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RELATIONSHIP OF QUALITY, PRICE AND TOILET SOAP CONSUMPTION

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Abstract

The goal of the research was to identify the characteristics of soap according to the criterion of their importance for the consumer, that is, the customer, and to examine the interdependence of quality, price and consumer habits, that is, consumption. The first part of this research included the procurement and laboratory analysis of the quality of commercial soaps for washing hands on the domestic market. The second part of the research was a survey of the population to collect data based on which consumer habits and implicit values that consumers attach to toilet soaps were assessed. Also, the survey included key indicators of the consumer's living standard as an influencing factor in the consumer's decision when choosing any type of product and/or service. The research results show that consumers use liquid soap more often, and they make purchases mainly in consumer goods stores. Factors that show the greatest influence on the customer's decision when choosing soap are the ratio of quantity and price, price and the smell of the product. For the majority of consumers, the fact that the soap is made on a natural basis is of great importance, and about 70% of respondents are ready to spend more money on soap to contribute to the preservation of the environment. The obtained results can serve as a basis for developing a strategy for increasing the participation of this type of product in the market and consequently improving the quality of the manufacturer's business.

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1. Introduction

Globalization and advancements in communication and transportation technology enable consumers to access a wide range of products and services from other countries, leading companies to constantly compete for survival in the market. Increasing competition results in a continuous examination of customer expectations, needs, desires, and brand preferences by retailers (Kalaimahal & Kumaradeepan, 2019), but also complicates consumers' decision-making regarding purchases (Adis et al., 2017).

The consumer's decision to purchase a product depends on numerous factors (Krishnan & Nandhini, 2017), which can be categorized into two groups: internal and external factors. Internal factors are psychological and include personal factors (age and life cycle stage, occupation and economic status, personality and self-image, lifestyle and values) and mental processes (motivation, perception, learning, memory, beliefs, and attitudes). External factors include geographical factors (geographical area, climate, relief, population density, ecology), demographic factors (population size and gender, age structure, marital status and household types, educational and ethnic structure of the population), economic factors (macroeconomic conditions (general economic conditions, growth rate, inflation, unemployment), consumer purchasing power, consumer willingness to spend, consumer spending structure), sociological factors (culture, social factors (roles and statuses, reference groups, family), and situational factors (Aleksić et al., 2012).

In the research by Rizvi et al., (2023), it is noted that factors such as perception, personality, learning, communication, attitude, belief, motivation, culture, family, social class, and promotion influence consumer behavior when purchasing soap. The study by Kumar and Reddy (2017, p. 4362) shows that the reliability of skin soap, freshness, fragrance, hydration effect, packaging, brand, and side effects are the most important factors when buying soap. To attract customers, international soap manufacturing companies primarily focus on six common factors: price, brand reputation, relaxation, all-natural ingredients, fragrance, and good health (Chowdhury, 2015).

The brand holds significant importance and is considered a powerful mental shortcut in purchasing (Shehzad et al., 2014). The decision to buy is largely influenced by the brand name, which should be unique, distinct from other names, easily memorable, and appealing to consumers (Alamgir, 2010). The concept of a brand encompasses the customer's perception and opinion of the performance of a specific product brand (Veljković & Đorđević, 2010) and represents a combination of names, symbols, and designs. A brand influences the creation of trust, conviction, and consistency among customers, generating a sense of security in the purchasing process (Gundarapu, 2020). If customers believe in the quality of a brand, it provides

them with a reason to become loyal to that brand (Alamgir, 2010). Research shows that consumers generally prefer to purchase branded soaps (Katiyar & Katiyar, 2014).

Consumer interest in purchasing products, specifically bath soap, is influenced by both the characteristics of the soap and the packaging of the product (Tjahyanti, 2014). The main message of the packaging focuses on attracting consumers' attention through symbols, logos, and text that are visually appealing (Assali, 2016). As noted in the research, the color of the packaging and the background image significantly impact consumer behavior when buying soap (Akhter & Nur-al-ahad, 2021).

Product quality is defined as the ability of a product to perform its functions while also satisfying the needs or desires of consumers (Nadhifah & Adinugraha, 2020). The quality of soap is assessed based on its non-irritating effects on the skin and the effectiveness of cleaning, determined by physicochemical characteristics such as the content and type of surfactants, sodium chloride content, other additives, and pH value (in liquid soaps). For solid soaps, the most important characteristics include total fatty matter, free alkalis, total alkalis, moisture content, pH, as well as factors like the strength and purity of the alkalis used, the type of oils/fats, and the completeness of the saponification reaction (Mwanza & Zombe, 2020). Many consumers consider price as an indicator of product quality. Price represents the monetary value of goods, and there are two categories: objective or actual price and perceived price, which reflects an individual's belief about how much an item costs based on its quality (Mashao & Sukdeo, 2018).

Soaps are cosmetic products used to maintain skin health and hygiene by removing layers of dead cells present on the human body's skin (Fazal-ur-Rehman & Akram, 2018). It is estimated that simple handwashing and maintaining hand hygiene leads to a reduction in the incidence of infectious diseases, saving millions of lives each year (Ahuja & Patil, 2017). For hygiene purposes, both solid (bar) soaps and liquid soaps are used today. Due to easier dosing and quicker dissolution compared to solid soaps, liquid soap formulations are gaining increasing popularity.

Solid soaps are defined as alkaline salts of higher fatty acids that are soluble in water (Habib et al., 2016). They are formed by the degradation of fats, i.e., esters of higher fatty acids, through the action of alkalis, resulting in the release of glycerol. This process of soap formation is known as saponification (Arasaretnam & Venujah, 2019). The cleaning ability of soaps is attributed to their specific molecular structure, consisting of hydrocarbon chains (hydrophobic part) attached to a carboxyl group (hydrophilic part). The removal of dirt from clothing and human skin is caused by the hydrocarbon chain's affinity to dissolve grease (dirt) and the carboxyl groups ability to dissolve in water (Adane, 2020). Several factors influence the chemical characteristics of soap: the type and purity of the alkalis, the type of oil used, the completeness of the saponification reaction, and the age of the soap (Betsy et al., 2013).

Liquid soaps are washing agents based on synthetic surfactants (tensides) and auxiliary components. The main ingredients of liquid soaps are surfactants,

particularly anionic types (sodium laureth sulfate, sodium lauryl sulfate, and other sulfates) (Bratovcic et al., 2018). This type of hand soap is preferred over solid soap because it is more convenient to use and helps maintain hygiene by preventing the spread of germs from one person to another (Widyaningsih et al., 2018). Additionally, solid soap is intolerant to hard water and forms scum with calcium and magnesium ions (Awang et al., 2001).

The aim of this research is to analyze consumer habits regarding soap purchases, to be determined which factors most influence the decision to buy soap and to examine the relationship between price and quality, where quality will be assessed by determining the physicochemical composition of commercial soaps available in the domestic market.

1.1 Materials and methods

The experimental part of the work consisted of two parts. The first part refers to the procurement and laboratory analysis of soaps purchased in commercial markets from the territory of Bosnia and Herzegovina. The second part of the experiment consists in surveying respondents and processing the survey, which contains opinions on consumer habits related to the analyzed soap samples. A total of 200 respondents were surveyed, 100 of them live and 100 online via Google Forms. Most questions are designed so that respondents cross out their answers. Some of questions were designed so the respondents expressed their answers through ratings from 1 to 5, where 1 represents the least and 5 the highest degree of agreement with the stated predication.

15 different soap samples were analyzed, of which 10 were solid and 5 were liquid soaps (Table 1). The samples were assigned labels, shown in Table 1. The same table indicate the soap's price and the quantity of the product marked on the package. Table 2 lists the tested characteristics of the soaps.

Table 1. Soap samples

Sample mark	Amount of soap indicated on the package	Price of soap on the market (BAM)	Price of soap (BAM/kg)
1s	100 g	1.00	10.00
2s	100 g	1.50	15.00
3s	87 g	1.45	16.67
4s	75 g	1.05	14.00
5s	75±2 g	2.20	29.33
6s	120 g	2.45	20.42
7s	90 g	0.70	7.78
8s	75 g	1.70	22.67
9s	100 g	1.15	11.50
10s	100±10 g	8.20	82.00
1l	500 mL	4.35	8.09
2l	400 mL	1.65	3.99

Sample mark	Amount of soap indicated on the package	Price of soap on the market (BAM)	Price of soap (BAM/kg)
3l	500 mL	1.00	1.95
4l	500 mL	0.95	1.93
5l	1000 mL	1.65	1.56

Table 2. Tested characteristics of soap samples

Characteristics of solid soaps	Characteristics of liquid soaps
total alkali (%)	density (g/cm^3) at 20 °C
free alkali (%)	NaCl (%)
fatty acid (%)	total surfactant (%)
NaCl (%)	anionic active matter (%)
moisture (%)	pH
pH	

2. Results

The results are presented tabularly and graphically, via diagrams. Table 3 and table 4 show the results of the physicochemical analysis of the tested samples.

2.1 Results of physicochemical analysis of soaps

Table 3. Results of physicochemical analysis of solid soaps

Sample mark	Total alkali (%)	Free alkali (%)	Fatty acid (%)	NaCl (%)	Moisture (%)	pH
1s	1.80	0.00	38.15	0.49	4.85	7.70
2s	11.97	0.00	57.51	0.35	8.98	11.35
3s	11.70	0.03	79.39	0.41	5.09	11.40
4s	11.47	0.00	78.30	0.73	7.22	11.10
5s	10.86	0.05	68.98	0.00	5.43	11.20
6s	7.44	0.00	39.06	0.00	18.62	10.80
7s	11.66	0.04	76.96	0.47	9.71	11.10
8s	11.71	0.00	77.02	0.44	4.75	11.00
9s	11.72	0.00	76.10	0.44	5.67	10.70
10s	9.67	0.00	76.64	0.00	8.89	10.80

Table 4. Results of physicochemical analysis of liquid soaps

Sample mark	Density (g/cm3)	Total surfactants (%)	Anionic surfactants (%)	NaCl (%)	Moisture (%)	pH
1l	1.075	10.74	4.55	0.88	88.39	3.80
2l	1.035	9.01	4.47	1.92	89.08	6.91
3l	1.025	6.33	3.58	2.23	91.45	6.66
4l	0.985	6.08	3.15	1.88	92.04	7.40
5l	1.060	3.44	3.56	5.65	90.91	5.45

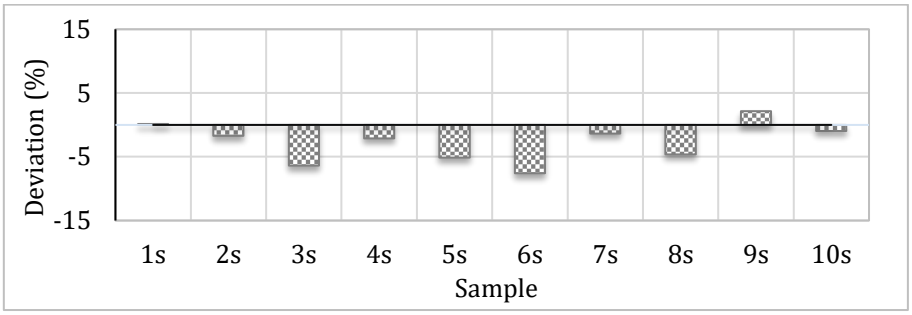


Figure 1. Deviation of soap mass from the declared value

2.2 Results of the population survey

The results of the respondent's survey on consumer habits related to soap are presented in tabular (Tables 5 and 6) and graphical form (Figure 2-4).

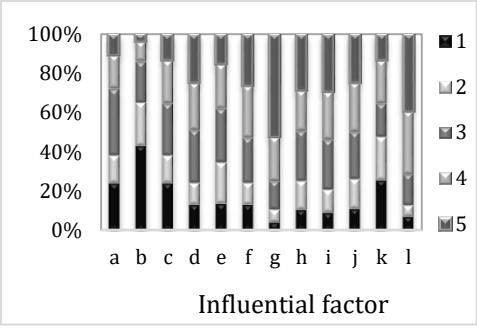
Table 5. The results of the respondent's survey

Age of the respondents	%		*Level of education*	%
18-24	19.6		high school (3 years)	9.8
25-34	27.0		high school (4 years)	33.7
35-44	16.6		tertiary education	3.1
45-54	21.5		bachelor	29.5
55-64	12.9		master	11.0
65 and over	2.4		doctorate	12.9
Monthly household income	%		*Number of members in the household*	%
do 500 BAM	3.1		1	6.8
500-999 BAM	16.5		2	22.0
1000-1499 BAM	17.8		3	23.3
1500-1999 BAM	25.1		4	34.4
2000-2499 BAM	16.6		5	7.4
2500 BAM and more	20.9		6 and more	6.1

Table 6. Survey results

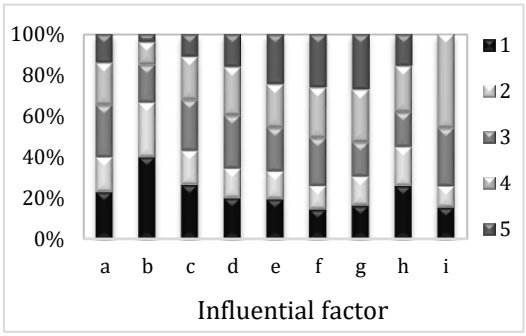
Which toilet soap do you buy more often?	**%**
Solid	62
Liquid	38
Where do you buy toilet soap?	**%**
In consumer goods stores	91.5
In specialized sales facilities	8.5
Do you pay attention to the origin of the product?	**%**
Yes	49.5
No	50.5

Do you prefer a domestic product?	%
Yes	56.5
No	43.5
Are you ready to buy more expensive toilet soap just because you will contribute to preserving the environment?	%
Yes	69
No	31
Do you buy and use the same soap for a long time?	%
Yes	72.5
No	27.5
Do you know a domestic soap manufacturer or brand?	%
No	43
Hellena	37
Violeta	4
Dr Pasha	4
Other	2
Answered incorrectly	10



a-brand;
b-TV advertising or other forms of advertising;
c-nice packaging
d-functionality and design of the bottle and cap;
e- appearance and color of content;
f- package size;
g-you analyze the price/quantity ratio;
h-current price action;
i-the price of soap;
j- the sign that the soap is made on a natural basis;
k-I pay more attention to reading the declaration on the packaging;
l-perfume

Figure 2. The influence of various factors on the decision to buy liquid soap



a-brand;
b-TV advertising or other forms of advertising;
c- nice packaging;
d-soap size; e-current price action;
f- the price of soap;
g- the sign that the soap is made on a natural basis;
h-I pay more attention to reading the declaration on the packaging;
i- perfume

Figure 3. The influence of various factors on the decision to buy solid soap

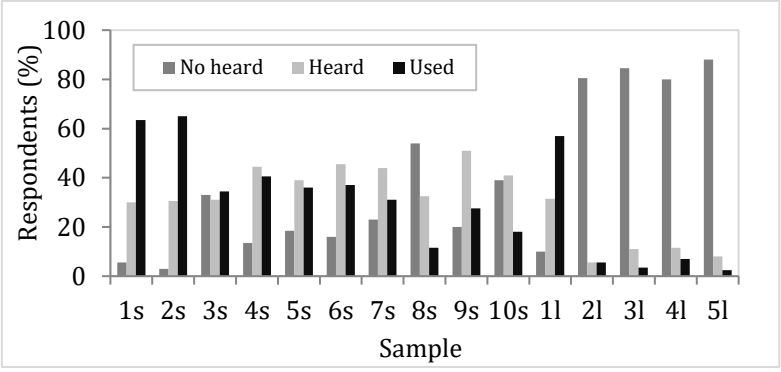


Figure 4. Have you heard or used the mentioned soap?

3. Discussion

Article 28 of the Regulation on the Safety of Consumer Products, enacted by the Ministry of Health and Social Welfare of the Republic of Srpska in 2015, defines that cosmetic products that are removed from the skin or hair after a short period must have a pH value ranging from 3 to 12. Considering this provision, it can be noted that all samples meet this quality parameter. The experimentally determined pH values of the solid soap samples fall within the basic range, specifically between pH 8.5 and 11.0 (Mijaljica et al., 2022). An exception is sample 1s, which falls into the category of so-called Syndets, representing a mixture of synthetic surfactants (Paudel et al., 2022). Given that the physiological acidity of the skin corresponds to

a pH value of 5.5, it can be said that liquid soaps act less aggressively on human skin, as they are mildly acidic to neutral.

After completing the saponification process using the hot method to obtain solid soaps, sodium chloride is added to isolate or precipitate the soap from the soap solution. Although most of the salt is removed, a certain amount of sodium chloride remains in the final products, as indicated by the test results (up to 0.73% NaCl). In the cold process of soap production, sodium chloride is not added for isolation, which is reflected in the absence of chlorides in handmade soaps (Table 3).

Unlike solid soaps, sodium chloride is added to liquid soaps to increase viscosity and reduce the cost of these formulations, and the thickening effect depends on the concentration of the present surfactants. The sodium chloride content in liquid soap samples varies. The lowest sodium chloride content is found in sample 1l, while the highest is determined in product 5l. The sodium chloride content is appropriately correlated with the content of anionic surfactants. Specifically, the content of anionic surfactants is generally inversely proportional to the sodium chloride content. The content of active ingredients in these products, i.e., anionic surfactants, is not defined by the Regulation. However, a certain minimal content is necessary to fulfill the basic function of these products, which depends on the type of active substance and the content of other components, and this is defined by each manufacturer during the development phase.

The moisture content in solid toilet soaps ranges from 4.75% to 18.62%. In liquid soaps, water is the main filler, present in the highest concentration, and in these tested samples, its content is greater than 88%.

Under real conditions, the saponification reaction is not complete, so alkaline substances that have not chemically bonded to triglycerides (unbound, free) are often present in final products even after their removal. Free alkalis prevent the soap from leaving a greasy residue and can cause a feeling of itchiness on the skin (Habib et al., 2016). They are particularly undesirable in soaps for kids; however, sample 3s, which is a soap for kids, shows the presence of free alkalis at 0.031 %w/w.

Since the content of fatty acids is a crucial characteristic of soap quality, a higher fatty acid content in soaps results in products that are more suitable for dry skin. A fatty acid content above 80% is particularly beneficial for dry skin, making it moist and smooth (Arasaretnam & Venujah, 2019). Sample 6s is a glycerin soap and has a lower fatty acid content due to the presence of glycerol, which contributes to the overall mass of the sample.

Before determining the chemical characteristics of solid soaps, the consistency of the information about the soaps weight showen on the product packaging was examined against the weight obtained by weighing on a digital scale in the laboratory (Figure 1). Over time, soaps can lose weight while in storage due to the evaporation of water and other volatile components they contain. Soaps that include volatile substances as components will have lower quality, as these components can easily evaporate and lead to a reduction in quality (Arasaretnam & Venujah, 2019). It can be observed that 8 out of a total of 10 soap samples show a

negative deviation, meaning they have a lower weight than indicated on the packaging. This suggests that purchasing solid soaps in a store results in receiving less product than the customer believes they are getting.

If the costs are expressed in BAM/kg, it can be observed that solid soaps are more expensive than liquid soaps, which correlates with the content of active ingredients. Specifically, liquid soaps have a much lower content of active matter, and a significantly higher water content (over 88%) compared to solid soaps. The price of the soap sample marked as 10s is more than 80 BAM/kg, which is 52 times higher than the price of the cheapest soap tested. Considering that an average use consumes about 0.7 g of solid soap and about 1.8 g of liquid soap, it can be stated that liquid soaps last longer, as evidenced by the range of doses (230-590 uses), while the range for solid soaps is lower (110-170 uses). Examining the prices of liquid soaps and the content of total active ingredients, a certain correlation can be observed: as the content of active substances increases, so does the price of the soap.

Samples 5s, 6s, 8s, and 10s are handmade soaps intended for washing the face and hands, and they are priced higher compared to most samples, which can be partly justified by presence of natural ingredients. Goat milk in sample 5s is rich in vitamins and minerals that nourish the skin and contains lactic acid and alpha hydroxy acids, which effectively remove impurities and dead skin cells off the face. Glycerin in sample 6s provides more moisture than regular toilet soaps and ensures high hydration for the skin. Sample 8s is formulated with activated charcoal, a component known for its adsorbing and antibacterial properties, contributing to more effective removal of impurities and excess sebum, as well as improving the overall condition of the skin. Sample 7s, an antibacterial hand soap, helps prevent the spread of infectious diseases that can be transmitted by dirty hands.

Out of a total of 200 respondents, the largest group is those aged between 25 and 34 years, representing 27%. This is followed by respondents aged 45 to 54 years (21.5%), 18 to 24 years (19.6%), 35 to 44 years (16.6%), and 55 to 64 years (12.9%). The smallest group consists of respondents over 65 years old (2.4%). Depending on age, a persons attitude toward a particular soap may vary.

The survey results showed that 62.5% of respondents live in households with incomes less than 2000 BAM, and the main influencing factor on soap purchases was the consideration of the quantity-to-price ratio. This confirms that household income affects consumption patterns and that consumers with lower incomes tend to choose more affordable products (Štulec et al., 2017).

Of the total number of respondents, 56.5% have completed at least higher education, indicating that the respondents are predominantly highly educated. On the other hand, about 50% of those surveyed pay attention to the ingredients listed on the soap packaging. This suggests that a person's level of education also influences their decision-making process when making purchases. A well-educated person can analyze the ingredients listed on the soap packaging, whereas a less educated person may struggle to do so due to a lack of knowledge (Wijesundera & Abeysekera, 2010).

The research results show that consumers more frequently use liquid soaps, which is also noted in other studies (Klimaszewska et al., 2022). They tend to make purchases in general retail outlets, while a very small percentage of respondents buy soap in specialized stores.

Almost half of the respondents do not pay attention to the origin of the soap when making a purchase, as evidenced by the fact that 43% could not name a single manufacturer or soap brand produced in Bosnia and Herzegovina (Figure 2). Of the remaining 57%, 10% of respondents mentioned soap names or manufacturers that are produced outside of Bosnia and Herzegovina. The most recognized domestic soap brand is Hellena (37%), while the brands Violeta, Dr Pasha, Dita, Mystery, and Alpino are less known to respondents (a total of 8%).

More than half than half of the respondents prefer domestic products when making purchases, which contrasts with research indicating that consumers in developed countries tend to prefer domestic products over foreign ones. In contrast, consumers in developing countries show a greater preference for foreign products compared to domestic ones (Kalaimahal & Kumaradeepan, 2019).

Most respondents (73%) tend to purchase and use the same soap for an extended period, indicating trust and brand loyalty that develops over time. Brand loyalty among toilet soap users in Dhaka is moderately high, with 63% of consumers being loyal to a particular brand (Mahmud & Gope, 2012). One of the most important factors influencing soap brand loyalty includes product characteristics such as scent, skin care benefits, and antimicrobial properties, although availability of the toilet soap also has a significant impact (Shanmugapriya & Sethuraman, 2014). Consumers in Bosnia and Herzegovina primarily consider the quantity-to-price ratio, current sales promotions, and scent when purchasing solid soap. The PCA analysis in the study indicates that customers particularly focus on price (Chowdhury, 2015). The diagrams (Figures 3 and 4) show that all off the mentioned factors have varying degrees of influence on the consumer's purchasing decision regarding soap.

TV advertising, along with other forms of advertising, contributes the least to the decision-making process regarding soap purchases among all examined parameters, which is also shown in other studies (Mahmud & Gope, 2012).

Current trends indicate an increasing demand for the use of natural ingredients in personal care and cosmetic products (Vidal et al., 2018), which has proven to be a very important and influential factor in soap purchases in our research as well. This study aligns with results showing that around 70% of respondents are willing to spend more on soap if it contributes to environmental protection, also a finding supported by other studies (Klimaszewska et al., 2022).

In general, respondents are much less familiar with the examined liquid soaps, and considering that liquid soaps are purchased more frequently, it can be concluded that consumers use other liquid soaps that are not covered in this research. The liquid soap sample 1t is an American multinational brand that is, by far, the most used among all other liquid soaps examined, ranking alongside the two solid soap brands, 1s and 2s. Brand recognition, as a significant dimension,

contributes to the increased value created for consumers (Veljković, 2010). The survival of a brand in the market primarily depends on consumers, who serve as the ultimate measure of brand value. However, the survey results regarding the influence of various factors on soap purchasing decisions showed that brand has a limited impact. On the other hand, the most recognizable global brands are the most frequently purchased soaps. This indicates that respondents may not have a sufficient understanding of the concept of branding.

4. Conclusions

The research results showed that consumers use liquid soaps (62%) more often than solid soaps (38%). Most consumers are loyal to a particular soap, and a large percentage of consumers pay attention to the origin of the product (49.5%) and give preference to soaps produced in Bosnia and Herzegovina (56.5%). The toilet soaps that are bought the most are world-renowned products, which shows that the brand still has a great influence on the purchase of soap. Toilet soaps with a recognizable name are generally defined by the highest content of active substances and a higher price, which indicates a great interaction between price and quality. When buying toilet soap, customers consider the ratio of quantity and price, immediate action and the smell of the product the most. For the majority of consumers, the mark that the soap is made on a natural basis is of great importance when buying soap, which is in agreement with the results indicating that about 70% of respondents are ready to spend more money on soap if it will contribute to the preservation of the environment.

REFERENCES

[1] Adane, L. (2019). Preparation of Laundry Soap from Used Cooking Oils: Getting value out of waste. *Scientific Research and Essays, 15*(1), 1–10. https://doi.org/10.5897/SRE2019.6649

[2] Adis, P., Berbić, S., & Stovrag, J. (2017). Examining the impact of consumer demographic characteristics on the buying decision-making. *Journal of economic and politics of Transition, 19*(40), 82–99. https://hrcak.srce.hr/203254

[3] Ahuja, M., & Patil, R. (2017). Efficiency of liquid handwashes on microbial flora of hands. *International Journal of Recent Scientific Research, 8*(12), 22199–22201. http://dx.doi.org/10.24327/ijrsr.2017.0812.1220

[4] Akhter, T., & Nur-al-ahad, M.D. (2021). Influence of packaging elements on the purchase decision-making: a study on the bar soap users of Dhaka city, Bangladesh. *Management & Marketing*, *19*(2), 161–180. https://doi.org/10.52846/MNMK.19.2.01

[5] Alamgir, M., Nasir, T., Shamsuddoha, M., & Nedelea, A. (2010). Influence of brand name on consumer decision making process- an empirical study on car buyers (March 5, 2010). *The Annals of The "Ştefan cel Mare" University of Suceava*. Fascicle of The Faculty of Economics and Public Administration, *10*(2), 142–153. Available at SSRN: https://ssrn.com/abstract=1778163

[6] Aleksić, J., Aleksić, M., & Dojčinović, S. (2012). Uticaj grupnih internih i eksternih faktora na odluke potrošača o kupovini. *Časopis za ekonomiju i tržišne komunikacije, 2,* 295–307. https://doi.org/10.7251/EMC1202295A

[7] Arasaretnam, S., & Venujah, K. (2019). Preparation of Soaps by Using Different Oil and Analyze their Properties. *Natural Products Chemistry and Research, 7*(1), 1–4. https://doi.org/10.4172/2329-6836.1000357

[8] Assali, I. M. (2016). The impact of brand name on consumer procurement. *International Journal of Engineering Research & Technology, 5*(1), 225–229. https://doi.org/10.17577/IJERTV5IS010258

[9] Awang, R., Ahmad, S. & Ghazali, R. (2001). Properties of sodium soap derived from palm-based dihydroxystearic acid. *Journal of Oil Palm Research*, *12*(2), 33–38. https://www.researchgate.net/publication/261805192_Properties_of_sodium_soap_derived_from_palm-based_dihydroxystearic_acid

[10] Betsy, K. J. Jilu, M., Fathima, R., & Varkey, J. T. (2013). Determination of alkali content & total fatty matter in cleansing agents. *Asian Journal of Science and Applied Technology*, *2*(1), 8–12. https://doi.org/10.51983/ajsat-2013.2.1.755

[11] Bratovcic, A., Nazdrajic, S., Odobasic, A., & Sestan, I. (2018). The influence of type of surfactant on physicochemical properties of liquid soap. *International Journal of Materials and Chemistry*, *8*(2), 31–37. https://dx.doi.org/10.5923/j.ijmc.20180802.02

[12] Chowdhury, M. M. (2015). Measuring the Factors Influencing the Consumers' Attitude on Selecting International Beauty Soaps: An Investigation in Bangladesh Market. *Journal of Marketing and Consumer Research, 11,* 171–179. https://core.ac.uk/reader/234693924

[13] Fazal-ur-Rehman, M. & Akram, S. (2018). Saponification: lab manufacturing of handmadecoconut liquid soap and coconut solid soap. *Discovery Chemistry, 2*, 1–4. https://www.researchgate.net/publication/325928982_Saponification_lab_manufacturing_of_handmade_coconut_liquid_soap_and_coconut_solid_soap

[14] Gundarapu, S. (2020). Consumer satisfaction on bath brands – a comparative study. *International Journal of Advanced Science and Technology, 29*(7), 2196–2208. http://sersc.org/journals/index.php/IJAST/article/view/12658

[15] Habib, A., Kumar, S., Sorowar, S., Karmoker, J., Khatun, K., & Al-Reza, S.M. (2016). Study on the physicochemical properties of some commercial soaps available in bangladeshi market. *International Journal of Advanced Research in Chemical Science, 3*(6), 9–12. http://dx.doi.org/10.20431/2349-0403.0306002

[16] Kalaimahal, S., & Kumaradeepan, V. (2019). Role of brand equity in influencing purchase intention branded baby soap: A case study in Jaffna District, Sri Lanka. *International Journal of Scientific Research and Management, 7*(2), 986–991. http://dx.doi.org/doi:10.18535/ijsrm/v7i2.em02
[17] Katiyar, A., & Katiyar, N. (2014). An empirical study of indian consumer buying behavior of fmcg products (with special reference of bathing soap). *International Journal of Management and Commerce Innovations*, *2*(1), 211–217. www.researchpublish.com
[18] Klimaszewska, E., Wieczorek, D., Lewicki, S., Stelmasiak, M., Ogorzałek, M., Szyma´nski, Ł., Tomasiuk, R., & Markuszewski, L. (2022). Effect of New Surfactants on Biological Properties of Liquid Soaps. *Molecules*, *27*, 5425. https://doi.org/10.3390/molecules27175425
[19] Krishnan, G. A. & Nandhini, M. (2017). Factors Affecting the Purchasing Behaviour of Consumers in Ernakulam District with Special Emphasis on Bathing Soap. *International Journal of Research in Arts and Science*, *3*, 11–15. https://doi.org/10.9756/IJRAS.8150
[20] Kumar, D. P., Reddy, Y. D. (2017). A study on consumer behaviour towards bathing soaps (LUX, DOVE, PEARS). *International Journal of business, management and apllied sciences, 4*(3), 4352–4363.
[21] Mahmud, K. & Gope, K. (2012). Factors influencing the extent of brand loyalty of toilet soap users in bangladesh: a case study on dhaka city. *Global Journal of Management and Business Research, 12*(15), 24–33. https://api.semanticscholar.org/CorpusID:54884425
[22] Mashao, E. T., & Sukdeo, N. (July 26-27, 2018). Factors that influence consumer behavior in the purchase of durable household products. *Proceedings of the International Conference on Industrial Engineering and Operations Management,* (pp. 1668–1678), Paris, France. https://www.researchgate.net/publication/326994769_Factors_that_influence_consumer_behavior_in_the_purchase_of_durable_household_products
[23] Mijaljica, D., Spada, F., & Harrison I.P. (2022). Skin Cleansing without or with Compromise: Soaps and Syndets. *Molecules*, *27*, 2010. https://doi.org/10.3390/molecules27062010
[24] Mwanza, C., & Zombe, K. (2020). Comparative Evaluation of Some Physicochemical Properties on Selected Commercially Available Soaps on the Zambian Market. *Open Access Library Journal*, *7*, e6147. https://doi.org/10.4236/oalib.1106147
[25] Paudel, S., Shrestha, R., Poudel, P., & Adhikari, R. (2022). The Influence of Soap and Alcohol-based Cleanser on Human Skin. *Spectrum of Emerging Sciences*, *2*(1), 56–65. https://doi.org/10.55878/SES2021-1-2-1
[26] Rizvi, S. F. B., Zaidi, S. S. Z., & Imam, A. (2023). Impact Of Motivation And Perception On Consumer Buying Behaviour Of Beauty Soaps: Analysis Of Karachi Market As An Industrial Representative Of Pakistan. *Journal of Positive School Psychology*, *7*(6), 1092–1113. http://mail.journalppw.com/index.php/jpsp/article/view/17344

[27] Shanmugapriya, G., & Sethuraman R. (2014). Consumers' satisfaction towards hamam soap in thanjavur town. *International Journal of Engineering and Management Sciences, 5*(2), 122–127. https://doi.org/10.5958/2321-5828.2017.00011.
[28] Shehzad, U., Ahmad, S., Iqbal, K., Nawaz, M., & Usman, S. (2014). Influence of brand name on consumer choice & decision. *Journal of Business and Management*, *16*(6), 72–76. https://doi.org/10.9790/487X-16637276
[29] Štulec, I., Petljak, K., & Rakarić, J. (2017). Utjecaj demografskih karakteristika potrošača na proces donošenja odluke o kupovini. *Ekonomska misao i praksa*, *12*(1), 381-404. https://hrcak.srce.hr/183571
[30] Tjahyanti, S. (2014). The influence of features and packaging on the total sales of bath soap product. *Jurnal Bisnis dan Akuntansi*, *16*(2), 123–126. https://doi.org/10.34208/jba.v16i2.82
[31] Veljković, S., & Đorđević, A. (2010). Vrednost brenda za potrošače i preduzeća. *Marketing*, *41*(1), 3–16.
[32] Vidal, N.P., Adigun, O.A., Pham, T.H., Mumtaz, A., Manful, C., Callahan, G., Stewart, P., Keough, & D. Thomas, R.H. (2018). The Effects of Cold Saponification on the Unsaponified Fatty Acid Composition and Sensory Perception of Commercial Natural Herbal Soaps. *Molecules, 23*, 2356. https://doi.org/10.3390/molecules23092356
[33] Widyaningsih, S., Chasani, M., Diastuti, H., & Novayanti. (19-20.09.2017). Formulation of antibacterial liquid soap from nyamplung seed oil (calophyllum inophyllum L) with addition of curcuma heyneana and its activity test on staphylococcus aureus. *IOP Conference Series: Materials Science and Engineering, 349, The 12th Joint Conference on Chemistry, Indonesia* (012062). IOP Publishing Ltd. https://doi.org/10.1088/1757-899X/349/1/012062
[34] Wijesundera, G., & Abeysekera, R. (2010). Factors Influencing the Demand of Beauty Soap among Female Consumers in the Greater Colombo Region, In: *Proceedings of the 1st International Conference on Business and Information*. University of Kelaniya. http://repository.kln.ac.lk/handle/123456789/4569
[35] Nadhifah, H. H., & Adinugraha, H. H. (2020). Analysis of Factors influencing the Purchasing Decision of Facial Foam labeled Halal. *Journal of Digital Marketing And Halal Industry, 2*(1), 65–80. http://dx.doi.org/10.21580/jdmhi.2020.2.1.5283