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Perception of Natural Cosmetics Among Central European Consumers

Abstract

This paper aims to analyse consumers' perceptions and attitudes towards natural cosmetic products from three Central European countries. In this study, we employed quantitative surveys on samples of 230 Czech, 175 Slovak, and 325 Polish respondents. Based on the obtained data, we investigate whether and how the respondents' country impacts how they formulate their statements regarding the features of natural cosmetics. For each country separately, we study the dependencies of respondents' opinions and statements on their sociodemographic profile. The results of the research show statistically significant differences in the respondents' answers to all substantive questions depending on their country of origin. Four findings are worth highlighting: first, respondents from all three countries prefer natural cosmetics over conventional ones mainly for health and environmental reasons. Second, the frequency of buying natural cosmetics is influenced by some sociodemographic factors, although this varies in all three countries. Third, respondents who buy natural cosmetics more often are also more likely to indicate them as products of higher quality than conventional cosmetics. Lastly, the declared composition of the product is the prevailing decision criterion for consumers when selecting natural cosmetic products.

Keywords

natural cosmetics | perception | consumers | behaviour | Central Europe

JEL Codes

M16, M31, D01

1. Introduction

After emerging in the second half of the 19th century, the modern beauty industry witnessed tremendous growth in the 20th century (Jones, 2006). From the early 2000s, it has been further evolving, expanding its attention to men (Ersoy et al., 2015; Grand View

Research, 2020). Nowadays, the beauty industry is a multibillion-dollar industry (Frith, 2014) and continues to grow at a rate of 4.75% worldwide and amounts to 511 billion dollars in 2021, with further growth expected in the coming years (Roberts, 2022).

Consumers' increasing interest in natural goods prompted manufacturers to look for new solutions for

cosmetic production. Modern technologies enable better development of natural products, which has also become important to the growth of the cosmetic industry (Bezerra et al., 2018; Amberg & Fogarassy, 2019). At the same time, competition in the natural/organic cosmetics market is increasing, as is the number of brands offered (Statista Research Department, 2022; Fourati-Jamoussi, 2015). Additionally, the global natural cosmetics market is expected to grow in the coming years (Market Research Future, 2021).

Despite the growing production and the availability of natural/organic cosmetics, consumers' perceptions of these products and their purchase motives have yet to be thoroughly analysed worldwide. Current literature on natural/organic cosmetics especially lacks a cross-country comparison – only few papers have assessed more countries simultaneously so far (e.g., Dimitrova et al., 2009). This paper tries to respond to this significant research gap by conducting surveys in three Central European countries. Its main aim is to reveal how consumers of these countries perceive natural cosmetic products as well as assess various consumers' attitudes towards these products.

The data gathered from this international study will enable the ability to form a more comprehensive view of certain behaviour patterns in selecting and purchasing natural cosmetics, especially those patterns that have been insufficiently scrutinised by scholars so far, not assessed internationally or not investigated in direct connection to natural cosmetics. This study will mainly explore:

- 1) what primarily drives consumers in their preference for natural cosmetics over the conventional alternatives,
- 2) whether the sociodemographic profile of a consumer plays a vital role in the purchase frequency of natural cosmetics and whether it conditions the consumers' perception of natural cosmetics in certain aspects,
- 3) whether there is a link between a consumer's lifestyle and his/her purchase frequency of natural cosmetics, and
- 4) whether there is some prevailing decision criterion for consumers when choosing natural cosmetic products.

The simultaneous exploration of the points listed above demands that an entirely new survey with international applicability be proposed. As the construction of the respective questionnaire

cannot rely on past research only, the application of a selected theory on consumer behaviour will become necessary to serve as an underlying pillar. Also, as a secondary goal, this research will assess the presence of subjective norms in the decision-making of Central European consumers and will be thus partially linked to the theory of planned behaviour.

It is expected that this study's results will provide producers and sellers of natural cosmetics with a recent illustration of the actual Central European demand for natural cosmetic products and will offer other scholars interested in the same or similar topic a questionnaire that can be used in their own scientific endeavour. The formulation of practical and research implications, as well as suggestions for further research, will take place at the end of the paper.

Given the inconsistent use of "natural", "organic", "green" and other related adjectives in connection to cosmetics in the existing popular, expert and academic texts (Barros & Barros, 2020; Franca & Ueno, 2020), this paper will prioritise the adjective "natural" – only in the cases of citing original sources the terminology used by their authors may be respected. In this study, the terms "natural cosmetics" and "natural cosmetic product" denote any product that is either named as such or is named and also perceived by consumers as such.

2. Literature review

The negative effects of the fast development of our society on our environment have become visible all over the world. The extreme levels of industrial production and our consumption have led to enormous soil, water and air pollution (FAO & UNEP, 2021; Lawton et al., 2014). Along with the intensification of the above-mentioned threats, the level of awareness in reference to environmental aspects is constantly increasing (Lampert et al., 2019; Centrum Badania Opinii Społecznej, 2018; Kulli et al., 2023). Furthermore, the COVID-19 pandemic shows a significant, positive impact on environmental awareness (Evensen et al., 2021) and thus influences people's sustainable behaviours (Severo et al., 2021). Because the choice of product, packaging, and manufacturing process have an environmental impact, interest in natural cosmetics continues to grow (Amberg & Fogarassy, 2019).

As for the health aspect, people are aware of the importance of a healthy lifestyle (bin Ridzuan et al.,

2018). Positive changes in behaviour that influence health are also visible due to the pandemic (van der Werf et al., 2021; Balanzá-Martínez et al., 2020). Moreover, consumers purchase more health and wellness products (Stella Rising, 2021). Currently, many cosmetic products launched on the market are advertised as natural and, therefore, positively affecting health, which is likely to influence purchasing decisions.

Below, relevant academic literature on consumer behaviour regarding the usage of natural cosmetics will be briefly exposed to formulate appropriate research questions. The literature using the adjective “organic” will also be dealt with because in most cases, the authors of the assessed sources did not distinguish between the terms “natural” and “organic”.

Scholars often claim that environmental and health-related aspects are among the main drivers of the preference for different kinds of natural products. This is the case of Possamai et al. (2021), cooperating with a sample of 224 adults, of Kim & Seock (2009), working with a sample of 210 female college students, or Růžicková (2020), using a sample of 291 Czech consumers, or of Kantor & Hübner (2019), conducting a study on 826 Polish women. Nonetheless, no specific survey on why consumers may prefer natural cosmetics over conventional cosmetics could be found in current literature. In other words, no comparison was conducted. Therefore, we formulate the research question:

RQ1: People prefer natural cosmetics over conventional cosmetics primarily due to environmental and health concerns.

Extant studies point (e.g., Marangon et al., 2015; Fonseca-Santos et al., 2015; Żyngiel & Platta, 2015; Bochner, 2017) to the likely willingness of consumers of natural cosmetics and products to incur higher financial costs related to perceived value or the content of natural ingredients in such products. Some sources even explicitly state that natural cosmetics are perceived as more expensive (Amberg & Fogarassay, 2019; Kapogianni, 2015). However, so far, which groups of people may perceive natural cosmetics as more expensive than conventional cosmetics has not been investigated. As several papers (e.g., Ali & Ali, 2020; Muhammad et al., 2015) have already concluded that sociodemographic characteristics do influence the willingness to pay extra for organic or natural products, we will assume that these characteristics also influence the perception of the price level of

natural cosmetic products. Therefore, we formulate the research question:

RQ2: The sociodemographic profile of the consumers has a significant influence on the perception of the price level of natural cosmetics.

Furthermore, it has not been investigated yet whether the frequency of purchasing natural cosmetics is related to consumers’ profiles. However, studies on other products (Harja & Țimiraș, 2014; Ergin & Ozsacmaci, 2011; Verhoef, 2005) insinuate that there could be a dependence. Therefore, we formulate the research question:

RQ3: The sociodemographic profile of the consumers has a significant influence on the frequency with which they buy natural cosmetics.

Extant studies surveying consumers (Matić & Puh, 2016; Nguyen et al., 2019; Amberg & Fogarassay, 2019; Shimul et al., 2022) could not prove that health-conscious people are more motivated to buy natural cosmetics than less health-conscious consumers. Therefore, we define the research question:

RQ4: The frequency with which people buy natural cosmetics does not depend on health consciousness.

The studies listed above did not provide any definition of health consciousness. Lee et al. (2014) stated that health consciousness is a measure of an individual’s readiness to take health actions. Based on this statement, in this research, we will express health consciousness by affirming the question of whether people practice a healthy lifestyle.

Kaliyadan et al. (2021) surveyed 413 Saudi adult females 18–50 years old to study attitudes, awareness, and practices related to organic cosmetics in the Saudi population. They could not find a link between the level of education and awareness about organic cosmetics. At the same time, no significant association between the age groups and the level of awareness about organic cosmetics was found.

Inspired by their findings, we state two research questions:

RQ5: Awareness about natural cosmetics does not depend on age.

RQ6: Awareness about natural cosmetics does not depend on the level of education.

In the study described above, the term “awareness” was not defined, but in our research, it will be expressed as the ability to easily recognise a natural cosmetic product.

Several authors, e.g., Sánchez-Bravo et al. (2021) and Loebnitz & Aschemann-Witzel (2016), learned that natural or organic products can be associated with higher quality. However, such an association might sometimes be a consumer’s belief only. It can therefore be expected that natural cosmetics are also associated with higher quality, which leads to the research question:

RQ7: Consumers associate natural cosmetic products with higher quality.

In general, minimal data exists on which criteria consumers consider the most when they buy natural cosmetics. Růžičková (2020) learned that the most important criterion among her respondents was no testing on animals. However, another study on the importance of the aspect related to animal welfare was also carried out, although it concerned other product groups. The results show that despite respondents’ declared commitment to animal welfare, interest in this aspect is moderate compared to other product characteristics (Verbeke, 2009). Kantor & Hübner (2019) learned that the quality and product composition were very important for the surveyed sample of Polish women. Respondents mentioned in a report by Naturativ (2018) indicated product composition as the primary factor influencing their purchase choice; however, they also mentioned positive opinions found on the Internet and attractive promotions as being of great importance. Taking into account the aforementioned findings, we finally formulate:

RQ8: There is no prevailing decision criterion when consumers choose natural cosmetics.

Overall, research on consumers’ attitudes towards natural cosmetics has mostly been developing in Asian countries. In the Central European region, the research has slowly grown in past years, but the number of studies that have been done is very low. Selecting the Czech Republic, Slovakia and Poland only, i.e., three neighbouring countries, we encounter general statistics for the natural cosmetics market. In Poland, it has been reported that there was a growing share of the natural cosmetics market in the overall cosmetics market. Hence, the natural cosmetics market’s value was still quite low there – some EUR 43

million only (1.3 EUR/per capita) (GfK Polonia, 2021). For the other two countries, it has been reported that the values of natural cosmetics were much lower in 2020 – around 20 million EUR in the Czech Republic (1.9 EUR/per capita) and less than 10 million EUR in Slovakia (1.8 EUR/per capita) (Statista, 2022).

Although it might not be obvious from the previous lines, the existing research related to the assessment of consumers’ views over natural cosmetics not only varies significantly in terms of its thematical or geographical orientation, but it also tends to miss sound theoretical support. It can even be stated that the exposed research was mostly motivated by the authors’ curiosity to learn what occurs in the consumers’ minds rather than representing an intention to follow up on a certain theory. Although some authors have claimed that their papers are underpinned by a certain theory or even contributed to a theory’s development, it sometimes remains unclear how exactly they did so. The survey of the existing literature herein, therefore, did not bring a considerable opportunity to lean on a past study, and this study alone needs to bridge some of the past research directions by a proper survey.

Nonetheless, this study, although in its second plane of focus, will observe one of the three core components of the theory of planned behaviour (TPB) – the subjective norm. Recently, there has been a growing number of scientific texts on green behaviour and green consumption in which social influence on consumer behaviour was investigated (as evidenced, e.g., by Sivapalan et al., 2021 or Emekci, 2019). This paper may also provide new evidence from the Central European region on the matter of subjective norms. On the other hand, it must be stated that although this paper largely deals with consumers’ attitudes, they are not scrutinised here from the optics of the theory of planned behaviour.

3. Methodology

For the achievement of the paper’s goal, i.e., to analyse the perception and attitudes towards natural cosmetic products by consumers from three Central European countries, we prepared a questionnaire composed of 14 questions, including seven core and six sociodemographic questions. The questionnaire’s seven core questions reflect the Nicosia model of consumer behaviour (Nicosia, 1966). This model differentiates four fields that altogether track a

Table 1. The core questions used, their abbreviated forms, and possible answers

Question	Abbreviated form	Answers
How often do you buy natural cosmetic products?	shopping_frequency	often; occasionally
Do you agree with the statement that natural cosmetics are of higher quality than conventional cosmetics?	higher_quality	yes; no; it depends on the case
Can you easily distinguish natural cosmetics from conventional ones (e.g., on the basis of packaging)?	easy_recognition	yes; no
Do you agree with the statement that natural cosmetics are more expensive than conventional cosmetics?	assumed_expensiveness	yes; no; it depends on the case
Which criterion do you follow most when choosing natural cosmetics?	criterion_of_selection	declared product composition; brand; advertisement; certification of the product; another (indicate)
State the main reason for buying natural cosmetics compared to conventional cosmetics.	reason_for_shopping	I think they have a more influential effect on my health; I think I protect nature more; I believe that I support small and medium-sized enterprises more; another (indicate)
Do you practice a healthy lifestyle?	healthy_lifestyle	yes; no

Source: Authors' work

consumer's path towards the consumption of a certain product or service. The questionnaire survey assumed that the respondent purchases natural cosmetics. For this reason, a question on whether the respondent purchases natural cosmetics was placed before the first core one. In order to create comprehensive tables and shorten the text, in Table 1, we list the core questions in their complete wording as well as their abbreviated forms used further.

We need to anticipate that the creation of our questionnaire did not mean a complete and exact application of all the patterns introduced or suggested in the original model presented by Nicosia (1966). Otherwise, the questionnaire would become too long and thus unattractive to prospective respondents and, more importantly, would not enable us to focus on the research questions we formulated through the assessment of the literature review. Moreover, the model itself is bulky and complex, so we only follow the comprehensive scheme that the book introduces and some of the variables that are proposed in the model.

The firm's attributes and the consumer's attributes together compose the first model's field, named "From the source of message to the consumer's attitude". It is suggested that these attributes, which may be

numerous, form the consumers' attitudes towards a certain product or service. In the questionnaire, the firm's attributes leading to the formulation of the consumer's position vis-à-vis natural cosmetics are investigated indirectly when respondents are asked to indicate the main reason for the purchase of such products. It can be assumed that consumers attribute certain characteristics to natural cosmetic products, such as positive health influence or environmental protection, mainly through messages the firms themselves (e.g., producers or distributors) transmit via various communication channels. Regarding the consumer's attributes, in the questionnaire, they are determined by means of sociodemographic indicators (see further) and inquiring about the practicing of a healthy lifestyle.

The second model's field represents the phase of searching for information and evaluation. One question embodies such consumers' activities: a question on the easy distinction of these products in the market. The third model's field is the act of purchase. In the questionnaire, this field is represented by a question on the most frequent decision criterion during the purchase of cosmetics products.

The feedback is the last field of the model and may again encompass different variables of which we

Purchase frequency
– influenced by the 4 fields

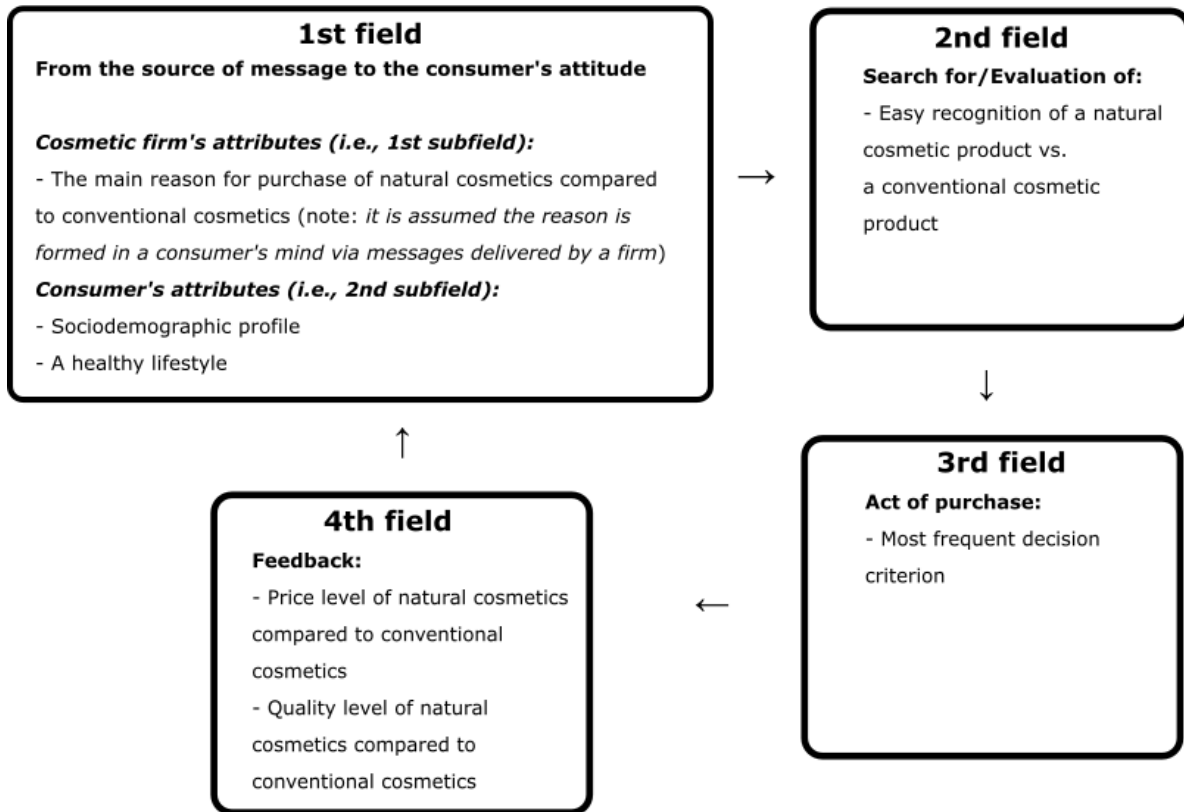


Figure 1. Embedding the questionnaire's questions in the Nicosia model
Source: Authors' work

selected experience. The experience with the product or service, among the other possible variables, may influence the consumer's attributes as well as the firm's attributes. In the questionnaire, we inquire about the price level and quality level of natural cosmetics to track respondents' experience with natural products. As one may imagine, the last model's field makes it possible to close the imaginary loop of the consumer's path running from the first consideration of a product's or service's purchase to the actual consumption and then back to another consideration.

Finally, we have included a question on purchase frequency. It is the first core question of our questionnaire and is not related to any of the four model's fields. However, it is of high importance for our investigation because the number of times that a consumer purchases a natural cosmetic product is linked to all the four fields of the model as well as to some of our research questions. The purchase frequency mirrors the firm's and consumer's attributes, as well as the consumer's search for information and

evaluation, his/her decision-making and feedback (see Figure 1).

In the questionnaire, most of the sociodemographic indicators used in Possamai et al.'s (2021) paper were taken and, where necessary, adapted. There are sex (two categories), age (6 intervals), completed education (3 categories), status (6 categories), permanent place of living (regions of every selected country) and income (7 or 8 valid possibilities and a possibility for non-responding).

Three language versions of the same questionnaire were prepared. Respondents were recruited from the social media contacts of the authors of this paper and a few university circuits, so convenience sampling was used. We targeted only people born in those countries and having permanent residence there. Respondents from the three countries answered in different periods of up to 8 days, from 20 September until 26 December 2021. The authors were unable to collect answers at the same time due to their work duties.

All people were asked once via a private invitation, and no reminder was sent to them to avoid excessively invading their private lives (the same people have been invited to participate in other surveys). As soon as the replies stopped accumulating and it was clear no more answers would be reached, there was no need to extend the time for data collection and the survey ended. We collected 230 relevant replies from the Czech Republic, 175 from Slovakia and 325 from Poland.

First, we investigated whether the answers to the core questions depend on a country. Then, the dependence of these answers on sociodemographic indicators was investigated in order to answer the formulated research questions. For both types of dependence, we applied statistical tests of independence and coefficients of dependence based on the frequencies in contingency tables. Namely, we used Cramér's V, the Goodman and Kruskal tau and the uncertainty coefficient as the coefficients of dependence with the values from the interval from 0 (independence) to 1 (total dependence). For all three coefficients, we carried out tests with the following statistical hypotheses – the null hypothesis: “the value of the coefficient of dependence is zero” and the alternative hypothesis: “the value of the coefficient of dependence is not zero” (the same pairs of hypotheses for all three coefficients). Because Cramér's V is computed as a square root of the Pearson statistic transformation, we also use square roots of the Goodman and Kruskal tau and the uncertainty coefficient to compare the values of each other in this paper.

4. Results

As mentioned above, we analysed three samples obtained from 230 Czech respondents, 175 Slovak respondents, and 325 Polish respondents. Some categories of sociodemographic indicators appeared in low frequencies. For this reason, we merged some categories. The categories of sociodemographic variables used for the analyses are mentioned in Tables 2–4. In all three countries, the share of men was very low, being about 10% of the sample.

In Table 5, there are frequency distributions for core variables. In the case of variables *criterion_of_selection* and *reason_for_shopping*, some categories occurred with low frequencies (several respondents wrote their own categories). For this reason, we

Table 2. Frequency distributions (in percent) for sociodemographic variables according to the countries (the numbers of respondents in parentheses)

	Czechia (230)	Slovakia (175)	Poland (325)
sex			
men	10.4%	12.0%	8.9%
women	89.6%	88.0%	91.1%
age			
24 or less	52.2%	37.7%	39.7%
25–44	27.8%	42.9%	45.8%
45 or over	20.0%	19.4%	14.5%
education			
basic or secondary	55.2%	68.0%	47.7%
higher or university	44.8%	32.0%	52.3%
status			
employed or self-employed	48.7%	58.9%	59.4%
other status	51.3%	41.1%	40.6%

Source: Authors' work

merged the categories with low frequencies into a category “another” (for a more detailed analysis of the results, see further).

We found that the answers to all core questions depend on a country at the 5% significant level, see Table 6. In the case of variables *higher_quality* and *assumed_expensiveness*, the category “no” occurred with low frequencies in some countries. Thus, when investigating whether these variables depend on a country, we only consider two categories: “yes” and “other opinion”.

In Table 6, there are values of three coefficients of dependence: symmetric Cramér's V and asymmetric measures (the Goodman and Kruskal tau and the uncertainty coefficient). We found the values of these three coefficients are either the same or very similar. Moreover, the maximum of the p-values for the asymmetric measures is the same as the p-value for Cramér's V. For the above reasons, we will mention only Cramér's V in the following text.

Differences in answers among the countries are obvious from Table 5, and in the following lines, selected results will be presented. We can see that the Polish respondents buy natural cosmetic products

Table 3. Frequency distributions (in percent) for permanent residence according to the countries

Czech region	Percent	Slovak region	Percent	Polish region	Percent
Prague	19.1%	Region of Košice	18.9%	Masovian Voivodeship	20.9%
Středočeský Region	53.5%	Region of Prešov	43.4%	Świętokrzyskie Voivodeship	22.2%
other Czech regions	27.4%	other Slovak regions	37.7%	other Polish regions	56.9%

Source: Authors' work

Table 4. Frequency distributions (in percent) for net income according to the countries

CZK (Czechia)	Percent	EUR (Slovakia)	Percent	PLN (Poland)	Percent
no income	9.1%	no income	16.0%	no income	13.5%
less than 10,000	17.0%	less than 400	9.7%	less than 2,000	11.4%
10,000–20,000	22.2%	400–800	14.9%	2,000–3,500	32.3%
20,001–30,000	19.1%	801–1,200	23.4%	3,501–5,500	16.6%
30,001 or more	19.1%	1,201 or more	25.1%	5,501 or more	10.5%
I don't want to answer	13.5%	I don't want to answer	10.9%	I don't want to answer	15.7%

Source: Authors' work

Table 5. Frequency distributions (in percent) for core variables

Variables and categories	Czechia	Slovakia	Poland	Variables and categories	Czechia	Slovakia	Poland
shopping_frequency				criterion_of_selection			
often	28.7%	30.3%	48.6%	declared product composition	60.0%	57.7%	70.2%
occasionally	71.3%	69.7%	51.4%	brand	16.5%	24.6%	7.1%
higher_quality				certification of the product	13.9%	9.1%	15.7%
yes	33.5%	47.4%	47.7%	another	9.6%	8.6%	7.0%
no	7.4%	3.4%	4.0%	reason_for_shopping			
it depends on the case	59.1%	49.2%	48.3%	effect on my health	65.7%	58.9%	71.1%
easy_recognition				nature protection	21.7%	25.7%	15.4%
yes	59.1%	74.9%	70.5%	another	12.6%	15.4%	13.5%
no	40.9%	25.1%	29.5%	healthy_lifestyle			
assumed_expensiveness				yes	74.3%	62.3%	65.5%
yes	37.4%	46.3%	30.5%	no	25.7%	37.7%	34.5%
no	14.3%	4.6%	19.4%				
it depends on the case	48.3%	49.1%	50.2%				

Source: Authors' work

more often (almost 50% buy them often) than the Czech and Slovak respondents. The Slovak and Polish respondents more often agree that natural cosmetics are of higher quality than conventional cosmetics (over 47% in both cases) compared to the Czech respondents

(33.5%). The Slovak and Polish respondents more often can easily distinguish natural cosmetics from conventional ones (74.9% and 70.5%) than the Czech respondents (59%). The Slovak respondents more often consider natural cosmetics as more expensive than

Table 6. The values of Cramér's V, square root of the Goodman and Kruskal tau, square root of the uncertainty coefficient (UC), and maximum of p-values for dependencies of core variables on a country

Target variable	Cramér's V	Square root of tau	Square root of UC	Max p-value
shopping_frequency	0.197	0.197	0.170	< 0.001
higher_quality	0.132	0.134	0.114	0.002
easy_recognition	0.133	0.134	0.118	0.002
assumed_expensiveness	0.130	0.130	0.114	0.002
criterion_of_selection	0.152	0.126	0.152	< 0.001
reason_for_shopping	0.082	0.095	0.089	0.042
healthy_lifestyle	0.102	0.100	0.089	0.022

Source: Authors' work

conventional cosmetics (46.3%) in comparison with the Czech (37.4%) and the Polish (30.5%) respondents.

The effect on the respondents' health is considered the main reason for buying natural cosmetics instead of conventional ones in all three countries, most often by the Polish respondents (71%). Again, in all three countries, nature protection was chosen as the second major reason. This time, it was most often prioritised by the Slovak respondents (25.7%). The third pre-set category in the *reason_for_shopping* question, which was "I believe that I support small and medium-sized enterprises more", became the main reason for 12% of the Slovak respondents, 8.6% of the Polish respondents and for 7% of the Czech respondents. From the categories that were not pre-set, no testing on animals was indicated by some respondents in all the countries.

When choosing natural cosmetics, the declared product composition is considered the main criterion in all three countries – most often by the Polish respondents (over 70% of them) and least often by the Slovak respondents (almost 58%). The brand is indicated as the second major criterion in Czechia (16.5%) and Slovakia (almost 25%). For Poland, however, the second most important criterion is a certification of the product (almost 16%). Advertisement, the last of the pre-set categories in the *criterion_of_selection* question, was indicated as the major criterion by a very limited number of people in all three countries. On the other hand, it should be noted that some respondents from all the countries mentioned "recommendation" or "other's opinion" as the main criterion in the selection of a natural cosmetic product.

A healthy lifestyle is practiced most often by the Czech respondents (74.3%). For Poles and Slovaks, it is

over 60%. It is worth mentioning that in Slovakia and the Czech Republic, women practice a healthy lifestyle more than men, whereas in Poland, the opposite happens.

Due to the fact that the answers of respondents depend on a country, we investigated the dependencies of core variables on sociodemographic indicators in each country separately. Moreover, we investigated dependencies of core variables (except the first one) on the variable *shopping_frequency*. The values of Cramér's V are in Tables 7–9. Dependencies at the 5% significant level are highlighted. We remind that in the case of variables *higher_quality* and *assumed_expensiveness*, we only consider two categories: "yes" and "other opinion"; otherwise, the tests were conducted according to the categories specified in Table 4.

Below, we answer the eight research questions formulated in the section with the literature review. A comprehensive list of answers to the research questions is displayed in Table 10. In the case of dependence investigation by statistical tests, we respond with "yes" only if statistically significant dependencies exist (at the 5% significance level) for all three countries. In the case of RQ2 and RQ3, we respond with "yes" if a statistically significant dependence was found for some of the sociodemographic indicators and, again, for all three countries. In other types of investigation, we may provide additional comments.

The first research question about whether people prefer natural cosmetics over conventional cosmetics primarily due to environmental and health concerns can be answered with "yes". In all three countries, the number of respondents who preferred natural cosmetics due to these concerns was 85% or higher.

Table 7. The values of Cramér's V (Czech respondents; significant dependencies are in bold)

Target variable	Explanatory variable						
	sex	age	education	status	residence	income	shopping frequency
shopping_frequency	0.185	0.202	0.047	0.132	0.085	0.210	---
higher_quality	0.001	0.115	0.009	0.009	0.160	0.159	0.263
easy_recognition	0.034	0.040	0.016	0.014	0.053	0.168	0.078
assumed_expensiveness	0.177	0.083	0.027	0.020	0.105	0.136	0.026
criterion_of_selection	0.093	0.130	0.146	0.084	0.139	0.142	0.168
reason_for_shopping	0.098	0.145	0.143	0.033	0.046	0.183	0.078
healthy_lifestyle	0.125	0.050	0.048	0.034	0.034	0.066	0.087

Source: Authors' work

Table 8. The values of Cramér's V (Slovak respondents; significant dependencies are in bold)

Target variable	Explanatory variable						
	sex	age	education	status	residence	income	shopping frequency
shopping_frequency	0.129	0.161	0.321	0.172	0.027	0.193	---
higher_quality	0.034	0.152	0.183	0.12	0.172	0.169	0.246
easy_recognition	0.011	0.215	0.139	0.024	0.198	0.312	0.095
assumed_expensiveness	0.025	0.234	0.047	0.272	0.038	0.319	0.163
criterion_of_selection	0.141	0.129	0.084	0.083	0.114	0.172	0.171
reason_for_shopping	0.098	0.238	0.242	0.093	0.130	0.263	0.05
healthy_lifestyle	0.039	0.113	0.205	0.052	0.247	0.098	0.102

Source: Authors' work

Table 9. The values of Cramér's V (Polish respondents; significant dependencies are in bold)

Target variable	Explanatory variable						
	sex	age	education	status	residence	income	shopping frequency
shopping_frequency	0.153	0.062	0.128	0.052	0.119	0.185	---
higher_quality	0.068	0.237	0.098	0.188	0.160	0.146	0.119
easy_recognition	0.105	0.074	0.003	0.096	0.102	0.156	0.090
assumed_expensiveness	0.051	0.073	0.064	0.030	0.144	0.136	0.176
criterion_of_selection	0.192	0.107	0.074	0.101	0.047	0.082	0.164
reason_for_shopping	0.108	0.081	0.029	0.132	0.131	0.161	0.149
healthy_lifestyle	0.068	0.269	0.150	0.178	0.153	0.228	0.019

Source: Authors' work

Table 10. Answers to the formulated research questions

Number	Wording of the RQ	Answer
RQ1	People prefer natural cosmetics over conventional cosmetics primarily due to environmental and health concerns.	Yes
RQ2	The sociodemographic profile of the consumers has a significant influence on the perception of the price level of natural cosmetics.	No
RQ3	The sociodemographic profile of the consumers has a significant influence on the frequency with which they buy natural cosmetics.	Yes
RQ4	The frequency with which people buy natural cosmetics does not depend on health consciousness.	Yes
RQ5	Awareness about natural cosmetics does not depend on age.	Yes
RQ6	Awareness about natural cosmetics does not depend on the level of education.	Yes
RQ7	Consumers associate natural cosmetic products with higher quality.	No
RQ8	There is no prevailing decision criterion when consumers choose natural cosmetics.	No

Source: Authors' work

Regarding the second research question, it has been found that the sociodemographic profile of the consumers does generally not have a significant influence on the perception of the price level of natural cosmetics in the assessed countries (when considering the two recoded categories as stated above). Sex was relevant for the Czech, whereas status was relevant for Slovakia only, and the residence for Poland only.

As for the third research question, we learnt that the sociodemographic profile of the consumers has a statistically significant influence on the frequency with which they buy natural cosmetics, but there are differences across the three countries. Three dependencies were found for Czech consumers: sex, age and status. For Slovakia, education and status are relevant. In Poland, sex and education play a role.

We can positively answer research questions 4 to 6. Firstly, in no country did shopping frequency depend on one's health consciousness. Furthermore, it is possible to claim that awareness about natural cosmetics does not depend on age. In Slovakia, this dependence existed, but not in the other two countries. Also, we learnt that awareness about natural cosmetics does not depend on education, as no dependence was found in any country.

As for the seventh research question, we cannot firmly claim that consumers associate natural cosmetics with higher quality. In Poland and Slovakia, the samples of people claiming that natural cosmetics go with higher quality was high, almost 50%, but the same percentage claimed that it depends on a case-by-case basis. However, in the Czech Republic,

people were much more sceptical: only one-third of the respondents believe natural cosmetic products are associated with higher quality, whereas almost 60% feel that it depends on case by case. On the other hand, the percentages of negative answers were low in all three countries.

The previous lines have already made it apparent that the product's declared composition is a dominant decision criterion in the choice of natural cosmetic products in all three countries in question. Therefore, we negate the last (i.e., the eighth) research question that assumed there is no prevailing decision criterion.

Apart from the research questions asked, there is one more finding that should be stressed because it relates to all three countries simultaneously: there is a dependence of variables *shopping_frequency* and *higher_quality*. A person that often buys natural cosmetics is more likely to indicate that such cosmetics are of higher quality than people buying them occasionally.

5. Discussion

The study aimed to understand the perception of natural cosmetics among consumers in three Central European countries as well as to indicate the differences in attitudes towards such products. We focused on both the perception in individual countries and the comparison of the perception among all three countries. The obtained results allow for several conclusions to be drawn.

The first conclusion concerns the reasons for choosing natural cosmetics over conventional ones – respondents from all three countries indicated health reasons the most often. This shows that respondents usually equate natural cosmetics with actual positive effects on health. The reason for concern for the environment is second in all three countries. The obtained results are consistent with the theory presented in the existing literature (Růžičková, 2020; Kantor & Hübner, 2019; Fonseca-Santos et al., 2015; Kim & Seock, 2009) that consumers choose natural cosmetics because of health and environmental aspects. Therefore, a practice worth implementing by manufacturers is to include information about the health effects of each key component of the product on the label. In addition, information about environmentally friendly sourcing of cosmetic raw materials or ecological packaging might also draw consumers' attention. Therefore, the indication of this fact should appear on the product packaging and be distinguished in the advertising message. On the other hand, we must pay attention to the fact that a large percentage of cosmetic consumers might not be attracted by eco-friendly cosmetics as learned by Sadiq et al. (2021). Thus, businesses should be cautious about how accurate the information they provide on natural cosmetics is and how it is delivered to existing and prospective consumers.

The next conclusions concern sociodemographic aspects. The paper presents several results based on Cramér's V. The obtained values of this coefficient express the level of dependence of the answers to core questions on the sociodemographic attributes of respondents. Noticing relationships between certain factors and being able to determine the value of their dependence can be a valuable guide when planning which potential consumers to target with marketing efforts. The study showed that sociodemographic aspects generally do not have a significant influence on the perception of the price level of natural cosmetics. However, the sociodemographic profile of the consumers does affect the frequency of buying them. This is not in line with extant knowledge (e.g., Ali and Ali, 2020; Muhammad et al., 2015). Looking at Tables 7 to 9, we may assume that sex and education are the key factors for consumers' frequency with which they purchase cosmetic products. More specifically, women and people with a completed education higher than secondary are more likely to purchase natural cosmetic products often. Additionally, the mentioned frequency does not depend on health consciousness in any of the countries which could validate past

research (e.g., Shimul et al., 2022; Nguyen et al., 2019; Amberg & Fogarassay, 2019), suggesting that health consciousness is likely to have only a negligible or no impact on customers' purchase frequency or intentions.

Our research inclines to support Kaliyadan et al.'s (2021) research by not finding a link between awareness about natural cosmetics and consumer age and education. We can thus validate past research concluding that traditional sociodemographic and personality indicators are of limited use for characterizing the green consumer (Altinbasak-Farina & Guleryuz-Turkel, 2019; Schlegelmilch et al., 1996).

We also learned that an important portion of the surveyed consumers in all three countries do not relate natural cosmetics to higher quality, which contradicts some of the past research. Nonetheless, an unexpected correlation was noticed: respondents who buy natural cosmetics more often are more likely to indicate them as products of higher quality than conventional cosmetics.

As for the selection criteria of natural cosmetics, respondents most often indicated the declared composition of the product. This may suggest that in order to attract consumers' attention, companies should, first of all, improve the composition of their products. It is worth noting, however, that Polish respondents indicated this factor slightly more often than the Czechs and Slovaks. Additionally, only among Polish respondents, the product certification criterion was in second place – respondents from the Czech Republic and Slovakia indicated the brand as the second most important factor. Based on this research, it is not possible to show the reasons for this difference, but some general speculations can be made. Perhaps among Polish respondents, the awareness of the functionality of ingredients or certification requirements is higher. This may be related to the increasing number of Internet users (Kemp, 2021) and thus the growing popularity of groups on social media, where individuals can exchange experiences, opinions, and knowledge. Therefore, further research should focus on examining the possible impact of membership in the above-mentioned natural cosmetics groups on the purchase criteria. However, the aforementioned result may suggest that manufacturers who are present or plan to appear on the Polish market should apply for the appropriate product certification. Taking into account the results obtained in the study, marketing communication addressed to Polish consumers should

place special emphasis on providing information about the certificates held by the companies.

Interestingly, respondents from the three countries showed very little indication that testing on animals would be a decisive criterion in their selection of natural cosmetics. Testing on animals in the cosmetics industry has always been a controversial topic (Wang et al., 2020), and, unlike Růžičková's (2020) thesis, our survey intentionally did not pre-set the absence of testing on animals as one of the selection criteria. Thus, the results related to selection criteria from our survey totally differ from the mentioned thesis where such absence was pre-set. It is worth noting, however, that this does not mean that the respondents do not pay attention to whether the product is cruelty-free.

In this study on Czech, Slovak and Polish consumers, a single-choice questionnaire was used so that the respondents could provide only one selection criterion – therefore, they indicated the singular most important factor. Perhaps, as Verbeke's (2009) research suggests, not testing on animals is a criterion that increases consumers' satisfaction with their purchase but is not the determining factor in their product choice. Manufacturers aiming to increase consumer satisfaction with the purchase of their natural cosmetics should create an offer where the aspect of non-animal testing is integrated with better product composition.

6. Implications

6.1. Theoretical implications

This study had to cope with the underdeveloped theoretical base in the domain of consumer perception of natural cosmetics. As explained in the literature review section, prior relevant research mostly focused on the investigation of relationships between certain variables or the assessment of certain behavioural facets, but the application of a theory has not previously been a priority for most scholars. If the contrary, then the theory of planned behaviour or some of its components has been mostly indicated to serve as an underlying construct.

This paper's results reveal that subjective norms, as one of the three components of the TPB – if we understand them as the influence of those who are close and important to a consumer – have not appeared to be a key determinant in the selection of

natural cosmetic products since respondents of all the three countries seldom indicated an external influence such as one's recommendation to be the main decision criterion for the purchase of natural cosmetics. We, therefore, contradict the findings of Shimul et al. (2022) and incline to support the studies of Nguyen et al. (2016) and Kumar et al. (2017), where limited or indirect relationship towards the purchase of products with a reduced environmental impact was revealed. Consistently with Kumar et al.'s (2017) statement, we would therefore advocate replacing or complementing the subjective norm in investigations on natural cosmetics with the moral or personal norms in order to better understand the link between one's behaviour and purchase intention, as well as his/her purchase decision. The two other core components of the TPB, the attitude and the perceived behavioural control, cannot be commented on given the orientation of our study. On the other hand, we, like Shimul et al. (2022) or some other authors, can validate the assumption that health and environmental concerns drive the phenomenon of green consumption.

6.2. Managerial implications

Managerially, the results of this study would benefit practitioners within the natural cosmetics markets in three European countries: the Czech Republic, Slovakia and Poland. The study can be a valuable input for defining effective marketing messages and introducing differences in product positioning in the perception of consumers in each country. Firstly, the results of the study emphasised the main reasons why consumers in the three European countries buy natural cosmetics. The positive impact of individual ingredients on health, as well as environmentally friendly sourcing of materials or ecological packaging, should be highlighted in the advertising message.

Secondly, the study suggests that consumers in the Polish market pay particular attention to product certification. In order to make the product more attractive in the eyes of Polish consumers, it may be beneficial to place emphasis on marketing communication to inform about the obtained certificates. Thirdly, the results of the study suggest that for Czech and Slovak consumers, brand is more important than certification of the product. Thus, marketers from these two countries should not focus on specific markings on packaging but on comprehensive marketing activities aimed at shaping

consumers' perception of the entire brand as pro-health and ecological.

6.3. Limitations and future research

The study on Czech, Slovak and Polish consumers was limited by several factors. The first was the sizes of the research samples and the low frequencies of some categories. The problem with low frequencies was caused mainly by the sampling method – we had to rely fully on our social contacts. They were also able to share the questionnaire further. Therefore, we are unable to state how many persons were addressed in total, but those addressed directly almost always replied. Nonetheless, it is evident that some parts of society of the three countries were not represented sufficiently in our samples despite the major willingness to fill out the questionnaire, and people without internet access were not addressed at all. Although the recoding of some of the original categories into newer ones made the conduction of the necessary statistical analysis more meaningful, the diversity of categories within some variables has been significantly decreased, which then reduces the scope of new cognition.

Another limitation is also related to the method of selecting respondents – the use of convenience sampling makes it impossible to interpret the results for the entire population of the three Central European countries. However, by comparing the results of the analyses in different countries, we can get a rough idea of the situation in the targeted region. Another issue is the interpretation of the questions, in particular those related to leading a healthy lifestyle – differences in the interpretation of this term may occur between nationalities as well as between each respondent. Therefore, it is difficult to determine the accuracy of these statements – future research should use scales related to this matter to make the results more accurate. Furthermore, this cross-sectional study analyses data from a specific point in time and thus emphasises the attitude of consumers from the three countries towards natural cosmetics. However, taking into account the dynamic increase in consumer interest in natural products, it would be beneficial to conduct a longitudinal study to investigate changes concerning attitudes towards natural cosmetics, which may take place over a long-term horizon.

There is a disproportionate distribution of respondents within the regions of the countries, but

respondents' answers did not depend significantly on the regions (in the Czech Republic, no statistically significant dependence on regions was found at all, in Slovakia and Poland only for 2 and 3 questions, respectively). Therefore, calculations based on these answers should not be significantly affected by disproportions.

In addition, when it comes to the theoretical foundations of the research, prior research studies relevant to the paper's topic were limited. This paper tried to incorporate a component of the theory of planned behaviour (subjective norm) and inquired about the main drivers and motives of consumers of natural cosmetics to better understand the phenomenon of green consumption, but a broader transposition of theoretical constructs into this study was avoided. Also, this paper only mirrors the core components of the Nicosia model of consumer behaviour for the composition of the questionnaire. However, the ambition of this study was not to replicate or even validate a complete theoretical model. This, as a result, means that the paper's findings are more likely to be beneficial for the corporate sector than for academia. On the other hand, the fact that some of the past research findings could be validated here and few other discoveries were made may still be of high importance for future researchers in the topic of natural cosmetics.

7. Conclusion

This research has aimed to partially fill the existing research gap in revealing whether differences exist among consumers from different countries regarding attitudes towards natural cosmetics. The available literature on the same or similar topics to date rarely used a perspective from multiple countries. Thus, three neighbouring countries from the Central European region were selected, and convenience sampling was used for the distribution of the same questionnaire in individual countries.

In all three countries, the results indicate that health and, less importantly, environmental concerns are those that mainly propel people in their decision whether to prefer natural cosmetics to conventional ones. Furthermore, no statistically significant dependence could be found between how respondents perceive the price level of natural cosmetics and their sociodemographic profile simultaneously in all three

countries. Existing sources suggested there could be a link; however, those sources assessed other kinds of natural or organic products, so this research brings a new finding that should be carefully overviewed in the future by another survey. On the other hand, some respondent's sociodemographic characteristics do influence the frequency of purchasing natural cosmetics, but there might be differences across countries regarding which characteristics may be the crucial ones for such influence.

We can ascertain that from the perspective of all three countries, the frequency with which people buy natural cosmetics does not depend on health awareness. Moreover, one's awareness about natural cosmetics is not dependent on respondents' age or their level of education.

Our research has also found out that consumers do not always associate natural cosmetics with higher quality as significant percentages of people in all three countries find this association on a case-by-case basis and small percentages of consumers even do not find such an association. Additionally, the research indicates that the declared composition of the product plays a crucial role in all three analysed countries.

The last result worth commenting on is that a person who buys natural cosmetics often is more likely to indicate that such cosmetics are of higher quality than people who buy them occasionally. This research has also detected some other statistically significant dependencies, mostly linked to one or two of the three countries under investigation. These dependencies were not specifically commented on if not necessary, and some of them only represented a bypass effect of our investigation. It is nonetheless necessary to remind that our samples were limited, especially when it comes to the number of respondents in some categories. Therefore, the dependencies could be assessed again in the future.

This paper is only partially supported by the existing theoretical background, and its orientation and results appear to be more beneficial for the cosmetic branch, especially companies active in the segment of natural cosmetics in the targeted region. Nonetheless, the paper may also become useful for further researchers as the previous lines bridged some gaps from past research on natural cosmetics and revealed whether some of the results from the Central European region paralleled findings from other investigations carried out worldwide. Moreover, the created questionnaire can be easily replicated in

future research in other geographical regions and serve as an additional tool for the assessment of central behavioural traits and motives of consumers of natural cosmetics.

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