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# Consumers' Knowledge and Decisions about Choosing Organic Sunscreen Products

## Wiedza konsumentów i ich decyzje dotyczące wyboru ekologicznych produktów przeciwsłonecznych

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ABSTRACT

**Objective:** The aim of the survey was to assess respondents' knowledge about organic sunscreen products and to learn about differences in self-assessed levels of knowledge between those who choose and do not choose organic sunscreen products.
**Research Design & Methods:** The survey was conducted using a structured, close-ended survey questionnaire, via an electronic form using the CAWI technique, and with a printed questionnaire. The survey collected the responses of 1,263 Polish consumers.
**Findings:** The results show that both objective and subjective knowledge about organic sunscreen products is low. Identifying this category of products is difficult and knowledge about the UV filters used is low.
**Implications/Recommendations:** An effort should be made to widen consumer knowledge about organic sunscreen products. Greater public awareness of organic sunscreen products, better

knowledge of credible labels and the health and environmental benefits of their use could help consumers improve their purchasing decisions and lead them to choose this product category.
**Contribution:** The results are an important guideline for marketing management, the information obtained will help guide the marketing activities of sunscreen product manufacturers.

**Article type:** original article.

**Keywords:** organic sunscreen products, self-assessment of consumer knowledge, purchasing decisions, public awareness.

**JEL Classification:** M31, Q01, I19.

STRESZCZENIE

**Cel:** Celem badania była ocena wiedzy respondentów na temat ekologicznych produktów promieniochronnych oraz poznanie różnic w samoocenie poziomu wiedzy pomiędzy osobami, które wybierają ekologiczne produkty przeciwsłoneczne, oraz osobami, które nie wybierają takich produktów.
**Metodyka badań:** Badanie zostało przeprowadzone z wykorzystaniem ustrukturyzowanego, zamkniętego kwestionariusza ankiety za pośrednictwem formularza elektronicznego techniką CAWI oraz za pomocą kwestionariusza drukowanego. W badaniu ankietowym wzięło udział 1263 polskich konsumentów.
**Wyniki badań:** Wyniki wskazują, że poziom zarówno obiektywnej, jak i subiektywnej wiedzy dotyczącej ekologicznych produktów promieniochronnych jest niski. Respondenci mają problem z identyfikacją tej kategorii produktów oraz nie mają wystarczającej wiedzy na temat stosowanych filtrów UV.
**Wnioski:** Należy podjąć działania prowadzące do zwiększenia poziomu wiedzy na temat ekologicznych produktów promieniochronnych. Większa świadomość społeczeństwa dotycząca ekologicznych produktów promieniochronnych, lepsza znajomość wiarygodnych oznaczeń oraz korzyści dla zdrowia i środowiska, które wynikają z ich stosowania, mogłyby pozytywnie wpłynąć na decyzje zakupowe konsumentów i skłonić ich do wyboru tej kategorii produktów.
**Wkład w rozwój dyscypliny:** Wyniki badań są ważną wskazówką dotyczącą zarządzania marketingiem, uzyskane informacje mogą zostać wykorzystane w działaniach marketingowych producentów kosmetyków przeciwsłonecznych.

**Typ artykułu:** oryginalny artykuł naukowy.

**Słowa kluczowe:** ekologiczne produkty promieniochronne, samoocena wiedzy konsumentów, decyzje nabywcze, świadomość społeczeństwa.

## 1. Introduction and Theoretical Background

In recent years, consumers have begun to pay more attention to a healthy lifestyle and sustainability issues. Increasingly aware of the negative impact of certain cosmetics ingredients on their health and the environment, they are more willing now to analyse the information on cosmetics labels and, in response to what they

find, to look for organic products. Organic cosmetics is a product category that has been growing rapidly, both globally and in Europe. Increased consumer interest in this product category is related to, among other factors, concern for the environment, widespread promotion of the concept of sustainable development, and interest in innovation in the cosmetics market (Klimczyk-Bryk 2000, Witek 2015, Nagarajan *et al*. 2022).

The global market for natural and organic cosmetics was valued at $32.1 billion in 2022. At a 9.5% growth rate, the global market for natural and organic cosmetics is estimated to be worth $50.5 billion by 2027 (*Report…* 2022).

In the United States, skin care products have the largest share in the natural and organic cosmetics market, accounting for more than 40% of the market. Revenue from organic cosmetics in the United States amounted to about $750 million in 2016 and is projected to reach about $1.65 billion by 2025. Almost 40% of American consumers believe that organic cosmetics are healthier than conventional products (Statista Research Department 2022).

In Europe, more and more organic products have been appearing in recent years. Manufacturers are more eager to emphasise the eco-friendliness of their products and use such information in their marketing activities, even if such cosmetics are a fairly limited product category (Pienczykowska 2021).

A GFK Polonia report presenting the market situation in Poland, where the survey was conducted, shows that the value of the market for organic cosmetics in this country has reached almost PLN 200 million and is constantly growing. The segment of these cosmetics grew by 39% between July 2019 and June 2020 (*Raport GfK…* 2020).

According to European legal standards, sunscreens are cosmetic products. Their main function is to protect the skin from ultraviolet (UV) radiation, and they protect the skin from sunburn, hyperpigmentation, photoaging, and reduced immunity (local immunosuppression) due to sun exposure. The use of sun-protective products can also prevent certain types of skin cancer (van der Pols *et al*. 2006, Green *et al*. 2011, Hughes *et al*. 2013, Jansen *et al*. 2013, Mancuso *et al*. 2017). In order for these cosmetics to have protective properties, they must meet the requirements described in the Commission Recommendation of 22 September 2006 on the efficacy of sunscreen products and the claims relating thereto.

In recent years, sunscreen products with eco-labels have appeared on the cosmetics market. Some are certified by international certification bodies, such as the organisations forming COSMOS standard, NATURE or ISO 16128 standard. At the same time, some products bear only a manufacturer's declaration and (or) a label such as: BIO, EKO/ECO, or Organic. The wide variety of labels and certifications appearing on the packaging of organic cosmetics can cause confusion among consumers and raise doubts about the credibility of the statements on the labels.

Unfortunately, the term "organic cosmetics" has not yet been defined by law, so one finds slightly different explanations of the term across a variety of sources. As a result, different definitions and labels for organic cosmetics have been created at the national and international levels, as well as inconsistent requirements and criteria for the certification of this product category.

Globally, many organisations certify natural and organic cosmetics, each with separate requirements relating to these two categories of cosmetics. In Europe, an attempt has been made to unify standards and organisations: BDIH (Germany), Cosmebio/EcoCert (France), ICEA (Italy) and Soil Association (UK) have created a common standard for natural and organic cosmetics – COSMOS standard AISBL (Association Internationale Sans But Lucratif) (COSMOS-standard, Version 3.1 – 1 June, 2020). The COSMOS standard was published in 2008 and came into force in January 2010 (Cosper 2018). While it does not define the term "organic cosmetic", it does present a set of criteria that companies must meet to claim a product is an original organic cosmetic, produced in accordance with the highest possible sustainable practices. COSMOS ORGANIC-certified sunscreen products do not contain chemical filters or nanomaterials, and are based on raw materials and natural substances, some of which are sourced from organic cultivation. These producs often include antioxidants, which prevent oxidation. A certified organic cosmetic (total product) must contain at least 20% organic ingredients. Exceptions include rinse-off products, non-emulsified aqueous products and products containing at least 80% minerals or mineral-derived ingredients – these must contain at least 10% organic ingredients (COSMOS-standard, Version 3.1 – 1 June, 2020).

The COSMOS standard covers all aspects of sourcing, production, marketing and control of cosmetic products. Certification bodies check each of these aspects when certifying an organic product. While the provisions of this standard are in line with the legal code of many countries, manufacturers that use this standard are also expected by the association to comply with all relevant regulations, including the EU Regulation on Cosmetic Products (EC No 1223/2009) as amended, the EU REACH Regulation (EC No 1907/2006), the Commission Regulation on Cosmetic Product Claims (EU No 655/2013) and (or) other local or national regulations on cosmetic products (COSMOS-standard, Version 3. 1 – 1 June, 2020).

The Cosmos standard also clearly and precisely defines the rules for product labeling and indicates what information must be included on the packaging. The organisations ensure that messages are simple, understandable and do not mislead consumers. In addition to the signature "COSMOS ORGANIC", the certification body and seal of the AISBL member organisation must be indicated on the product label (COSMOS-standard, Version 3.1 – 1 June, 2020).

According to Annex IV of the COSMOS-standard, permitted ingredients of mineral origin include zinc oxide and titanium dioxide. These are ingredients used

in sunscreen products as UV filters, especially those labeled natural or organic. Zinc oxide and titanium dioxide, however, must meet certain conditions, which are detailed in the document (SCCS/1516/13, SCCS/1489/12).

In 2008, the association NATRUE, an international organisation committed to promoting and protecting natural cosmetics globally, introduced guidelines for organic cosmetics. The NATRUE standard applies to both raw materials and finished products intended for cosmetic use. The requirements to be met by organic sunscreen products are min. 15% natural substances and max. 30% of derivatives of natural substances. In addition, at least 95% of the natural substances of plant and animal origin and derivatives of natural substances contained in the product must come from controlled organic farming and (or) wild harvesting, certified by a recognised certification body or authority for compliance with an organic standard or regulation approved for IFOAM (International Federation of Organic Agriculture Movements) standards, or this standard (NATRUE Criteria Version 3.9 – 2021).

At the initiative of EU Member States and at the request of the European Commission, the International Organization for Standardization (ISO) developed criteria for the claims "natural" and "organic" and established standard 16128-1:2016 and, a year later, standard 16128-2:2017, which complements the first part. The standard specifies definitions of natural and organic ingredients and presents a methodology for calculating indices of naturalness, natural origin, organic and organic origin. The ISO standard applies only to ingredients found in a cosmetic preparation. Thus, manufacturers can only declare the percentage of raw materials of natural or organic origin on the packaging of a cosmetic product, but cannot use a term suggesting that the product is natural or organic (ISO 16128-1:2016, ISO 16128-2:2017, Engler-Jastrzębska & Wilczyńska 2021a).

In Poland, the certification body for natural and organic cosmetics is the Polish Center for Testing and Certification, which awards the certificate and the right to label products with the EU Ecolabel, EKO Certified Natural Cosmetic and EKO. The EKO Certified Natural Cosmetic (EKO CKN) label is awarded to cosmetic products containing at least 90% ingredients of natural origin, while the EKO certificate is awarded to at least 50% of these ingredients. The EU Ecolabel is a voluntary European programme established in 1992 to get the industry interested and encouraged to introduce environmentally friendly products and services to the market. The basis for awarding the label is Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel and decisions of the European Commission containing criteria for individual groups of products or services (Regulation (EC) No 66/2010, Commission Decision (EU) 2021/1870 of 22 October 2021…, Polish Centre for Testing and Certification 2021, Stępniak & Zalewska 2021).

The wide variety of claims on organic sunscreen product labels, the different graphic indications awarded by certification bodies and, above all, the inconsistent criteria for organic products can confuse consumers. In addition, the lack of regulations clearly defining when a cosmetic product can be called "organic" determines the emergence of different concepts and standards. All these ambiguities and differences can lead to ignorance and low consumer awareness of this product category.

The impact of knowledge on consumer decision-making and the measurement of this variable has been a topic addressed by researchers and described in the marketing literature for a long time. Three types of consumer knowledge, relevant to consumer behaviour, have been distinguished: 1) objective knowledge, i.e. the consumer's actual state of knowledge, 2) subjective knowledge, i.e. perceived knowledge, what a person thinks he or she knows, 3) previous experience, regarding the consumer's purchase and use of the product. Consumers use both subjective and objective knowledge when purchasing cosmetics products, although probably in different ways (Brucks 1985).

Park and Lessig (1981) also describe two main approaches to measuring product knowledge: the first concerns how much a person knows about a product, while the second measures how much or little a person thinks he or she knows about a product.

The results of a meta-analysis of research on responsible environmental behaviour by Bamberg and Möser (2007) point to the role of knowledge as an important indirect determinant of behaviour. Other authors note that subjective knowledge is a stronger motivator of purchase behaviour than objective knowledge (Selnes & Grønhaug 1986, Feick, Park & Mothersbaugh 1992).

Studying the effect of objective and subjective knowledge on acceptance of genetically modified foods, House *et al*. (2004) conclude that higher levels of subjective knowledge are significantly and positively related to consumers' willingness to consume genetically modified foods, while no such relationship was observed for objective knowledge.

The aim of this study is to assess respondents' knowledge about organic sunscreen products, to find out their opinions about this product category, and to identify differences in self-assessed levels of knowledge between those who choose and do not choose organic sunscreen products. Two research questions were asked: 1) what is the knowledge and self-assessment of consumers' knowledge about organic sunscreen products?, 2) does self-assessment of knowledge influence the choice of organic sunscreen products among all those available on the market?

## 2. Materials and Methods

The survey was conducted using a structured, close-ended survey questionnaire, via an electronic form using the CAWI (Computer Assisted Web Interview) tech-

nique, and with a printed questionnaire containing 16 questions, including five socio-demographic and two filter questions to eliminate non-users of sunscreen products. The survey instrument consisted of nominal questions for demographic data and a semantic scale for self-assessment of knowledge about organic sunscreen products, where 1 indicated a low level of knowledge and 5 a high level. The following factors were taken into account for the creation of the measurement tool: the current state of knowledge about sunscreen products, the criteria established by leading certification organisations, and the requirements for claims on sunscreen products under legislation.

A purposive selection of the research sample was planned. It consisted of people who declared using sunscreen products, at least occasionally. The study was conducted in the second half of 2022 among Polish consumers of sunscreen products. It took between 3 and 5 minutes to complete the form. The participants were informed about the scientific nature of the survey and the use of the data collected in the course of the survey in the form of summary statistics. Sensitive data that would allow identification of the respondent were excluded. To help us answer the two questions we posed, statistical analyses were carried out using the IBM SPSS Statistics 26 package. This allowed for an analysis of basic descriptive statistics as well as a Mann-Whitney *U* test to check the differences in self-reported levels of knowledge about organic sunscreen products between those choosing and not choosing organic sunscreen products. The results are presented as percentage of responses.

Table 1. Characteristics of the Study Population

| Study Population | Full Sample ($N$ = 1,305) | Analysed Sample ($N$ = 1,263) |
|---|---|---|
| Gender | | |
| Male | 66 (5.1%) | 61 (4.8%) |
| Female | 1,239 (94.9%) | 1,202 (95.2%) |
| Age | | |
| Up to 35 years | 816 (62.5%) | 787 (62.3%) |
| 36–59 years | 458 (35.1%) | 446 (35.3%) |
| 60 years and over | 31 (2.4%) | 30 (2.4%) |
| Monthly income | | |
| Below the national average | 428 (32.8%) | 428 (32.8%) |
| National average | 521 (39.9%) | 521 (39.9%) |
| Above the national average | 356 (27.3%) | 356 (27.3%) |
| Place of residence | | |
| Village | 640 (49.0%) | 621 (47.6%) |
| Town up to 20 thousand | 239 (18.3%) | 229 (17.5%) |
| City of 21–100 thousand | 225 (17.2%) | 217 (16.6%) |

Table 1 cnt'd

| Study Population | Full Sample ($N$ = 1,305) | Analysed Sample ($N$ = 1,263) |
|---|---|---|
| City of 101–500 thousand | 101 (7.7%) | 99 (7.6%) |
| City over 500 thousand | 100 (7.7%) | 97 (7.4%) |
| Education | | |
| Elementary | 22 (1.7%) | 21 (1.6%) |
| Vocational | 162 (12.8%) | 156 (12.0%) |
| Secondary | 523 (41.4%) | 501 (38.4%) |
| Higher | 579 (45.8%) | 566 (43.4%) |
| Not stated | 19 (1.5%) | 19 (1.5%) |

Source: the authors.

$N$ = 1,305 respondents participated in the survey. Since purposive sampling was planned, only data from participants who declared that they use any sunscreen products at least occasionally [$n$ = 223 (17.09%)], sometimes [$n$ = 261 (20%)], during the summer or vacation season [$n$ = 690 (52.9%)] or year-round [$n$ = 89 (6.8%)] were included in further analyses. Data obtained from [$n$ = 42 (3.2%)] individuals who declared that they do not use any sunscreen products were therefore excluded. $N$ = 1,263 respondents were ultimately included in the analysis (Table 1).

## 3. Results

The respondents were given several statements (some true, some false) regarding organic sunscreen products. You may be interested to know that respondents marked statements true as often as they did false. However, this is not surprising, especially for statements regarding the organic ingredient content of the product, given all the different certification criteria for organic products adopted by certification bodies (Table 2).

Table 2. Respondents' Knowledge of Organic Sunscreen Products

| Answers | *N* | % |
|---|---|---|
| They must contain 100% natural ingredients | 679 | 53.76 |
| They do not contain synthetic filters | 513 | 40.62 |
| They come in recyclable packaging | 685 | 54.24 |
| They are made in harmony with nature, without using artificial pesticides | 730 | **57.80** |
| They contain only plant-based ingredients | 305 | 24.15 |
| They do not use genetically modified organisms | 541 | 42.83 |
| All ingredients must come from organic cultivation | 573 | 45.37 |

Table 2 cnt'd

| Answers | *N* | % |
|---|---|---|
| Must contain a minimum of 95% ingredients of organic origin | 582 | 46.08 |
| Must be certified organic | 874 | **69.20** |
| At least half of the ingredients must come from organic cultivation | 254 | 20.11 |

Notes: numbers in bold denote that most respondents express this opinion.

Source: the authors.

Respondent opinions on the difficulty of recognising organic sunscreen products are noteworthy. They result from a lack of information about reliable labels confirming that a given product is organic. At the same time, more than 60% of respondents believe that only products bearing a quality certificate are trustworthy (Fig. 1).

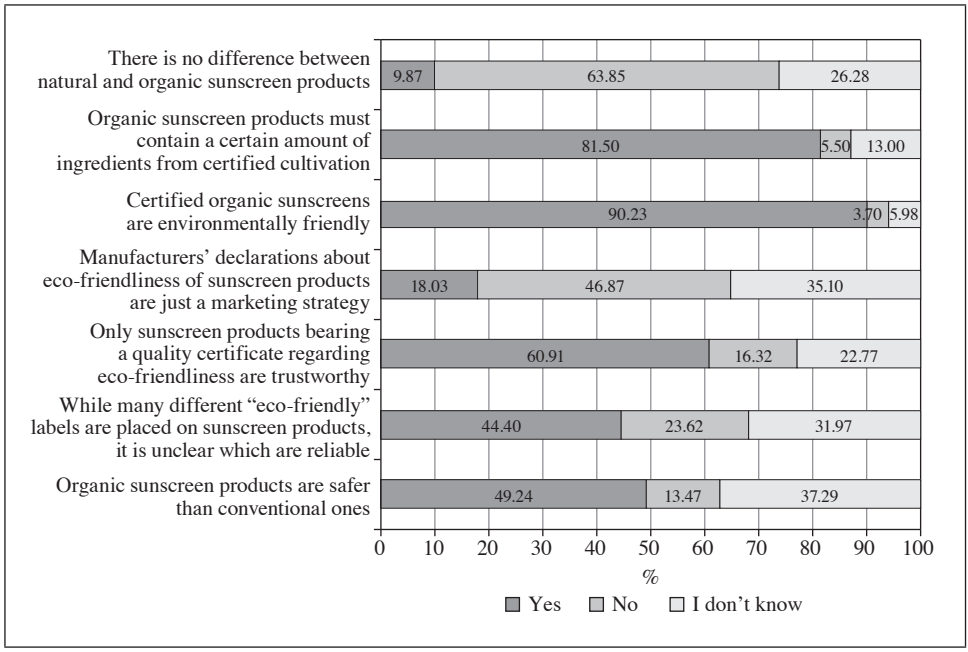


Fig. 1. Respondents' Opinions on Organic Sunscreen Products

Source: the authors.

Further analysis of the results confirms earlier suppositions about the problems of identifying eco-friendliness certificates, as the overwhelming majority of survey participants (60.34%) recognise organic sunscreen products on the basis of infor-

mation on the label, such as EKO/ECO. Only 26.38% of respondents stated they looked at quality certificates (Table 3).

Table 3. How to Recognise Organic Sunscreen Products

| Answers | *N* | % |
|---|---|---|
| I rely on information like EKO, ECO | 636 | 60.34 |
| I can read the INCI composition | 75 | 7.12 |
| I pay attention to information about the origin of ingredients from organic cultivation | 261 | 24.76 |
| I pay attention to graphic indicators (quality certificates) | 278 | 26.38 |
| I look for information about ISO standard | 49 | 4.65 |
| I ask the seller for help | 282 | 26.76 |
| I consult my friends | 227 | 21.54 |
| I look for information on the Internet | 425 | 40.32 |
| I do not recognise organic sunscreen products | 149 | 14.14 |

Source: the authors.

A significant proportion of respondents (61.2%) admitted they lacked knowledge about the types of UV filters used in organic sunscreen products. That said, participants were more likely to mark answers which did not contain the phrase "chemical filters", acknowledging that chemicals cannot be among organic ingredients (Fig. 2).

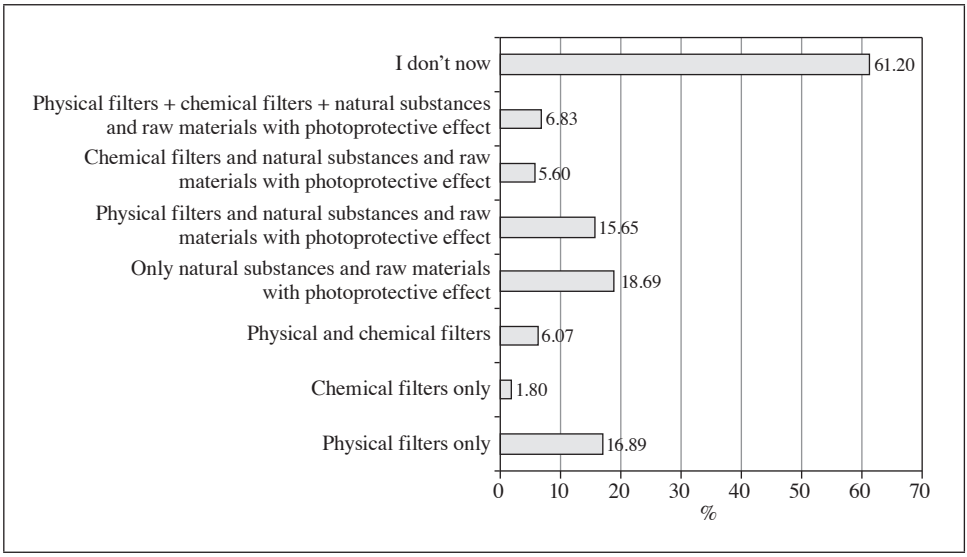


Fig. 2. Respondents' Knowledge of the Type of UV Filters Used in Organic Sunscreen Products
Source: the authors.

The ingredients used as UV filters in organic sunscreen products proved to be an even more difficult question for respondents than the type of filters used. More than 80% of survey participants declared a lack of knowledge on UV filter ingredients. The distribution of the remaining responses does not allow any conclusion, as respondents marked correct and incorrect answers just as often, which may suggest a tendency to guess (Fig. 3).

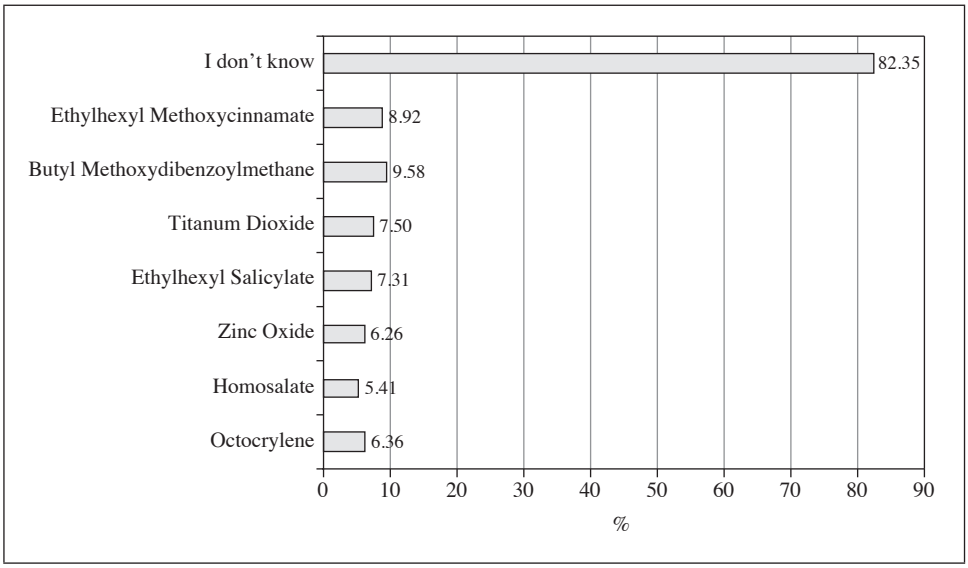


Fig. 3. Respondents' Knowledge about Ingredients Used as UV Filters in Organic Sunscreen Products

Source: the authors.

The term "greenwashing" is closely related to environmental awareness (de Freitas Netto *et al*. 2020). Unfortunately, more than half of the survey participants openly admitted that they did not know what the term meant. Only 15.04% of respondents indicated the correct definition.

Analysis of the results shows that consumers' subjective knowledge about organic sunscreen products is low: More than 40% of respondents rated their knowledge level as very low, while only 1.74% of respondents considered their knowledge of this product category to be very high. Both the average score of respondents' self-assessment of knowledge and the median score confirm the survey respondents' low level of subjective knowledge (Table 4).

Among the 1,263 consumers of sunscreen products participating in the survey, only 12.36% stated they would choose organic sunscreen products from the range available on the market. 55.34% of respondents admitted that they did not know

whether the sunscreen products they chose were organic. This confirms earlier suppositions about the difficulty of identifying this product category, perhaps related to the lack of knowledge of eco-friendliness labels (Table 5).

Table 4. Self-assessment of Knowledge about Green Sunscreen Products

| Assessment Scale – Level of Knowledge | *N* | % |
|---|---|---|
| 1 (very low) | 518 | 41.01 |
| 2 (low) | 370 | 29.30 |
| 3 (medium) | 292 | 23.12 |
| 4 (high) | 61 | 4.83 |
| 5 (very high) | 22 | 1.74 |
| Total | 1,263 | 100.00 |
| Mean | 1.97 | |
| Median | 2 | |
| Standard Deviation | 1.00 | |
| Skew / Kurt | 0.78 / –0.03 | |

Source: the authors.

Table 5. Selection of Organic Sunscreen Products

| Answers | *N* | % |
|---|---|---|
| No | 408 | 32.30 |
| I don't know | 699 | 55.34 |
| Yes | 156 | 12.36 |
| Total | 1,263 | 100.00 |

Source: the authors.

Table 6. Differences in Self-assessed Level of Knowledge about Organic Sunscreen Products between Those Choosing and Not Choosing Organic Sunscreen Products

| Not Choosing Organic Sunscreen Products ($n$ = 408) | | | | Choosing Organic Sunscreen Products ($n$ = 156) | | | | $Z$ | $p$ | $r$ | $\eta^2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean rank | Me | Min | Max | Mean rank | Me | Min | Max | | | | |
| 230.07 | 1.50 | 1.0 | 5.00 | 419.62 | 3.00 | 1.00 | 5.00 | –12.94 | < 0.001 | 0.54 | 0.30 |

Source: the authors.

To test for differences in self-assessed levels of knowledge about organic sunscreen products between those choosing and not choosing this type of sunscreen product, an analysis was conducted using the Mann-Whitney *U* test. The results of

the analysis showed large, statistically significant differences between the groups. Based on the median analysis, it appears that those choosing organic sunscreen products rated their knowledge higher. It can therefore be concluded that the higher the level of self-assessment of knowledge about organic sunscreen products, the higher the tendency to choose this type of sunscreen cosmetics (Table 6).

## 4. Discussion And Conclusions

Other studies and data have shown that consumers are not always informed about all the labels that appear on sunscreen products, and they also have difficulty recognising selected quality certifications confirming that a product is organic (Engler-Jastrzębska & Wilczyńska 2021b).

The authors warn that claims made on sunscreen product labels often contain a lot of information of seemingly high importance, making it difficult for consumers to distinguish their validity when choosing a sunscreen (Yang *et al*. 2018). Researchers suggest the need to develop more standardised labeling for sunscreen products (Wahie, Lloyd & Farr 2007).

Despite ongoing work and efforts in Europe and around the world to introduce clear, understandable and consistent communication on sunscreen products that allows them to be differentiated, their specific properties understood, how they should be used and how much protection they offer, survey results show that terminology on sunscreen product labels can still be confusing for consumers. Kong, Sheu and Kundu (2015) conducted a survey to assess consumers' understanding of sunscreen product labels. Less than half of the participants were able to correctly identify terminology indicating the level of skin protection against skin cancer (37.7%), photoaging (7.0%) and sunburn (22.8%). In addition, only 43% of participants understood the definition of SPF (Sun Protection Factor) value.

The results of a study by Wang and Dusza (2009) indicate that consumers' knowledge of sunscreen products is quite superficial. Only 32.1% of respondents in the study knew that sunscreen should be applied 30 minutes before sun exposure, and only 30% knew the recommendations for reapplication. Only 18% of respondents knew what amount of product was needed to cover the entire body and achieve proper protection. The overall average score of respondents' knowledge of sun protection was 4.9 out of a possible 12 points.

The results of a study conducted by Chao *et al*. (2017) indicate that the terminology used on sunscreen labels, particularly the broad spectrum indication, is confusing to consumers. The authors suggest that it is necessary to push for clearer statements on labels, and to strive to inform consumers about important factors to consider when choosing a sunscreen (Chao *et al*. 2017).

Other authors, studying the differences in sunscreen knowledge among different age groups and between men and women, emphasise that there are knowledge

gaps in each demographic group. To address them, public health educational activities will need to be undertaken (Lee *et al*. 2015). The results of the survey done for this research also show that both actual knowledge of organic sunscreen products and perceived knowledge are low. A large number of survey respondents believe that there are many different labels on packaging and it is not clear which ones are reliable, so it is difficult to identify these types of products. A very low level of knowledge was observed regarding the type of UV filters used and the radiation-protective ingredients that have a protective function against UV radiation in organic sunscreen products.

Difficulties in recognising green claims may also be evidenced by the fact that when choosing this category of products, respondents mainly rely on the information on the EKO/ECO type packaging rather than quality certificates confirming that the product has been produced in accordance with organic standards established by the organisation.

The results of the survey further indicate that those who choose organic sunscreen products rate their knowledge about them higher. This may suggest that a higher level of perceived knowledge may induce consumers to purchase organic sunscreen products.

Measures should be taken to increase the level of knowledge about organic sunscreen products, which could increase consumer interest in this product category and influence their choice among cosmetics available on the market. Greater public awareness of organic sunscreen products, better knowledge of credible labels and the health and environmental benefits of their use could have a positive influence on consumers' purchasing decisions and lead them to choose this product category.

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