

DOI: 10.1515/plass-2018-0003

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CONSUMER ACCEPTANCE OF POLISH BREAD PRODUCTS

ABSTRACT

Consumer acceptance of a variety of products, including bread is currently a very important economic and psychological criterion. Thus, understanding of consumer behaviour and preference should help bread manufacturers to satisfy the customers, particularly during launching new products. The study objective was to investigate preferences and expectations of Polish consumers concerning bread products as well as their comparison with manufacturers opinions. Surveys were collected using CATI method. Obtained results testified about clear differentiation of consumer requirements in relation to bread. It has been shown that preferences of bread consumers are connected with such factors as: sex, age, place of residence, employment, education and financial situation. Diverse demands of consumers result in a wide range of bread products on the market and a need for improving their quality and promotion of new brands.

Keywords: bread; bread market; consumer research; survey investigation.

INTRODUCTION

Cereals and cereal foods, including bread, have been the basic components of human diet from the earliest times (McKevith, 2004). Due to a great proportion of cereal products in the current diet, they are primary sources of energy and bioactive substances with dietary fiber in particular. Therefore, the level of their consumption should be possibly high (Dewettinck *et al.*, 2008; The National Food and Nutrition Institute 2016). The Recommended Dietary Allowance (RDA) of cereals accounts for 250 to 600 g, i.e. at least 5 portions of cereal foods with one portion roughly equivalent to a 50 g slice of bread (WHO, 2003; Kawka, 2010). Over the past years, a steady decline in bread intake has been observed both in Poland and worldwide,

which is a serious problem resulting in a growing number of diet-related diseases in the population (Kendall *et al.*, 2010; Pal *et al.*, 2011). According to data of the Central Statistical Office of Poland (GUS), average bread consumption in the country was 80 kg per person in 2000 and decreased to about 44.8 kg per person in 2016 with further decline prognosis in 2017 (GUS, 2001; GUS website, 2017).

Polish bread market is highly diverse in terms of the number of products and their quality. There is a selection of white and brown breads, wheat, rye and rye/wheat products as well as breads with barley or oat (non-bread cereals). Bread products are baked using yeast or a sourdough. There are also many additions intended to improve their taste and health benefits. Moreover, technological progress, diverse consumer preferences and promotion of healthy lifestyle have resulted in a demand of higher-quality food products, including breads (Kopeć and Bać; 2013). Consumer acceptance of a variety of products (not only food) is currently a very important economic and psychological criterion. Thus, understanding of consumer behaviour and preference should help bread manufacturers offers satisfy the needs of customers, particularly during launching new products (Jeżewska-Zychowicz, 2014). The study objective was to investigate preferences and expectations of Polish consumers concerning bread products as well as their comparison with manufacturers opinions. It analyses consumers attitudes to available types of breads and determines their demands for products that bring health benefits.

MATERIALS AND METHODS

Surveys were conducted between June and September 2014 in collaboration with BIOSTAT consortium (Rybnik, Poland). The data were collected using CATI (computer-assisted telephone interviewing) method. The study sample consisted of a representative group of 1080 Polish consumers, aged 17 to 65, across Poland who were selected via stratified sampling per demographic structure of voivodeships. The sampling frame was based on households within the BIOSTAT operation range. Demographic and social characteristics of respondents are presented in Table 1. An independent set of 24 questions, including 17 survey (study-related) items and 7 questions referring to the respondents particulars was used in the survey.

On a parallel basis, a comparison survey among bread manufacturers was carried out in a group of 68 small and medium-sized bakeries across Poland that were selected via stratified sampling: 4 to 5 bakeries per voivodeship. Due to the specificity of the bakery market in Poland, the bakeries which employed up to 20 employees were considered to be small and the others were considered medium-sized. The sampling frame was a *REGON*-based (National Official Business Register) directory. Basic characteristics of responding bakeries are shown in Table 2. A set of 12 questions, corresponding to the questions addressed to bread consumers as well as relating to the bread production management in particular bakeries, was used in the survey.

Table 1

Profile of respondents (consumer survey)			
Groups of respondents		N	[%]
Total		1080	100.00
Sex:	Female	535	49.54
	Male	545	50.46
Age:	<25 years	207	19.17
	25-35 years	340	31.48
	36-45 years	287	26.57
	>45 years	246	22.78
Education:	Basic education	27	2.50
	Vocational education	104	9.63
	Secondary education	411	38.06
	University education	538	49.81
Job	Schoolboy	26	2.41
	Student	86	7.96
	Not working - engaged in home	65	6.02
	Worker	157	14.63
	White collar worker	295	27.31
	Self-employed	239	22.13
	Unemployed	107	9.91
	Retired / pensioner	104	9.63
Place of residence	City >100 thousand	557	51.57
	City <100 thousand	290	26.85
	Country	233	21.57
Average gross income	>3000 PLN	449	41.57
	2001-3000 PLN	301	27.78
	1000-2000 PLN	196	18.15
	<1000 PLN	134	12.41

Both survey forms were developed as sets of closed-ended or semi-open-ended questions. In both surveys, one of the questions referred to respondents views on a series of common opinions about bread products and bread market in Poland. The respondents replies were recorded among others using the Likert scale or points scale.

The responses were divided into five topic-related categories, including purchase and consumption of bread products, assortment, quality and prices of breads as well as the impact of diet on health.

Statistical evaluation of results involved the structure analysis of responses, the contingency analysis as well as the significance and power analysis of contingency table relationships (Agresti, 2002). The analyses were based on Pearson's chi-squared test (χ^2) and the analysis of ϕ coefficients. All statistical analyses were performed using *Statistica 12.5* software (StatSoft Inc. 2014).

Table 2

Profile of respondents (bakery survey)			
Groups of respondents		N	[%]
Total		68	100.00
The type of bakery:	A member of a large network of bakeries	3	4.4
	Important regional bakery	12	17.6
	Small regional bakery	36	52.9
	Small traditional bakery	17	25.0
Number of workers employed in bread production:	Less than 20 or 20 employees	34	50.0
	More than 20 employees	34	50.0
Source of bread recipes:	Own recipes	37	54.4
	Traditional recipes	21	30.9
	Purchased recipes	3	4.4
	Recipes received from third parties	6	8.8
	Other	1	1.5

RESULTS AND DISCUSSION

Purchase and Consumption of Bread Products

In the respondent group, 85% of consumers declared consumption of bread products on a daily basis and 13.1% – a few times weekly. Also, sex-related consumption was observed: breads were more frequently components of the male diet (88.1%) compared with the female eating habits (81.9%) ($\chi^2=8.223$; $p<0.05$; $\phi=0.09$). Moreover, the frequency of bread intake also depended on the consumers place of residence, age and employment status. Daily bread consumption was mostly declared by respondents from rural areas (91.4%), then residents of smaller towns (88.6%) and, last listed (80.4%), respondents from large cities (>100 thousand residents) ($\chi^2=19.82$; $p<0.01$ $\phi=0.14$). Bread intake was less frequent among respondents aged up to 25 ($\chi^2=16.236$; $p<0.01$; $\phi=0.12$), while in terms of employment or education status, a group with the lowest level of bread consumption comprised university students ($\chi^2=45.055$; $p<0.01$; $\phi=0.20$). Considering amounts of consumed bread products, 46.5% of respondents reported daily consumption of 4 to 8 slices of bread or 2 to 3 rolls. 16.7% of respondents declared consumption of more and 36.9% of less bread products. Comparably to the intake frequency, amounts of consumed breads were related to sex (higher levels among men; $\chi^2=207.1$; $p<0.01$; $\phi=0.44$), education level (the more educated respondents, the lesser average amount of consumed bread products; $\chi^2=35.841$; $p<0.01$; $\phi=0.18$) and work place (the highest intake level among physical workers; $\chi^2=58.547$; $p<0.01$; $\phi=0.23$).

We consume too much bread in the opinion of 42.7% of respondents (contrary to 45.5% of the opposite judgement). The respondents reported buying bread products directly in the bakery (36.4%), less frequently in a grocery store (28.6%) and a bakery stockist (19.5%), and least frequently – in a supermarket (14.6%). Furthermore, the respondents most readily selected bread products from regional bakeries (61%) while to a far lesser extent – from traditional, family bakeries (11%). 16% of respondents did not know the place of product manufacturing. The results did not fully correspond to the responses from bread manufacturers. Responding bakers reported that the primary distribution channels of their products were usually grocery stores (80.9%), then bakery stockists (52.9%), direct sale in bakeries (44.1%) and supermarkets (21.1%). This can be associated with results concerning the relationship between bread consumption and the place of residence. The highest level of bread consumption was observed in rural areas and small towns without supermarkets but with prevalence of typical grocery stores.

Bread Assortment

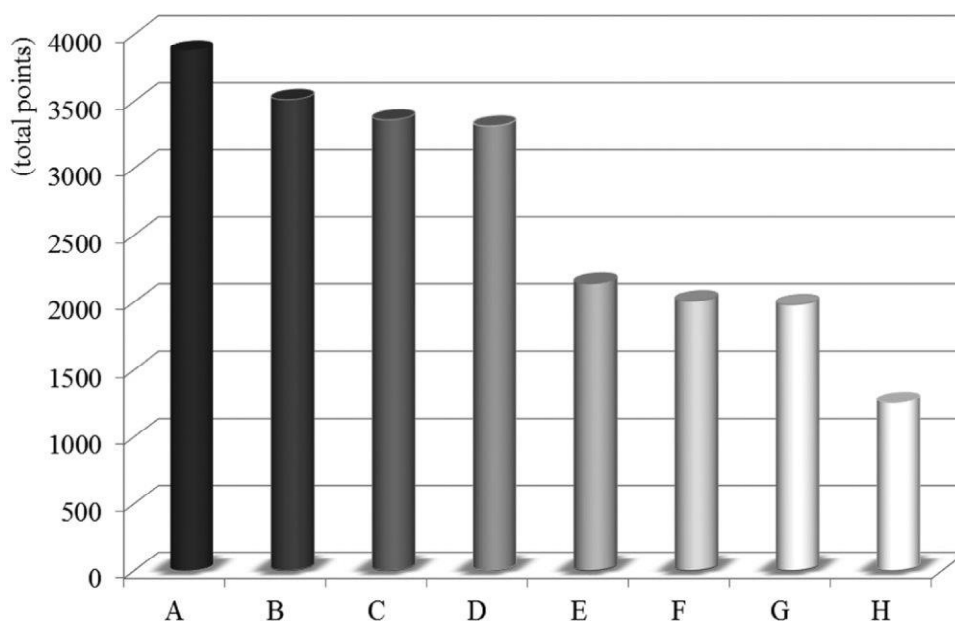


Fig. 1. Kinds of bread ranking. Bread: A – wheat and wheat-rye, B – with the addition of cereal grains, bran, etc.; C – wholemeal; D – rye; E – toasted; F – with other additives; G – crispbread; H – special purpose. Total points – the sum of points corresponding to the assessment of the frequency of consumption by the respondents of a given type of bread (from 1 - not at all to 5 - very often)

Regarding available bread products, the respondents mainly chose bread (82.6%) and, to a lesser extent, rolls (14%). The type of selected products significantly related to the place of residence. Within the range of consumed bread products, higher consumption of bread was observed in rural areas (90%) compared with towns and cities (81%) ($\chi^2=18.662$; $p<0.01$;

$\phi=0.13$). Among the types of breads available on the market, the most popular products were: wheat and rye/wheat bread, then products with cereal and other grains, wholemeal and rye bread (Fig. 1). The survey conducted among the manufacturers showed that they try to satisfy consumers expectations by fitting production to demand. Wheat and rye/wheat breads are produced by 97%, wholemeal bread by 88%, products with cereal and other grains by 84% and rye bread by 75% of responding bakeries.

Among consumers, the 83.2% were satisfied with the available bread assortment. The degree of their satisfaction was strongly associated with the education level: the rate of dissatisfied consumers was higher among better educated respondents ($\chi^2=29.37$; $p<0.01$; $\phi=0.17$). A similar tendency was observed by Niewczas (2013), who, based on her investigations, concluded that individuals with university degrees more frequently highlighted the importance of composition and quality of food products. Considering new brands on the market, as many as 61.9% of respondents tried new, unusual brands of bread: 48.8% on the occasional basis and 13.1% – quite frequently. A clear interest in new products on the bread market was confirmed in surveys conducted by Mintel company (2014): 85% of Polish consumers who reported eating or buying bread during the previous 6 months declared they would like to try new brands of bread. The survey showed that new products are more readily purchased by educated individuals ($\chi^2=29.0$; $p<0.01$; $\phi=0.16$), women ($\chi^2=8.01$; $p<0.01$; $\phi=0.09$) and respondents who declare higher income ($\chi^2=36.13$; $p<0.01$; $\phi=0.18$). A similar tendency, associated with sex, was observed by Górecka *et al.* (2009) based on the analysis of consumers attitudes towards functional foods. The authors showed that regardless of age, women more frequently bought foods that might be classified as new products. Moreover, Niewczas (2013) concluded in her study that more attention was paid to the quality of foods (including bread products) in Polish households with higher monthly incomes, so new or better-quality products could be found more frequently there.

Quality of Bread Products

In the survey, approximately 59% of consumers reported selecting bread in an aware manner by reading labels to learn about the composition and nutritional value of products. Reading bread labels was reported by 68.6% of women and 49.9% of men ($\chi^2=43.1$; $p<0.01$; $\phi=0.20$). Similar results were found in surveys on food composition (Niewczas, 2013) which revealed that 69% of women focused on information about product composition. Moreover, attention given to food components was related to the place of residence, education level and income. While analysing eating habits, Sarlio-Lahteenkorva *et al.* (2004) showed that healthy products, such as brown bread or fresh fruit, were far more often intentionally selected by women compared with men.

Ranking of consumers criteria for the bread selection is presented on Fig. 2. Selection of bread products was mainly driven by taste and flavour, then by their composition and addition contents, appearance, nutritional value, price and manufacturer. This has been confirmed by results of other studies (Kacen and

Lee, 2002; Inman *et al.*, 2009), where decisions on food purchase were found to depend on the following factors: organoleptic properties of the product, its physical and chemical characteristics, ability to meet human physiological needs and social aspects. Results of the analysis of surveys conducted among the bakeries were slightly different from those collected from the consumers. The bakers reported that the consumers choice of bread was mainly driven by the price (64.7%), then flavour and taste (52.9%), appearance (32.4%), composition and addition contents (23.5%) as well as health benefit (20.6%).

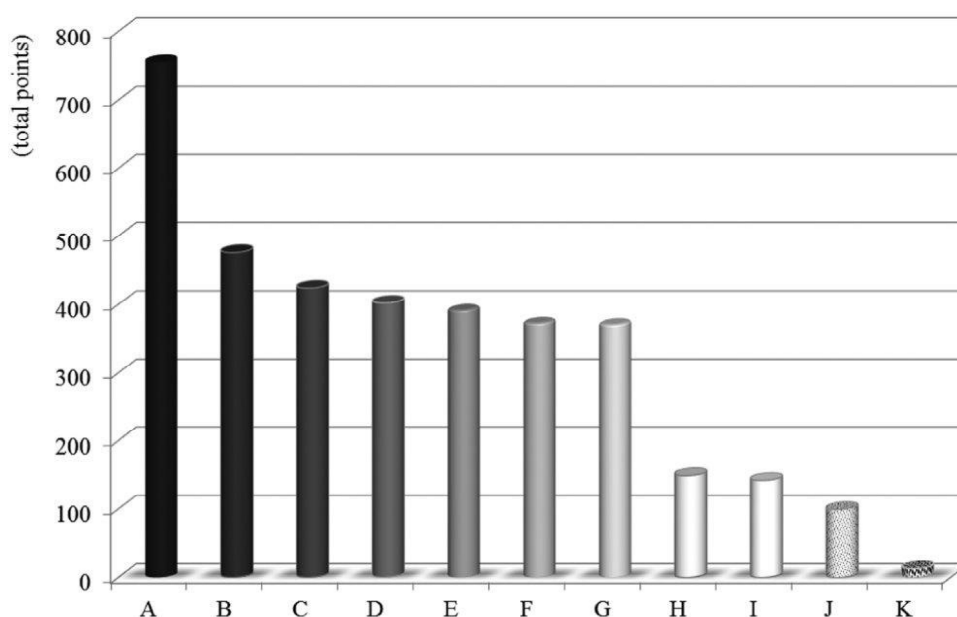


Fig. 2. Ranking of consumers criteria for the bread selection. A – smell and taste; B – composition and content of additives; C – appearance; D – the type of bread; E – health value; F – price; G – producer; H – tradition and habit; I – shelf life; J – mode of production; K – trends and fashion. Total points – sum of points (from 1 to 3) granted by the respondents to the chosen three most important criteria

Among preferred bread additions listed by the respondents, sunflower seeds were mentioned in the first place, then pumpkin seeds, cereal grains and addition-free bread products (Fig. 3). The obtained results were in line with the results recorded among the responding manufacturers, who most frequently used such bread additions as sunflower seeds (91.2%), then pumpkin seeds (41.2%), sesame (38.2%) and flax seed (29.4%). These results show that the available assortment was fitted to consumers expectations. While assessing the use of synthetic raising agents and preservatives, most of the consumers (91%) objected to this practice. Also, in the opinion of about 56% of respondents, the quality of available bread was poor. Similar findings were reported by Mintel analysts (2014) who concluded that the consumers perception of poor bread quality might be one of the reasons of bread consumption decline in Poland.

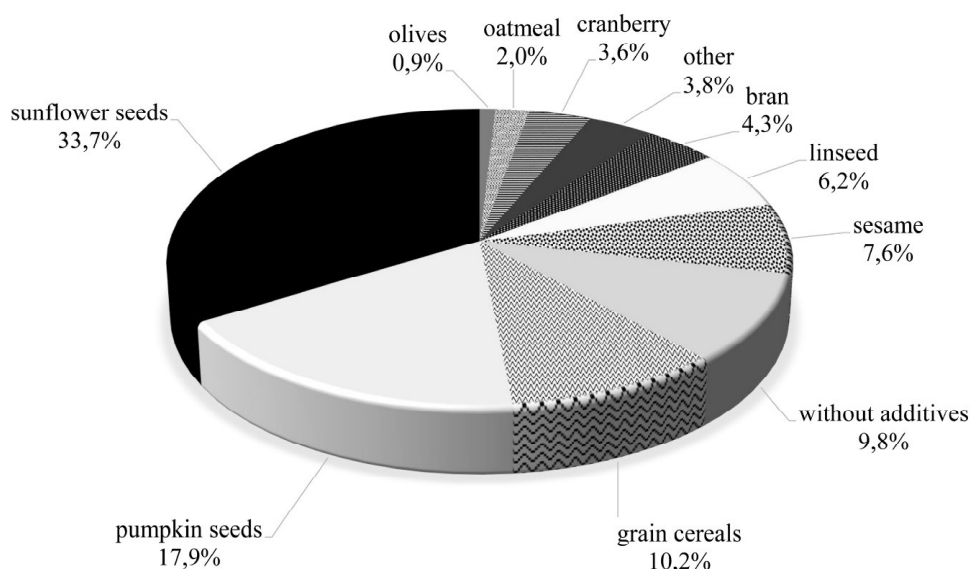


Fig. 3. Ranking of consumer criteria for bread additives

Price of Bread Products

More than 60% of respondents chose bread available at a price not higher than 3 PLN per loaf. The choice of cheaper bread was associated with several demographic and social factors. The most common reason was the number of family members. When the household comprised more than 4 individuals, the consumers chose cheaper bread ($\chi^2=85.96$; $p<0.01$; $\phi=0.28$). Further important factors were: the education level and employment status. Respondents with the primary education level relatively more often purchased the cheapest bread while consumers with a university degree more frequently chose more expensive products ($\chi^2=73.12$; $p<0.01$; $\phi=0.26$). White collar workers and self-employed consumers also purchased more expensive bread products ($\chi^2=90.5$; $p<0.01$; $\phi=0.29$). However, over 68% of respondents (mostly individuals with a higher education level) expressed willingness to pay more for bread of better quality and health benefits ($\chi^2=35.39$; $p<0.01$; $\phi=0.18$). Unemployed consumers and pensioners presented a negative attitude to higher prices for better-quality bread products ($\chi^2=43.61$; $p<0.01$; $\phi=0.20$). Comparable results were observed in surveys conducted by Mintel company (2014) where more than 80% of bread consumers found it worthwhile to pay more for higher-quality bread.

Contrary to the consumers, the responding bakers mostly (64.7%) disagreed with the perception of too high prices of good quality and healthy bread products in Poland while the opposite opinion was presented by only 27.9% of respondents.

Diet and Health

In the survey, a vast majority of consumers (more than 62%) agreed with the opinion on bread being the basic component of diet, about 32% disagreed and almost 6% of respondents were neutral. The perception of bread as a product valuable for human health was supported by over 72% and not supported by 19% of consumers while nearly 10% of respondents had no opinion on the issue. According to Gellynck *et al.* (2009), Belgian consumers consider bread products the basis of their diet whereas opinions on favourable effects of bread on health were varied. Bakers views on the essential role of bread in the diet were comparable to those of consumers (69% agreed, 25% disagreed and 6% had no opinion). However, the perception of bread as a product valuable for human health was more pronounced (89.7% of bakers agreed, 8.8% disagreed, 1.5% presented no opinion).

More than 11% of respondents reported diet-related health problems. There was a strong link between these diseases and age or education level of the consumers. The respondents with diet-related health problems were mostly elderly individuals ($\chi^2=59.6$; $p<0.01$; $\phi=0.24$) or those with the primary education level. Higher levels of education correlated with smaller rates of consumers with health problems ($\chi^2=17.9$; $p<0.01$; $\phi=0.13$). In the case of elderly individuals, the above relationships may be associated with frequently conservative eating habits while younger and better educated consumers demonstrate higher levels of adherence to the principles of healthy diet and of physical activity. The most common diet-related diseases reported by the respondents were: obesity (28.3%), arterial hypertension (27.5%) and diabetes (13.3%). These are civilisation-related diseases caused primarily by too little exercise, improper nutrition with excessive caloric intake, stress and the use of stimulants (Mann, 2002; James *et al.* 2004).

CONCLUSIONS

Considering a steady decline in bread consumption and a growing number of health problems in the population, importance of the use of bread products with high health-promoting compound contents should be more emphasised in prevention and treatment of diet-related diseases. Diverse bread demands of Polish consumers result in a wide range of bread products on the market and a continuing need for their higher quality and promotion of new brands. The obtained results may be related to the fact that over 49% of respondents had higher education. The most popular types are wheat and rye/wheat breads, yet Polish consumers do not avoid other or new bread types. However, it should be noted, that over 41% of respondents declared to belong to the group with the highest income. Consumers are willing to pay more for bread of higher quality and health benefits. Polish bakers successively try to meet consumers expectations.

ACKNOWLEDGMENTS

This work was supported by The Polish National Centre for Research and Development, under –Grant LIDER/019/519/L-4/12/NCBR/2013 (acronym: NovelBread4FIT).

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