
(R) In some cases FF may be harmful for healthy people	3.45	1.32	0.80	4
Using FF is completely safe	4.08	1.10	0.62	4
(R) The new properties of FF carry unforeseen risks	3.97	1.03	0.73	4

\* (R) These statements were recoded with reversed values before final data analysis.

investigations indicated also relatively weak correlations between components of attitudes, intentions and behaviours [Urala & Lähteenmäki, 2007; Cox *et al.*, 2004]. The greatest effects on the willingness to use functional food were found between students who had different attitude toward benefits from using it. The respondents who expected benefits from using functional food were those most willing to use cholesterol lowering spreads and probiotic yoghurts. Such results were obtained also in other research [Urala & Lähteenmäki, 2004; Saher *et al.* 2004]. The feeling of benefit from consum-

TABLE 3. The effect of the functional food scales and General Health Interest scale on the willingness to use functional products (beta coefficient).

	Functional products				
	Cholesterol lowering spreads	Probiotic yoghurts	Juice with added calcium	Low-fat mayonnaise	Energetic beverage
Benefit from using functional food	0.142*	0.218**	0.119	-0.084	0.127
Need for functional food	0.122	0.207**	0.016	0.068	0.066
Confidence in and safety of functional food	0.140*	-0.063	0.105	0.191**	-0.006
General Health Interest	0.057	0.148*	0.064	0.147*	-0.186**

\* beta coefficient,  $p < .05$ ; \*\* beta coefficient,  $p < .01$ .

ing functional food may reflect the generally accepted disposition in affluent countries in which individuals are increasingly considered as being responsible for their health. The need for functional food affected positively the willingness to use only probiotic yoghurts. Consumers may connect medicine-like effects with functional food in general [Bech-Larsen & Grunert, 2003; Frewer *et al.*, 2003], but in this study consumers' attitude towards the medicine-like effect did not affect the willingness to use functional products except yoghurts. The willingness to use low-fat mayonnaise was affected by the confidence in functional food and safety of it. According to the results of this study and also those reported by Urala & Lähteenmäki [2004], it can be stated that risk issues concerning functional food are not seen as highly relevant when evaluating functional food products. They are important when talking about functional food in general. The perceived risks of functional food would be a barrier not to consume functional food [Frewer *et al.*, 2003]. The willingness to use juice with added calcium and energetic beverage was not correlated with any dimension. The attitude represented by general health interest was positively correlated with the willingness to use probiotic yoghurts and low-fat mayonnaise. In the study of Urala & Lähteenmäki [2004], general health interest (GHI) did not predict the willingness to use any of the functional products, among which there were inter alia juice with added calcium, cholesterol lowering spread, energy drink, blood pressure lowering milk drink and others. However, GHI predicted the willingness to use conventionally healthy products such as low-salted food products and low-fat cheese. The correlation in the case of energetic beverage was negative. The respondents who represented more positive attitudes towards health scored lower willingness to use this product (Table 3). These results confirmed findings from previous functional studies [Urala & Lähteenmäki, 2004]. It was stated that functional food related attitudes affected the willingness to use functional products in different ways, depending on the type of product. Consumers do not perceive functional food as one homogenous group.

The dimensions of attitude towards functional food were used to show the implications on willingness ratings (Figures 2-4).

In relation to all dimensions, analyses showed that the students with the most positive attitudes towards benefits from using functional food, need for it, confidence in functional food and its safety rated their willingness higher than those from the middle or low attitude groups. The difference was greater in the case of attitude toward benefits from using functional food in comparison to others.

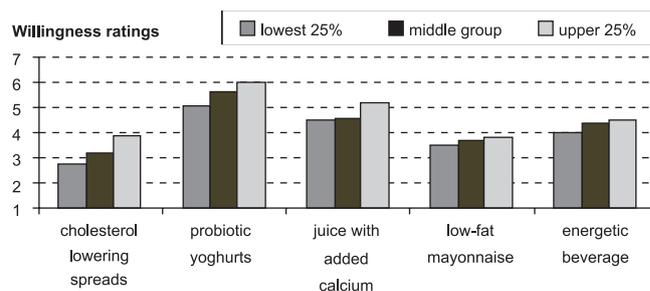


FIGURE 2. Effect of consumers' perceived benefit from using functional food on the willingness to use functional food.

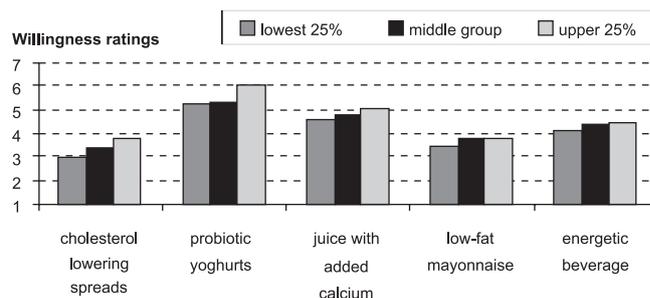


FIGURE 3. Effect of consumers' perceived need for functional food on the willingness to use functional food.

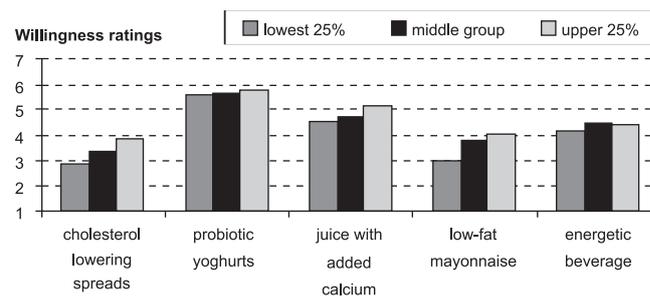


FIGURE 4. Effect of consumers' perceived confidence in and safety of functional food on the willingness to use functional food.

## CONCLUSIONS

For monitoring consumers' attitudes towards functional food it is important to use different scales. The scales used in this survey, namely expected benefit from using functional food, need for functional food, and confidence in functional food and safety of it, can be seen as a useful tool for monitoring the factors that determine consumers' behaviours on the mar-

ket of functional food. Nevertheless, these scales need to be further developed in order to get a more precise and shorter form for measuring attitudes towards functional food. It is also important to educate consumers in respect of functional food issues in order to extend their knowledge on it and to develop their more positive attitudes towards functional food.

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