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Exploring customer preferences to drive successful food supplement placement in Croatia*

Maja Martinović[1], *Ivana Čolak*[2], *Zoran Barac*[3]

Abstract

This study examines the preferences and influences on the decisions of Croatian customers when purchasing food supplements. A survey of 312 customers of food supplements in Croatia found that distribution channels and pharmacies significantly influence the purchasing process, attributed to the value added by pharmacists. The most important aspects that customers consider are the type and amount of active and auxiliary ingredients (excipients) of the product. Brand-conscious customers consider the manufacturer and the product's country of origin important. The greatest influence is the recommendation of family members or friends. People prefer to choose a food supplement that offers value for money, but those without previous experience with the product are more price sensitive and buy on sales promotions such as discounts and packaging at a promotional price. Based on the results of this study, manufacturers and distributors of food supplements can create strategies in which, through co-creation with consumers, they achieve a competitive edge, encourage loyalty, and improve business results.

Keywords: *co-creation, consumer behavior, food supplements, marketing activities, OTC products*

JEL classification: *M31, I11, D12*

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[1] *Associate professor, Zagreb School of Economics and Management, Filipa Vukasovića Street 1, 10000 Zagreb, Croatia. Scientific affiliation: marketing strategy, business planning, service marketing, consumer behavior, tourism marketing. Phone: +385 1 6042 760. E-mail: mmartino@zsem.hr.*

[2] *MBA, Zagreb School of Economics and Management, Filipa Vukasovića Street 1, 10000 Zagreb, Croatia. Scientific affiliation: product development, business development, customer support, health product marketing, pharmaceutical marketing. Phone: +385 91 610 5510. E-mail: ivanacolak1@gmail.com.*

[3] *Senior lecturer, Zagreb School of Economics and Management, Filipa Vukasovića Street 1, 10000 Zagreb, Croatia. Scientific affiliation: business strategy, financial strategy, business sustainability, corporate governance, entrepreneurship. Phone: +385 1 6042 760. E-mail: zbarac@zsem.hr.*

1. Introduction

By 2024, the OTC market is valued at USD 137.39 billion, projected to reach USD 163.10 billion by 2029, with a growth rate of 3.49% annually (Mordor Intelligence, 2024). Notably, food supplements hold the largest share (30%) of the OTC market (Nicholas Hall, 2020), growing at an average rate of about 4% annually (Nicholas Hall, 2019). Since 2002, European regulation has categorized food supplements as foodstuffs, encompassing vitamins, minerals, amino acids, herbs, and herbal extracts, supplementing the typical diet (EFSA, 2024). While regulated similarly to food, their application and effects align more closely with drugs, albeit under a somewhat less stringent legislative framework. Croatia has aligned itself with European regulations concerning declarations, health claims, permitted ingredients, additives, and their respective quantities (Starling, 2013).

The European OTC market, primarily focused on Western Europe, exhibits saturation in overall trends and consumption per capita (Tisman, 2019), making Eastern European countries more promising. In 2015, the Croatian OTC market was valued at approximately 100 million USD, with a consistent growth rate of around 3% annually, and food supplements comprised 27% of the share (Nicholas Hall, 2016). By 2019, the per capita value of these products reached 56 euros, aligning with the average of Central and Eastern European countries, with an annual growth rate of 5% (Tisman, 2019). Worldwide, including in Croatia, consumers predominantly opt for food supplements containing vitamins and minerals, enabling a degree of generalization and comparison across studies conducted in different countries (Fadi Sekošan, 2016; Okleshen Peters et al., 2003; Wangcharoen et al., 2013).

Despite uncertainty in predicting trends, indications suggest that the OTC industry fares better than others. For instance, immune protection products containing vitamins C and D experienced robust growth during the COVID-19 pandemic (Nicholas Hall, 2021), while an increase in demand for sleep and stress supplements is anticipated due to the global economic downturn (Nicholas Hall, 2020).

Food supplements are readily available in pharmacies and predominantly offered by domestic companies with strong local and regional presence (Nicholas Hall, 2016; Starling, 2013). Pharmaceutical firms concentrate on developing new products and technologies, with smart devices promoting self-medication among consumers, while online sales of OTC products are rapidly expanding (Memişoğlu, 2018; Tisman, 2019). Within the next decade, online sales are forecasted to reach 19.2% of the total OTC market, doubling the current 9.4% (Nicholas Hall, 2020).

In an increasingly competitive market, customers autonomously select what makes their information crucial, prompting further investments in marketing activities. Therefore, this study aims to investigate Croatian customers' preferences and decision-making influences regarding food supplement purchases. Specifically,

it seeks to identify the role and importance of various factors in the information process and purchasing decisions, facilitating the successful implementation of strategies for enhanced product placement.

The impact of individual dimensions through which the four main constructs are operationalized was examined: the product, its price, sales channels, and primary sources of customer information about the products. This was done to understand consumers' behavior and decision-making better when choosing and buying a particular food supplement.

This paper aims to explore the preferences and influences on the decisions of Croatian customers when purchasing food supplements. Therefore, the paper sets out four hypotheses and four sub-hypotheses related to constructs that have proven significant for making purchasing decisions regarding food supplements. The hypotheses address the following research questions:

RQ1: Are the most important dimensions for customers when buying food supplements related to the product itself, and how do they prioritize aspects such as composition, brand, manufacturer information, and country of origin? (H1, H1.1, H1.2)

RQ2: Are food supplements predominantly bought in pharmacies, and is this related to the knowledge, expertise, and guidance pharmacists provide? (H2)

RQ3: What is the role of promotional activities in buying food supplements, and do recommendations, especially from familiar sources (friends and family), have a greater influence? (H3, H3.1)

RQ4: How do customers evaluate value for money versus the overall price when choosing food supplements, and how does previous experience with the product affect their price sensitivity and tendency to buy on sale? (H4, H4.1)

The following chapter presents the previously conducted research that served as the basis for formulating the hypotheses of this paper. Given the literature volume, the chapter is divided into sections addressing individual significant constructs. The empirical research section is presented, starting with an explanation of the research methodology, followed by the research results. Finally, the conclusions are presented along with the limitations of our research and recommendations for further studies on this topic.

2. Literature review and research hypotheses

The previous research review, which forms the basis for the hypotheses in this chapter, is structured around the fundamental constructs and dimensions that customers consider when buying food supplements. In addition, personal factors

related to demographic, geographic, psychographic and behavioral factors affecting the perception and behavior of customers in various countries are also important when making a purchase: Estonia (Villako et al., 2012), the Czech Republic (Veselá et al., 2018), Ireland (Walsh and Wright, 2016), Japan (Hayashi et al., 2015), Canada (Taylor et al., 2023), Malaysia (Sulaiman and Masri, 2017), Germany (Keuper and Seifert, 2024), Poland (Piecuch and Kozłowska-Wojciechowska, 2013), Romania (Cîrstea et al., 2017), the USA (DeLorme et al., 2012), Sweden (Roos et al., 2024), Thailand (Wangcharoen et al., 2013) and Great Britain (Lodorfos et al., 2006). Studies that dealt with demographic characteristics (Greger, 2001; Steinhauser and Hamm, 2018) showed that gender, age, level of education, and socioeconomic status are significant factors in the preference for these products because although their use is widespread at all socioeconomic levels, a greater consumption is evident with women with a higher level of education, higher income, and higher age.

2.1. The concept of product/brand

Satisfaction with a product often depends on the combination of elements, adequate ingredients, design, and practicality of the packaging, a well-known brand with which customers have already had a good experience, the service accompanying the product, and even the manufacturer (Belch and Belch, 2004). Satisfaction with respect to safety and information about an OTC product significantly impacts consumer trust, with packaging having a significant role (Kauppinen-Räisänen et al., 2012). Unlike other markets, differentiation through unique features of OTC products should play a major role here (Ferrier, 2001; Melovic et al., 2020). Therefore, hypothesis H1 was defined.

H1: When deciding to buy food supplements, the most important dimensions for customers are those related to the product itself.

When choosing a product, food supplement customers pay attention to the type and amount of active ingredients (Wangcharoen et al., 2013). Similar can be observed in the functional food category, where many customers are concerned about product additives and their impact on the human body (Karelakis et al., 2020). The sub-hypothesis H1.1 was defined as the basis of these studies.

H1.1: Within the product construct framework, customers prioritize the composition aspect, focusing on the type and quantity of active ingredients and excipients.

Several studies indicate that consumers of OTC products may not prioritize brands significantly (Cîrstea et al., 2017; Lodorfos et al., 2006). Instead, the product itself takes precedence within the overall mix, prompting pharmaceutical companies to focus on product development, positioning them slightly behind the FMCG industry in terms of branding (Memişoğlu, 2018). However, research also underscores the importance of brand loyalty in OTC products compared to FMCG

items (Kotagiri et al., 2023). Due to their implications for health and perceived risk, consumers of OTC products often assess quality based on internal attributes like taste and scent, as well as external factors such as packaging and manufacturer reputation, especially impacting consumers with lower health literacy (Kauppinen-Räisänen et al., 2012). Various studies (Lodorfos et al., 2006; Piecuch and Kozłowska-Wojciechowska, 2013; Shohel et al., 2013) emphasize that reliability or brand trust (Veselá et al., 2018), alongside prior experience with the OTC product, significantly influence whether consumers repurchase the same brand or switch (Cîrstea et al., 2017). Furthermore, a globally recognized manufacturer or brand can serve as a quality guarantee (Wangcharoen et al., 2013), particularly notable in the Asia-Pacific region, where brand loyalty tends to be stronger (Shah et al., 2020). Conversely, consumers in Europe and the USA are increasingly regarding well-known and private brands as equals, leading to the latter gaining market share (Kotagiri et al., 2023; Shah et al., 2020). These insights form the foundation for defining sub-hypothesis H1.2.

H1.2: Customers who consider the brand as a signal of product quality also value information regarding the manufacturer and the product's country of origin.

2.2. Distribution and its added values

Food supplement sales channels vary from country to country, including pharmacies, specialty retail stores, specialty retail chains, supermarkets, direct mail, and online sales (Lodorfos et al., 2006; Tisman, 2019; Walsh and Wright, 2016). Their wide availability enables the beneficiaries to define themselves, instead of as patients, as individuals who actively care for their lives (Tan, 2001; Pilarczyk, 2011). Customers view products sold in supermarkets differently than those sold in pharmacies (Belch and Belch, 2004). However, customers can often be turned away from pharmacies by queues and lack of privacy due to the presence of other customers (Piecuch and Kozłowska-Wojciechowska, 2013). Pharmacy chains with competitive pricing are replacing standalone pharmacies, while online pharmacies, offering a distinct product range, are experiencing rapid growth (Tisman, 2019). Walsh and Wright (2016) point out that online sales lack customer advice, so customers mainly use these channels for research and information about products. Roos et al. (2024) found that the typical online customer is mostly female and motivated by hedonic values and self-realization. Individual studies emphasize that advice provided at pharmacies is often the most important source of information, the most important aspect being the expertise of the person advising and selling, who is usually a pharmacist (Cîrstea et al., 2017; Hayashi et al., 2015; Lodorfos et al., 2006; Šapić et al., 2019; Walsh and Wright, 2016). The recommendation of experts, especially pharmacists, is often crucial for the decision to buy at pharmacies (Piecuch and Kozłowska-Wojciechowska, 2013; Veselá et al., 2018; Villako et al., 2012), and they are primarily guided by the product composition and

scientific evidence of efficiency rather than economic factors (Kennedy and Moody, 2000). It is estimated that 40% of purchase decisions change after a consultation at a pharmacy (HUPBR, 2017). All the aforementioned research has led us to propose one more hypothesis, H2.

H2: Food supplements are predominantly bought in pharmacies due to the added value associated with the knowledge, expertise, and guidance accessible from pharmacists.

2.3. The construct of promotion and word of mouth recommendation as a significant dimension

When deciding to purchase food supplements, consumers are introduced to products and brands through advertising, personal selling, public relations, events and sponsorships, point-of-purchase promotions, samples and rewards, and direct and digital marketing (Memişoğlu, 2018); family members and friends are often sources of information (DeLorme et al., 2012). Advertising in this context has been examined by many authors (Hayashi et al., 2015; Okleshen Peters et al., 2003), and Shohel et al. (2013) conclude that the role of advertising is mainly informative and instructive and observable only before sampling a specific product. Advertising and information from the media are most relied upon by individuals who take more food supplements (Okleshen Peters et al., 2003), with ads oriented more toward health claims than brand image (DeLorme et al., 2012).

Healthcare professionals and end consumers are more sensitive to branding activities when they are supported by clinical evidence (Memişoğlu, 2018), which is more relied on by customers with a lower level of education (Steinhauser and Hamm, 2018). Technological advancements and shifting consumer habits in the OTC market drive increased internet communication, facilitating consumer education (Pilarczyk, 2011). The internet fosters interactivity, with social media, mobile apps, and online communities enabling users to create brand content and share experiences with others (Memişoğlu, 2018). Kantar Media research found that 84% of food supplement users use the internet for health and wellness, of which 71% are on a mobile device, 67% of them are careful about which websites they use for accessing health-related information, 44% consider online communities or support groups and 35% use health-related apps (Natural Products Insider, 2018). These facts were the basis for defining hypothesis H3.

H3: Promotional activities' role is mainly informative and instructive, so recommendations have a greater influence on purchasing food supplements.

The influence of purchasing OTC products was examined by Cîrstea et al. (2017), who found that students rely more on the advice of relatives while working adults rely more on their own knowledge. The most effective information often comes

from personal, experiential, and other independent sources, and word of mouth can have a strong influence on customer behavior because recommendations from friends, family, colleagues, and other consumers are more trusted than information from commercial sources (Kotler et al., 2014). Levine (2015) found that 47% of consumers trust advertising, 72% trust family and friends, and an equal number of trusted online reviews. Therefore, sub-hypothesis H3.1 was also defined.

H3.1: A purchase recommendation has the greatest impact if it comes from friends and family members.

2.4. The construct of price and consumer price sensitivity

Given that the price of food supplements is not regulated, there are often many different prices for the same product or products with the same purpose on the market. This issue is very complex, especially due to customers with lower purchasing power. Namely, although greater regulation would ensure that even financially weaker customers buy high-quality products and protect them from potentially harmful products, regulation could ultimately negatively impact customer choice and prices by reducing competition (Rathmann and Seifert, 2024). Some studies claim that the higher price of OTC products does not significantly concern customers or affect their purchase choice (Shohel et al., 2013) and that high brand trust reduces price sensitivity, especially among older customers (Lodorfos et al., 2006). In recent trends, other factors, such as expert recommendations or previous experience and attitudes towards the product, often influence the purchase decision more than the price itself (Belch and Belch, 2004; Cîrstea et al., 2017). Although selling outside pharmacies allows price reductions and greater availability, this cannot compensate for the services in the form of professional information provided by pharmacies, which customers need (Szigeti and Jozsa, 2023). The price is planned as part of the overall promotional mix, as it can be adjusted by means of sales promotions such as discounts and packaging at a promotional price (Pilarczyk, 2011). Some studies show that price is less related to purchasing food supplements than product quality or advertising (Wangcharoen et al., 2013) and that consumers attribute higher prices to higher product quality, making price less important to them (Shohel et al., 2013). Obviously, for the successful positioning of the product, it is important to adjust the price in accordance with other marketing elements, which is why hypothesis H4 was defined.

H4: Customers prefer to choose the food supplement offering the best value for money rather than the product with the lowest overall price.

Other research has shown that customers in the OTC market are price sensitive, where their price sensitivity is usually determined by their experience with the brand or product (Sulaiman and Masri, 2017; Šapić et al., 2019). Therefore, sub-hypothesis H4.1 was also defined.

H4.1: Customers without previous experience with the product are more price-sensitive and buy on sales.

3. Empirical research

The formulated hypotheses served as the basis for conducting primary research to test their validity on a sample of respondents in Croatia. This section presents the details of the research methodology, followed by the results.

3.1. Research methodology

The data collection instrument was a questionnaire created according to instruments used in similar research (Melovic et al., 2020; Nguyen et al., 2015; Sulaiman and Masri, 2017). The questionnaire comprised 19 multiple-choice questions, a 5-point Likert scale, and a relevance scale. It was distributed via e-mail, Facebook, and WhatsApp from April 11 to 20, 2021. The customers forwarded the questionnaire themselves, generating a convenience or snowball sample. Melovic et al. (2020) propose that well-informed users are more likely to provide precise responses, forming an expert sample on the subject matter. This fact contributes to the quality of the research through a sample that includes users of food supplements who, as a result, are well-informed and can provide higher-quality feedback.

In the final data processing, 312 food supplement customers were included. They were chosen based on the initial question, which acted as both an elimination and selection criterion regarding purchase frequency. Respondents over 20 were included, considering that young people seldom purchase food supplements independently. Microsoft Excel and SPSS Ver 26.0 were used for data processing. The collected data was analyzed using descriptive statistics, and the correlation between the observed variables was examined using the Pearson correlation coefficient.

3.2. Research results

Most respondents (45.5%) use food supplements almost all year round, 18% use them several times a year, 26.9% only when they feel the need, and 9.6% have tried food supplements several times. The largest number stated that they use vitamins and minerals (86.9%). They could give more answers, followed by bee products (37.5%) and microorganisms (34.9%), fish oil and fatty acids (20.8%), herbs and herbal substances (12.5%), amino acids (7.4%), fibers (6.7%) and other (2.9%).

Of the 312 respondents, 30.8% were male, and 69.2% were female, which was expected because previous research found that women use and buy food

supplements more often (DeLorme et al., 2012; Greger, 2001; Wangcharoen et al., 2013). The average age of the respondents is 38.16 years, with the largest share encompassing highly educated people employed full-time and with an above-average income (>1,060 EUR) (Table 1).

Table 1: Demographic features of the respondents

	N	%		N	%
Sex			Employment status		
M	96	30.8	Unemployed	9	2.9
F	216	69.2	Student	21	6.7
Age			Employed, full-time	252	80.8
20-29	49	15.7	Employed, part-time	6	1.9
30-39	154	49.4	Self-employed	19	6.1
40-49	64	20.5	Retired	5	1.6
50-59	34	10.9			
> 60	11	3.5			
Level of education			Personal average monthly income		
Elementary	0	0.0	< 530 EUR	30	9.6
Secondary	47	15.0	531 EUR – 800 EUR	19	6.1
Undergraduates	42	13.5	801 EUR – 1,060 EUR	77	24.7
Graduates	150	48.1	1,061 EUR – 1,320 EUR	59	18.9
Postgraduates	73	23.4	1,321 EUR – 2,000 EUR	74	23.7
			> 2,001 EUR	53	17.0

Source: Author's calculation

The respondents believe that all the mentioned dimensions influence their purchasing behaviour (Table 2). When the entire constructs are observed, the average of the arithmetic means of the distribution construct is the highest and amounts to 3.71±1.07, while the average of the arithmetic means of the product construct is 3.61±1.11. The dimensions within the distribution construct were rated with a very high average rating: expertise 4.06±1.01, know-how 3.97±1.06, advice 3.90±1.04 and independent study of the product's composition 3.70±1.01.

Based on the highest value of the arithmetic mean (4.11±1.10), the most important aspect that customers consider when buying food supplements is the type and quantity of the product's active ingredients (Table 2). When it comes to a recommendation to buy a certain food supplement, the recommendation of a family member or friend (3.67±1.05) is more important than the recommendation of a pharmacist (3.35±1.11); the lowest value of the arithmetic mean was recorded for promotional messages (2.48±1.00).

Table 2: Importance of certain dimensions of constructs that influence the purchase of food supplements (arithmetic mean ($\bar{x}$) and standard deviation (SD))

Constructs and their dimensions	$\bar{x}$*	SD*
Product/brand		
Type and quantity of the product's active ingredients	4.11	1.10
Previous experience with the product	3.92	1.11
Health impact claims	3.88	1.04
Type and number of excipients of the product	3.50	1.19
Manufacturer	3.39	1.09
Country of origin	3.24	1.19
Brand	3.24	1.07
Price		
Price of the food supplement	3.28	1.05
Distribution		
Expertise of pharmacists or other sales staff	4.06	1.01
Know-how of pharmacists or other sales staff about food supplements	3.97	1.06
Advice from a pharmacist or other sales staff	3.90	1.04
Quick completion of the purchase	3.39	1.15
Possibility of independent study of the product's composition	3.70	1.01
Privacy when shopping	3.25	1.15
Promotion		
Recommendation of a family member/friend	3.67	1.05
Pharmacist's recommendation	3.35	1.11
Promotional message for food supplements	2.48	1.00

*Scale of relevance from 1 – 5, where: 1=not relevant; 5=very relevant

Source: Author's calculation

In order to additionally test sub-hypothesis H1.1., Pearson's correlation coefficient (r) was used to examine the relationship between the type and amount of active ingredients of the food supplement and the type and amount of excipients, where a medium-strong positive correlation was recorded ($r=0.504$; $p<0.01$), which shows that the more important the type is to the customer and the amount of active ingredients of the product, the more important are the types and amounts of the product's excipients (Table 3).

Table 3: Pearson's correlation coefficient for the product's composition (N=312)

		1. Type and amount of active ingredients of the product	2. Type and amount of excipients of the product (preservatives, sweeteners, etc.)
1. Type and amount of active ingredients of the product	r	1	0.504**
2. Type and number of excipients of the product	r	0.504**	1

Note: **Correlation is significant at levels of 0.01 (two-tailed test) ($p<0.001$)

Source: Author's calculation

Table 4 shows a positive correlation between the variables brand and manufacturer ($r=0.827$; $p<0.01$), followed by manufacturer and country of origin ($r=0.585$; $p<0.01$), and brand and country of origin ($r=0.471$; $p<0.01$).

Table 4: Pearson's correlation coefficient for the examined variables of the construct product (N=312)

		1. Brand	2. Manufacturer	4. Country of origin
1. Brand	r	1	0.827**	0.471**
2. Manufacturer	r	0.827**	1	0.585**
3. Country of origin	r	0.471**	0.585**	1

Note: **Correlation is significant at levels of 0.01 (two-tailed test) ($p<0.001$)

Source: Author's calculation

Respondents most often buy food supplements in pharmacies (57.1%), in combination with the importance they attach to the expertise, know-how, and advice of pharmacists or other sales staff (Table 2). Other sales channels are pharmacies (16%), online (9.3%), health food stores (7.1%), directly from the manufacturer or distributor (6.7%), retail stores/supermarkets (2.8%), and others (1%).

There is a strong positive correlation between the importance of the know-how of pharmacists or other sales staff and their expertise ($r=0.908$; $p<0.01$), which shows that customers attach almost equal importance to these aspects and that, in this case, they also value their advice ($r=0.807$; $p<0.01$ and $r=0.788$; $p<0.01$) (Table 5).

Table 5: Pearson's correlation coefficient for the importance of pharmacists or other sales staff (N=312)

		Q1	Q2	Q3
Q1: Know-how of pharmacists or other sales staff on food supplement	r	1	0.908**	0.788**
Q2: Expertise of pharmacists or other sales staff	r	0.908**	1	0.807**
Q3: Advice of pharmacists or other sales staff	r	0.788**	0.807**	1

Note: **Correlation is significant at levels of 0.01 (two-tailed test) ($p<0.001$)

Source: Author's calculation

The largest share of respondents collects information about food supplements through online portals and specialized websites (39.1%), followed by friends and family members (26.9%), pharmacists or other sales staff (21.5%), from social networks (5.5%), through magazines (1.3%), TV shows (1%), TV and radio commercials (0.6%), leaflets (0.3%) and other sources (3.8%). It is obvious that when it comes to informing customers, online and word-of-mouth recommendations have a big influence; when it comes to buying recommendations, the customers value family members or friends the most (Table 2). Yet the greater the importance of the recommendation of a family member or friend, the greater the importance of the pharmacist's recommendation (Table 6) because a moderately strong correlation is evident ($r=0.523$; $p<0.01$).

Table 6: Pearson's correlation coefficient for the importance of recommendations when purchasing food supplements (N=312)

		1. Recommendation of pharmacist	2. Recommendation of family member/friend
1. Recommendation of pharmacist	r	1	0.523**
2. Recommendation of family member/friend	r	0.523**	1

Note: **Correlation is significant at levels of 0.01 (two-tailed test) ($p<0.001$)

Source: Author's calculation

Most respondents buy food supplements with the best value for money (4.06±0.89), not the one with the lowest total price (2.15±1.01) (Table 7).

Table 7: Effect of pricing on selecting food supplements

	$\bar{x}$*	SD*
I buy a food supplement with best value for money	4.06	0.89
If a certain product is on discount, I prefer to buy it rather than others	3.06	1.12
The price of the food supplement is very important to me when I buy a product that I have not used before	3.20	1.07
The price of the product is more important to me than the brand	2.55	1.17
I buy a food supplement with the lowest overall price	2.15	1.01

*Likert scale from 1 – 5, where: 1=totally disagree; 5=totally agree

Source: Author's calculation

Pearson's correlation coefficients for the Price construct (Table 8) show that there is a moderately strong positive correlation between the variables *The price of the food supplement is very important to me when I buy a product that I have not used before,* and *The price of the product is more important to me than the brand* (r=0.540; p< 0.01) and the variable *I buy a food supplement with the lowest overall price* and *If a certain product is on discount, I prefer to buy it rather than others* (r=0.509; p<0.01). For price-sensitive customers, price is more important than brand when they buy a product for the first time. Also, customers who buy at the lowest total price will prefer to buy the product at a discount.

Table 8: Pearson's correlation coefficient for the dimensions of the construct price (N=312)

		Q1	Q2	Q3	Q4	Q5
Q1: I buy a food supplement with the lowest overall price	r	1	0.509**	0.145*	0.389**	0.404**
Q2: If a certain product is on discount, I prefer to buy it rather than others	r	0.509**	1	0.309**	0.453**	0.444**
Q3: I buy a food supplement with the best value for money	r	0.145*	0.309**	1	0.354**	0.257**
Q4: The price of the food supplement is very important to me when I buy a product that I have not used before	r	0.389**	0.453**	0.354**	1	0.540**
Q5: The price of the product is more important to me than the brand	r	0.404**	0.444**	0.257**	0.540**	1

Note: *Correlation is significant at levels of 0.05 (two-tailed test) (p<0.05), **Correlation is significant at levels of 0.01 (two-tailed test) (p<0.001)

Source: Author's calculation

4. Discussion and conclusions

Research indicates that the demographic profiles of food supplement consumers in Croatia resemble those in other countries (DeLorme et al., 2012; Greger, 2001; Villako et al., 2012; Wangcharoen et al., 2013), with a preference for products containing vitamins and minerals (Fadi Sekošan, 2016; Okleshen Peters et al., 2003; Wangcharoen et al., 2013).

Although the first hypothesis, *H1: When deciding to buy food supplements, the most important dimensions for customers are those related to the product itself,* is based on the research done by Ferrier (2001) and Melovic et al. (2020), *it cannot be accepted as true*, given that the distribution proved to be a more important construct.

This is supported by claims that products should offer new benefits, as confirmed by scientific evidence, to increasingly aware and engaged consumers (Tisman, 2019) who are also interested in the product's excipients. Customers prioritize active ingredient composition, echoing findings by Wangcharoen et al. (2013), with excipients also influencing purchase decisions, thus sub-hypothesis *H1.1: Within the product construct framework, customers prioritize the composition aspect, focusing on the type and quantity of active ingredients and excipients*, can be *fully accepted as true*. The importance of brand, manufacturer, and country of product origin aligns with loyalty research (Kotagiri et al., 2023) and quality assurance (Kauppinen-Räisänen et al., 2012; Wangcharoen et al., 2013), *confirming sub-hypothesis H1.2: Customers who consider the brand as a signal of product quality also value information regarding the manufacturer and the product's country of origin.*

Buying food supplements in pharmacies is highly prevalent due to the valued expertise and guidance provided by pharmacists and sales staff, thus *confirming hypothesis H2: Food supplements are predominantly bought in pharmacies due to the added value associated with the knowledge, expertise, and guidance accessible from pharmacists.* This finding is consistent with numerous previous studies (Lodorfos et al., 2006; Cîrstea et al., 2017; Piecuch and Kozłowska-Wojciechowska, 2013; Veselá et al., 2018; Hayashi et al., 2015; Šapić et al., 2019; Walsh and Wright, 2016; HUPBR, 2017; Szigeti and Jozsa, 2023).

Hypothesis H3: Promotional activities' role is mainly informative and instructive, so recommendations have a greater influence on purchasing food supplements is accepted as true because the respondents mostly use online sources as a medium for gaining information about the offer, while the recommendation of a family member or friend is the most important when making the purchase. Therefore, hypothesis *H3.1 is also accepted: A purchase recommendation has the greatest impact if it comes from friends and family members.* This is consistent with the results obtained

by Cîrstea et al. (2017) and Levine (2015). Our research has shown that the greater the importance of a recommendation from a family member or friend, the greater the importance of a pharmacist's recommendation. The mentioned sources of information are independent, so for the best results, promotion should be primarily based on online recommendations, in which consumers can be included in the co-creation process in the form of reviews, user experiences, and other content.

Hypothesis H4: Customers prefer to choose the food supplement offering the best value for money rather than the product with the lowest overall price, confirming that customers prioritize value for money over the lowest price when choosing food supplements. Previous studies indicate that price does not heavily influence purchase decisions, with consumers associating higher prices with better quality (Lodorfos et al., 2006; Shohel et al., 2013). Other factors, such as brand perception, often outweigh price considerations (Belch and Belch, 2004; Cîrstea et al., 2017; Wangcharoen et al., 2013).

Typically, food supplement consumers, predominantly women of higher socioeconomic status, prioritize health over price, while price-sensitive customers prioritize discounts, particularly for first-time purchases, as *confirmed by sub-hypothesis H4.1: Customers without previous experience with the product are more price-sensitive and buy on sales.* Research has shown that price sensitivity is usually determined by experience with a brand or product (Sulaiman and Masri, 2017; Šapić et al., 2019).

Although there are significant reasons why this sample can be considered highly relevant, as it consists of 312 very well-informed and experienced users who can provide higher-quality feedback (Melovic et al., 2020), this research has limitations. These include a sample biased towards interconnected users of specific tools rather than representing the entire population. Therefore, future research can use a random sample of respondents based on probability. It is also worth noting that this research was conducted solely for the Croatian market.

Despite this, our research has provided a lot of valuable information that can serve as a foundation for future scientific studies in strategic marketing for food supplements or, specifically, their promotion and brand management. Since key factors and constructs have been identified here that can contribute to the better marketing of food supplements in general, it would be beneficial to conduct this research more broadly in other countries as well. For example, our research indicates that customers who view the brand as a signal of product quality also value information regarding the manufacturer and the product's country of origin. It would be useful to investigate this relationship further and see the importance of domestic brands, well-known global brands, similar factors, and the types of products for which they are used. Additionally, how customers can be encouraged to participate in the co-creation process through promotional activities should be

explored further. Furthermore, it has not thoroughly explored whether pharmacists are perceived as independent experts or sales staff. Future studies should delve into this aspect. With the projected growth of online sales for food supplements (Nicholas Hall, 2020), it would be valuable to analyze how word-of-mouth, a crucial dimension, can be effectively integrated into this new distribution channel. Nonetheless, this research sheds light on aligning strategic projects with customer preferences. Manufacturers and distributors of food supplements can leverage these insights to develop tailored products and activities, fostering engagement, loyalty, and improved business outcomes through collaboration and co-creation with consumers. These research findings can also be useful for businesses outside Croatia that are in similar environments, such as transitional countries or South-East European countries. Our research has shown that distribution is extremely important, particularly the dimension related to the assistance and recommendations provided by pharmacists or sales staff. Users highly value word-of-mouth recommendations, which can come from a family member, friend, or pharmacist. Therefore, manufacturers and distributors should place significant emphasis on these aspects. The independence of the source proves to be crucial. Considering new trends in digital media and networks, there is significant potential for new ideas in creating online content in which consumers can participate through the co-creation process. Therefore, it should be considered how to involve them more actively in providing positive feedback through reviews, user experiences, and other content.

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Istraživanje preferencija kupaca za uspješno plasiranje dodataka prehrani u Hrvatskoj

Maja Martinović[1], *Ivana Čolak*[2], *Zoran Barac*[3]

Sažetak

Ova studija ispituje preferencije i utjecaj na odluke hrvatskih kupaca prilikom kupnje dodataka prehrani. Anketa među 312 kupaca dodataka prehrani u Hrvatskoj pokazala je da distribucijski kanali i ljekarne značajno utječu na proces kupnje, što se pripisuje dodanoj vrijednosti koju pružaju ljekarnici. Najvažniji aspekti koje kupci razmatraju su vrsta i količina aktivnih i pomoćnih sastojaka proizvoda. Kupci svjesni marki smatraju važnima i proizvođača i zemlju podrijetla proizvoda. Najveći utjecaj ima preporuka članova obitelji ili prijatelja. Kupci preferiraju odabrati dodatak prehrani koji nudi vrijednost za novac, ali oni koji nemaju prethodno iskustvo s proizvodom osjetljiviji su na cijenu i kupuju na akcijama unaprjeđenja prodaje kao što su popusti i promotivne cijene pakiranja. Na temelju rezultata ovog istraživanja proizvođači i distributeri dodataka prehrani mogu stvoriti strategije u kojima kroz sukreiranje s potrošačima postižu konkurentsku prednost, potiču lojalnost i poboljšavaju poslovne rezultate.

Ključne riječi*: sukreiranje, ponašanje potrošača, dodaci prehrani, marketinške aktivnosti, OTC proizvodi*

JEL klasifikacija*: M31, I11, D12*

[1] *Izvanredni profesor, Zagrebačka škola ekonomije i managementa, Ulica Filipa Vukasovića 1, 10000 Zagreb, Hrvatska. Znanstveni interes: strategija marketinga, poslovno planiranje, marketing usluga, ponašanje potrošača, marketing u turizmu. Tel.: +385 1 6042 760. E-mail: mmartino@zsem.hr.*

[2] *MBA, Zagrebačka škola ekonomije i managementa, Ulica Filipa Vukasovića 1, 10000 Zagreb, Hrvatska. Znanstveni interes: razvoj proizvoda, poslovni razvoj, podrška korisnicima, marketing zdravstvenih proizvoda, farmaceutski marketing. Tel.: +385 91 610 5510. E-mail: ivanacolak1@gmail.com.*

[3] *Viši predavač, Zagrebačka škola ekonomije i managementa, Ulica Filipa Vukasovića 1, 10000 Zagreb, Hrvatska. Znanstveni interes: strategija poslovanja, financijska strategija, održivost poslovanja, korporativno upravljanje, poduzetništvo. Tel.: +385 1 6042 760. E-mail: zbarac@zsem.hr.*