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## STUDY OF CONSUMER PREFERENCES WHEN BUYING BIOLOGICALLY ACTIVE ADDITIVES IN PHARMACY ORGANIZATIONS OF THE REPUBLIC OF BASHKORTOSTAN

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*Based on the opinion poll findings of 261 consumers of biologically active additives (BAAs), including BAAs of Vita pharmacy chain private label, the BAA consumer profile in the Republic of Bashkortostan was created. It was found that 35.4% of consumers are ready to spend no more than 200 rubles per month for purchase of BAAs, preferring the domestically produced BAAs. The consumers evaluated BAAs of the Vita pharmacy chain private label taken by them in terms of efficiency and intensity of side effects. The consumers chose 14 most efficient BAAs of the Vita pharmacy chain private label (average weighted score varied from 3.3 to 3.8). The majority of respondents pointed to occurrence of side effects along with the efficiency with regard to four BAAs chain private label taken.*

**Keywords:** biologically active additives, private label, consumer preferences

In the modern pharmaceutical market, among retail sales, a sufficient capacious part is occupied by biologically active additives (BAAs), which are very popular with the population. According to the All-Russian Public Opinion Research Center, the majority of Russian

residents think the BAAs are additions to food (60%), about 16% of respondents believe that BAAs are vitamins, and 5% of respondents takes BAAs for medicines [1,8]. However, in the context of the economic crisis, there is a decrease in real incomes, solvency of the population and volume of the commercial pharmaceutical market. As a result, in 2014, there was a decrease in sales of medicines and biologically active additives in natural values by 5.8% and 7.2% compared to 2013 [1,2,3]. One of the areas of adaptation to changes in environmental conditions that have been developed in the pharmacy business is the promotion of biologically active additives under the private label brand (PLB) of the pharmacy chain, which are characterized by price availability. Therefore, it is relevant to study consumer behavior when choosing and buying biologically active additives, including biologically active additives under the private label brand, which allows us to characterize the trends that have developed in the Republic of Bashkortostan (RB).

**Purpose** of the study is study of consumer preferences when buying biologically active additives in pharmacy organizations of the Republic of Bashkortostan.

## MATERIALS AND METHODS

To study the consumer preferences for biologically active additives, the opinion poll method in the form of a questionnaire was used, in which the problem is studied by developing a questionnaire containing a certain set of questions and by questioning each of the participants of the selected group [5,6]. The opinion poll involved 261 respondents who were the buyers of BAAs and BAAs of Vita pharmacy chain private label on the territory of the Republic of Bashkortostan (RB), which meets the conditions of the representativeness of the target sampling with probability  $p=95\%$  [7]. The opinion poll was conducted from January to March 2017. The data from the biologically active additives consumer questionnaires was processed using a package of computer applications (Microsoft Excel). The developed questionnaire included two sections. In the first section, the questions required for drawing up a profile of the consumer of biologically active additives and for identifying the influence of various factors on consumer preferences in relation to biologically active additives by a correlation analysis were presented. The reliability of the obtained values of the correlation coefficient (C) was evaluated by comparison

with the standard values for the corresponding number of degrees of freedom  $p=95\%$  (according to L.S. Kaminsky) [8].

The second section of the questionnaire provided a list of BAAs of the pharmacy chain private label for evaluation. Consumers (buyers) were proposed to choose and evaluate BAAs under the private label, which they used for treatment and prevention of diseases. A total of 43 trade names (TN) of biologically active additives under the private labels were proposed. To evaluate the effectiveness and presence of side effects of biologically active additives under the private labels used by consumers, a 4-point scale is proposed, the characteristics of which are presented in Table 1.

The degree of consistency of consumer opinions was evaluated by calculating the coefficient of variation. The calculated values of the coefficient of variation did not exceed 25%, which indicates the consistency of the opinions of the respondents [8]. To assess the effectiveness and severity of side effects of biologically active additives under the private labels, we calculated the average weighted ratings of respondents for each name of biologically active additives under the private labels and proposed the intervals (in points) and their characteristics (Table 2).

Table 1

### CHARACTERISTICS OF THE RATING SCALE FOR EVALUATING THE BIOLOGICALLY ACTIVE ADDITIVES UNDER THE PRIVATE LABELS FOR VARIOUS PARAMETERS

Rating scale	Characteristics
4	Very effective biologically active additives under the private labels (improvement was immediately felt after administration)
3	Effective biologically active additives under the private labels (the effect appeared after a while)
2	Effective biologically active additives under the private labels, but there are side effects (allergies, nausea, stomach pain, etc.).
1	Low-effective biologically active additives under the private labels (no particular difference was felt from the use of this biologically active additives under the private labels)

Table 2

### INTERVALS (IN POINTS) FOR EVALUATING THE EFFECTIVENESS AND SEVERITY OF SIDE EFFECTS OF BIOLOGICALLY ACTIVE ADDITIVES UNDER THE PRIVATE LABELS

Interval values (in points)*	Characteristic of biologically active additives under the private labels
3.5–4.0	Very effective biologically active additives under the private labels
2.5–3.0	Effective biologically active additives under the private labels with rare side effects
1.5–2.0	Effective biologically active additives under the private labels with frequent side effects
Less than 1.5	Low-effective biologically active additives under the private labels

\* Note: the calculated weighted average estimates of respondents were grouped by value in the following boundaries: from 3.7 to 3.99 rounded to 4,0; 3,3–3,69 – to 3,5; 2,8–3,29 – to 3,0; 2,3–2,79 – to 2,5; 1,8–2,29 – to 2,0; 1,3–1,69 – to 1,5; 0,8–1,29 – to 1,0.

## RESULTS AND DISCUSSION

The opinion poll showed that among the consumers of biologically active additives in pharmacy organizations of the Republic of Bashkortostan, 76% of respondents were women. The distribution of respondents by age and social status is shown in Table 3.

The analysis of respondents' income per a family member showed that 42% of respondents had income of up to 10 thousand rubles per month, 33% – 10–15 thousand rubles, 25% – more than 15 thousand rubles. At the same time, 46.8% of consumers are ready to spend from 200 to 400 rubles a month for biologically active additives, 35.4% are ready to spend no more than 200 rubles. 17.8% of respondents are willing to spend

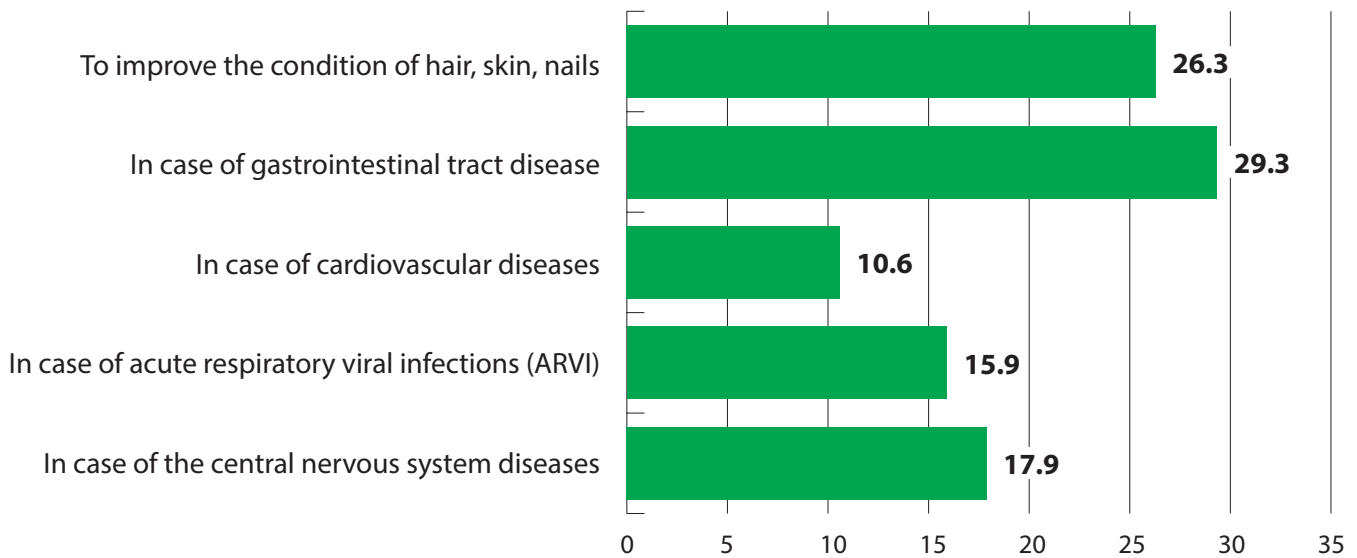
more than 600 rubles to buy biologically active additives. The opinion poll showed that 67.7% of respondents purchase biologically active additives in pharmacy organizations. Respondents believe that biologically active additives should be taken both for the prevention of diseases (41.7% of consumers surveyed) and for prevention and treatment (39.6%).

As a result of the opinion poll, it became known that the majority of consumers of biologically active additives know about their effectiveness from their own experience (51%). Also, 85.4% of respondents answered that regular use of biologically active additives in combination with traditional methods of treatment contributes to a faster recovery and facilitates the patient's condition. Figure 1 shows the use of biologically

Table 3

### DISTRIBUTION OF RESPONDENTS BY AGE AND SOCIAL STATUS

No.	Age group	Relative share, %	Social status	Relative share, %
1	Up to 20 years	5	Student	11
2	from 21 to 30 years	19	Householder	8
3	from 31 to 40 years	25	Worker	36
4	from 41 to 50 years	29	Office employee	21
5	Older than 50 years	22	Pensioner	24



**FIG. 1.** Use of biologically active additives in the personal experience of consumers, %

active additives in the personal experience of respondents, namely: in diseases of the gastrointestinal tract (GI), in diseases of the central nervous system (CNS), in acute respiratory viral infections (ARVI) and others.

The opinion poll showed that 31.2% of consumers prefer the Evalar brand, 28.2% prefer imported brands and 17.7% – biologically active additives under the private labels. The majority of respondents (36%) learned about them from relatives and friends, 28% – from pharmacists and chemists in the pharmacy. The majority of respondents – 45.8% – said that they had not experienced any side effects after taking biologically active additives, and 40.6% could not associate them with taking biologically active additives.

The correlation analysis of the factors influencing the choice and purchase of biologically active additives revealed that a significant relationship ( $C=0.68$ ) is observed between such factors as the average monthly income per a family member and the cost of biologically active additives. In addition, it was found that consumers knew about the effectiveness of biologically active additives in the prevention and treatment of diseases from their own experience ( $C=0.67$  and  $0.65$ , respectively). Regular use of biologically active additives purchased in a pharmacy

organization contributes to a faster recovery and facilitates the patient's condition, especially in the complex treatment of gastrointestinal diseases with medications and biologically active additives, as well as improves the condition and beauty of hair, nails and skin (the values of the correlation coefficient vary from 0.51 to 0.62). In addition, the consumers who prefer biologically active additives of the Evalar brand learned about them from relatives and friends ( $C=0.51$ ).

Based on the results obtained, we formed two profiles of consumers with an income of up to 10,000 rubles and more than 10,000 rubles per person, each of which has its own characteristics.

The first profile is of **a woman with income of up to 10,000 rubles per person**. She believes that biologically active additives should be used for prevention of diseases, and knows from her own experience that regular use of biologically active additives contributes to a faster recovery. When choosing biologically active additives, she is guided by the reviews of friends, relatives and pharmaceutical professionals, buying biologically active additives in pharmacy organizations. For the purchase of biologically active additives, she is ready to spend no more than 200 rubles a month. She uses biologically active additives of a private label and Evalar brand for prevention

of diseases of the central nervous system (Motherwort P, Eleutherococcus TM, Glycine VIS, Glycine MS, the cost of which is within 100 rubles.) in combination with other traditional methods of treatment. After taking biologically active additives, no side effects are noted

The second profile is of **a woman with income of over 10,000 rubles per person.** She believes that biologically active additives are necessary for both the treatment and prevention of diseases. In this case, biologically active additives can be used both separately and in combination with other methods of treatment. She knows from her own experience that regular use of biologically active additives contributes to faster recovery, in particular in the treatment

and prevention of diseases of the gastrointestinal tract and acute respiratory viral infections. She receives the information about biologically active additives from doctors. When choosing biologically active additives, she focuses on the information received from the doctor, as well as on the reviews of friends, relatives and pharmaceutical professionals. She purchases biologically active additives in pharmacy organizations, as a rule, at a cost of 200 to 600 rubles. Side effects are encountered, but she may not always connect them with taking biologically active additives.

The results of the point assessment of the private label biologically active additives used by consumers, according to the effectiveness and severity of side effects in the treatment

Table 4

**DISTRIBUTION OF THE PRIVATE LABEL BIOLOGICALLY ACTIVE ADDITIVES ACCORDING TO THE INTERVALS FOR EVALUATING THE EFFECTIVENESS AND SEVERITY OF SIDE EFFECTS**

Intervals (in points)	Characteristics of efficiency of the private label BAAs	Trade names of the private label BAAs (average weighted score)
3.5–4.0	Very effective	Cimi-klimin (3,8), Hawthorn Premium (3,7), Hepalux (3,4), White sorbent (3,3), Altai Mumiyo (3,3), Aevit (3,5), vitamin and mineral complex (VMC) for children of 3–7 years (3,4), VMC for children of 7–14 years (3,8), Glycine VIS (3,3), Glycine MS (3,8), Solisept (3,4), Motherwort P (3,5), Eleutherococcus TM (3,3), Bronchial tea (3,3), Plantain and Farfara syrup (3,7)
2.5–3.0	Effective with rare side effects	Ovelux (2,7), Lactosorbicum (2,4), Frutolax (2,4), Livecil/Milk Thistle (2,9), Benegast Redugas (2,6), Gastric tea (2,4), Milk Thistle extra (3,1), Cimi-klimin (3,8), Glucosamine-chondroitin complex (2,6), GCC Ultra (2,9), Superum (2,5), Tutti-frutti Omega-3 (2,6), Unic Omega (2,3), Bilberry forte with lutein (2,9), B vitamins (2,6), Beauty complex (3,2), Brewer’s yeast TM (2,4), VMC for men (2,9), Motherwort premium (3,2), Lozenges TM Sage and eucalyptus (3,2), Lozenges TM Alpine honey (3,2), Lozenges TM Sage and honey (3,2), Echinacea extra (2,6), Real Ginseng extract (2,5), Echinacea syrup with vitamins (2,9)
1.5–2.0	Effective with frequent side effects	Senna-D (1,9), Artichoke premium (2,2), Phytocomplex Lux (1,5), Ginkobil (2,1)
Less than 1.5	Low-effective	–

and prevention of various diseases are presented in Table 4.

In Table 4 it can be seen that 14 private label biologically active additives, such as Glycine MS, VMC for children from 7 to 14 years, Hawthorn premium, Hepalux, Plantain Syrup with Farfara, Aevit, Motherwort P and others are very effective. The weighted average score varies from 3.3 to 3.8 points. 25 private label biologically active additives are assigned by consumers to effective additives with rare side effects. And for four private label biologically active additives (Artichoke premium, Ginkobil, Senna-D and Phytocomplex Lax), the majority of respondents (more than 50% of respondents who took these private label biologically active additives) indicated side effects along with the effectiveness.

## CONCLUSIONS

1. Consumer behavior when choosing and buying biologically active additives in pharmacy organizations of the Republic of Bashkortostan was studied. Based on the results of the opinion poll, two consumer profiles were formed depending on income, reflecting the amount of expenses for the purchase of biologically active additives, the use in personal experience, preferred brands, as well as other factors.

2. Consumer opinion on the effectiveness and severity of side effects of the biologically active additives of the Vita pharmacy chain private label among consumers was studied. It was revealed that 14 private label biologically active additives of this pharmacy chain were noted by consumers as very effective (the average rating ranges from 3.3 to 3.8 points). 25 private label biologically active additives were noted by consumers as effective with rare side effects, but four biologically active additives (Senna-D, Artichoke premium, Phytocomplex Lux, Ginkobil) of the Vita pharmacy chain private label were characterized by often side effects according to consumers.

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