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Public Perception and Usage Trends of Essential Oils: Findings from a Nationwide Survey

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Abstract: In recent years, an increasing demand for natural products for personal care, cosmetics, supplementation, and the treatment of different conditions has been reported worldwide. At the same time, the global essential oil (EO) market was valued at more than 23 billion per year in the last two years and is expected to grow significantly in the next five years. The purpose of this study was to explore the use of EOs in daily life, including frequency, preferences, and health-related outcomes among Bulgarian adults. The respondents and their responses remained anonymous as the survey was conducted online in January 2025. The study was associated with some important findings: usage of essential oils among Bulgarian adults is widespread (68.7% of the respondents use essential oils); secondly, we found that EO usage had a statistically greater association with younger age, higher education, and female sex. Most of the consumers of EOs did not report any side effects after use. However, 4.0% reported contact dermatitis and allergic reactions after the application of EOs. Most respondents (86.3% of the EO users) believe that repellents based on EOs provide good protection. It was established that Bulgarian adults use EOs for various applications: skin care, general wellness, aromatherapy, and as repellents. Most of the consumers of EOs would recommend EOs to other people.

Keywords: essential oils; aromatherapy; natural products; aromatic plants; adverse effects; lavender essential oil

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1. Introduction

For ages, aromatic plants have been deeply involved in human medicine and everyday life. Nowadays, aromatic plants are regarded as a rich and important source of therapeutic agents, and some novel pharmaceuticals are expected to be derived from plants in the next decade. Currently, the research on aromatic plants is remarkable [1,2]. Essential oils (EOs) are natural and complex mixtures containing many volatile compounds. EOs are primarily produced by aromatic plants as secondary metabolites and have some important functions in nature, such as deterring herbivores or attracting pollinators. EOs are associated with distinct and potent aromas and a wide variety of biological activities, including antibacterial, antifungal, virucidal, anticancer, anti-inflammatory, antioxidant, insecticidal, etc., properties [1,3].

Nowadays, EOs play a significant role not only in the pharmaceutical industry but also in the sanitary, cosmetic, agricultural, and food industries.

According to recent reports, the global market for EOs is expected to grow significantly in the next five years. For 2023, the EO market was reported to reach more than USD 23 billion, and in 2030, it is expected to reach more than USD 42 billion [4]. The European market of EOs represents a significant share of the global market. In Europe, the EO market is expected to reach a projected revenue of more than USD 20 billion in 2030. For 2023, the European market reached a revenue of more than USD 11 billion [4].

The positive trend in the EO market is associated with the increasing demand for natural products worldwide, including natural products for personal care, cosmetics, supplementation, and remedies for the management of different health conditions. Moreover, the area of applications of EOs is constantly expanding. Currently, many EOs and compounds isolated from EOs are studied as alternatives to synthetic preservatives, as safer alternatives to pesticides, as natural antibacterial agents, and as promising novel drug candidates, etc. [5–8].

EOs have always been regarded as vital for the cosmetic industry [6]. Although, in general, EOs are considered safe and non-toxic, these natural products contain numerous different nonpolar compounds with diverse chemical structures and diverse biological activity. This is regarded as one of the key points for their significant potential to cause allergic reactions [7,8]. At the same time, EOs are categorized as products that are frequently susceptible to forgery. Currently, the adulteration of EOs is regarded as a serious problem and could expose consumers to significant risks [9].

The purpose of this study was to explore the use of EOs in daily life, including frequency, preferences, and health-related outcomes among Bulgarian adults. This is the first study regarding EO usage performed in Bulgaria.

2. Materials and Methods

2.1. Study Design, Participants, and Setting

A cross-sectional questionnaire-based study was conducted in January 2025. Study participants included Bulgarian adults >18 years old. The respondents and their responses remained anonymous.

2.2. Study Tool

A questionnaire (Supplementary Materials) was developed by the investigators who are experts in pharmaceutical chemistry, pharmaceutical analysis, pharmaceutical technology, and pharmacy practice. An initial draft of the questionnaire was evaluated by three researchers to ensure accuracy, structure, content clarity, and correct grammar. Then, a pilot study involving 20 participants assessed the instrument's face and content validity. Readability and completion time were also evaluated. Adjustments were incorporated in the revised version of the questionnaire according to participants' feedback. The pre-tested samples were excluded from the final analysis.

The final version of the study tool contains 19 questions divided into two sections. Section 1 included questions regarding the sociodemographic characteristics of study participants (age, sex, occupation and employment status, education, and place of residence) and one dichotomous question (yes or no) about the usage of EOs. This section was composed of 6 questions. EO non-users were not directed to Section 2.

Section 2 explored the utilization of EOs in daily life, including frequency of purchase, types of EOs used, reasons for use, personal preferences, places of purchase of EOs, satisfaction with usage, and health-related outcomes (e.g., observed side effects). This section included 13 questions. In relation to the utilization of specific EOs, a total of 21 types of EOs (including lavender, tea tree, rosemary, chamomile, rose, peppermint, orange, mandarin,

lemon, clove, oregano, frankincense, ylang-ylang, cedar, pine, citronella, thyme, eucalyptus, lemon balm, and blends) were presented as options.

2.3. Data Collection

The study tool was generated using the Google Forms™ platform. At the beginning of the questionnaire, a consent statement was supplied, which included the objective of the study, an estimate of how long it would take, an explanation of the confidentiality of replies, and the voluntary nature of participation. Respondents gave their agreement by accepting the prompt to start answering the questions in the online tool. Individual identifiers/e-mails were not collected. The link to the survey was distributed online via social media platforms (Facebook and Instagram).

2.4. Data Analysis

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) v. 19 and MS Office Excel for Windows 10. The demographic characteristics and descriptive statistics of participants are presented as frequencies and percentages. A Chi-square or Fisher's exact test was performed to study whether there were significant differences between the dependent variable and the independent variables. A p-value less than 0.05 was considered to be statistically significant.

3. Results

A total of 1848 respondents completed the survey, of whom 68.7% (n = 1269) reported using EOs, while the remaining 31.3% indicated no usage.

3.1. Demographic Characteristics

Table 1 summarizes the demographic characteristics of the two groups—users and non-users. In both groups, females represented most respondents. The majority of EO users were within the age groups of 18–29 years old (35.7%) or 30–40 years old (25.0%). In terms of education, individuals with a university degree predominate in both groups. Approximately one-third (32.2%) of EO consumers reported being healthcare professionals. The majority of the consumers were from cities with more than 100,000 inhabitants (84.6%).

Table 1. Demographics of study participants.

Characteristic	EO Users (n = 1269) n (%)	EO Non-Users (n = 579) n (%)	p-Value
Gender			
Male	225 (17.7)	177 (30.6)	<0.001 [a,*]
Female	1044 (82.3)	402 (69.4)	
Age (years)			
18–29	453 (35.7)	285 (49.2)	<0.001 [a,*]
30–40	318 (25.0)	135 (23.3)	
41–49	237 (18.7)	87 (15.0)	
50–60	189 (14.9)	45 (7.8)	
>60	72 (5.7)	27 (4.7)	
Education			
Primary school	3 (0.2)	6 (1.0)	<0.001 [b,*]
High school	318 (25.1)	183 (31.6)	
University (bachelor's/master's degree) and PhD	948 (74.7)	390 (67.4)	
Occupation			
Health staff	408 (32.2)	114 (19.7)	<0.001 [a,*]
Non-health staff	861 (67.8)	465 (80.3)	

Table 1. *Cont.*

Characteristic	EO Users (n = 1269) n (%)	EO Non-Users (n = 579) n (%)	p-Value
Employment status			
Student	153 (12.0)	123 (21.2)	
Employed	993 (78.3)	408 (70.5)	<0.001 [a,*]
Unemployed	93 (7.3)	33 (5.7)	
Retired	30 (2.4)	15 (2.6)	
Place of residence (size)			
City (>100,000 inhabitants)	1074 (84.6)	456 (78.7)	
Medium-sized town (20–100,000 inhabitants)	75 (5.9)	66 (11.4)	<0.001 [a,*]
Small town (5000–20,000 inhabitants)	81 (6.4)	30 (5.2)	
Rural (<5000 inhabitants)	39 (3.1)	27 (4.7)	

Note: Results expressed as number of respondents (n) and percentage (%); [a] Chi-square test for independence; [b] Fisher's exact test; * statistically significant difference.

3.2. Utilization of Specific EOs

Figure 1 illustrates the types of EOs most commonly used by Bulgarian consumers. The three most used EOs among surveyed adults include lavender EO (68.6%), tea tree EO (43.7%), and peppermint EO (39.5%).

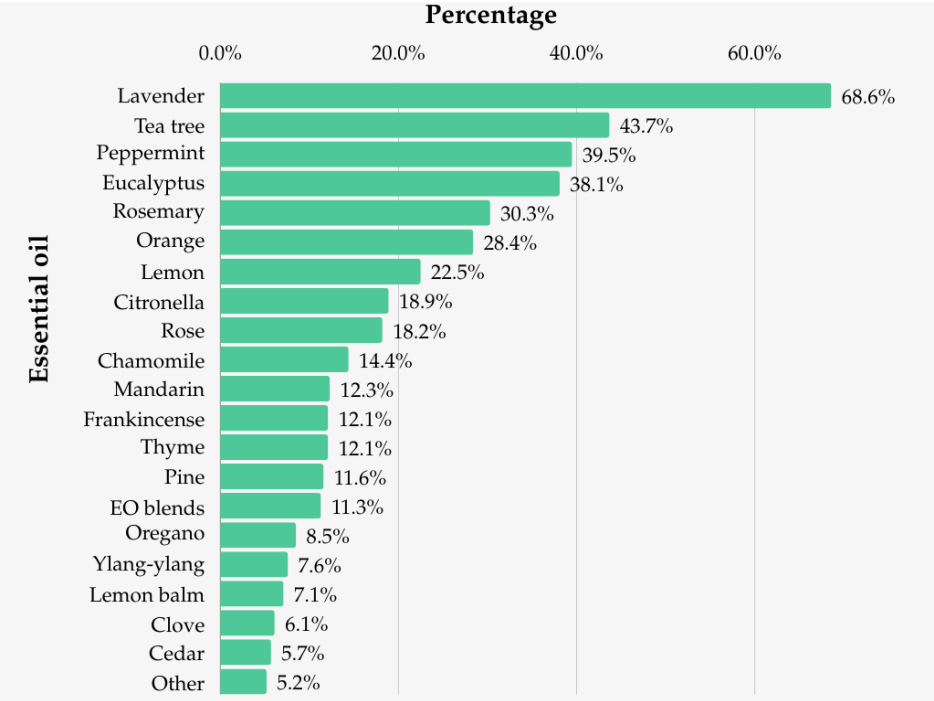


Figure 1. Types of EOs used by study participants. (The question allows respondents to select multiple answers).

More than half of the study's participants indicated using EOs for aromatherapy or cosmetic purposes, such as improving skin/hair condition or as a fragrance (Table 2).

Table 3 illustrates the association of the relevant sociodemographic characteristics of the respondents and their practices regarding the use of EOs. A statistically significant difference ($p < 0.001$) was observed between sexes and the use of EOs for the treatment of hair loss and scalp care, with females reporting a more frequent use of the products compared to men. Employed respondents demonstrated a higher frequency of using medicinal products containing EOs ($p < 0.01$).

Table 2. Consumer perceptions regarding EO use (n = 1269).

Question	Number (n)	Percentage (%)
How often do you purchase EOs?		
Every week	33	2.6
Every month	234	18.4
Once every three months	426	33.6
Once every six months	402	31.7
Less than once a year	174	13.7
For what purpose have you used EOs? *		
Aromatherapy	750	59.1
Cosmetic purposes	690	54.4
As an insect repellent	297	23.4
Therapeutic purposes	528	41.6
What benefits do you most frequently pursue from the use of EOs? *		
Improving sleep quality	387	30.5
Enhancing skin condition	654	51.5
Enhancing hair condition	531	41.8
Aromatization	699	55.1
Reducing stress	501	39.5
Treating sports injuries	105	8.3
Protection against insects	405	31.9

* Note: The question allows respondents to select multiple answers.

Table 3. Association between relevant sociodemographic characteristics and consumer practices towards EOs.

Question	n (%)	p-Value [a]			
		Gender	Age	Education	Employment Status
Have you used EOs or products containing EOs for the treatment of hair loss, stimulation of hair growth, or scalp care?		<0.001 *	0.515	0.946	0.913
Yes	759 (59.8)				
No	520 (40.2)				
Do you consider EO-based repellents (e.g., citronella) to be effective?		0.463	0.839	0.095	0.293
Yes	1095 (86.3)				
No	177 (13.9)				
Have you experienced any adverse effects after using EOs?		0.559	0.684	0.968	0.736
Yes	51 (4.0)				
No	1201 (94.6)				
Have you consumed EOs for internal use?					
Yes	438 (65.5)	0.286	0.269	0.063	0.274
No	831 (34.5)				
Have you used medicinal products containing EOs?					
Yes	705 (55.6)	0.259	0.956	0.060	0.01 *
No	270 (21.3)				
I am not sure	294 (23.2)				

Note: Results expressed as number of respondents (n) and percentage (%); [a] Chi-square test for independence; * statistically significant difference.

The most frequently used points of purchase for EOs, according to our respondents, were community pharmacies (63.4%), followed by drugstores (44.2%) and web stores (26.5%) (Figure 2).

The majority of the participants (81%) reported being satisfied/very satisfied with the use of EOs as hair growth stimulants. Similar satisfaction levels were obtained regarding the use of EO-based insect repellents (Table 4).

Most of the Bulgarian adults participating in the survey (80.6%) indicated a strong likelihood of recommending the use of specific EOs to friends, colleagues, family members, or relatives (Figure 3).

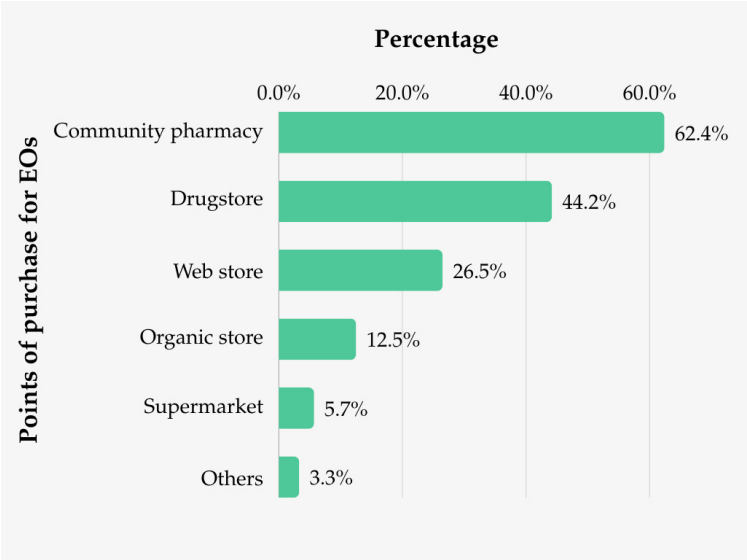


Figure 2. Points of purchase for EOs according to surveyed adults. (The question allows respondents to select multiple answers).

Table 4. Consumer satisfaction with the use of EOs as insect repellents and as hair growth stimulants (5-point Likert scale).

Statement	Very Dissatisfied *n* (%)	Dissatisfied *n* (%)	Neutral *n* (%)	Satisfied *n* (%)	Very Satisfied *n* (%)
Satisfaction level with the use of EOs in the treatment of hair loss, stimulation of hair growth, or as scalp care (*n* = 759)	33 (4.3)	24 (3.2)	87 (11.5)	333 (43.9)	282 (37.1)
Satisfaction level with the use of EOs as insect repellents (*n* = 1269)	72 (5.7)	66 (5.2)	291 (22.9)	420 (33.1)	420 (33.1)

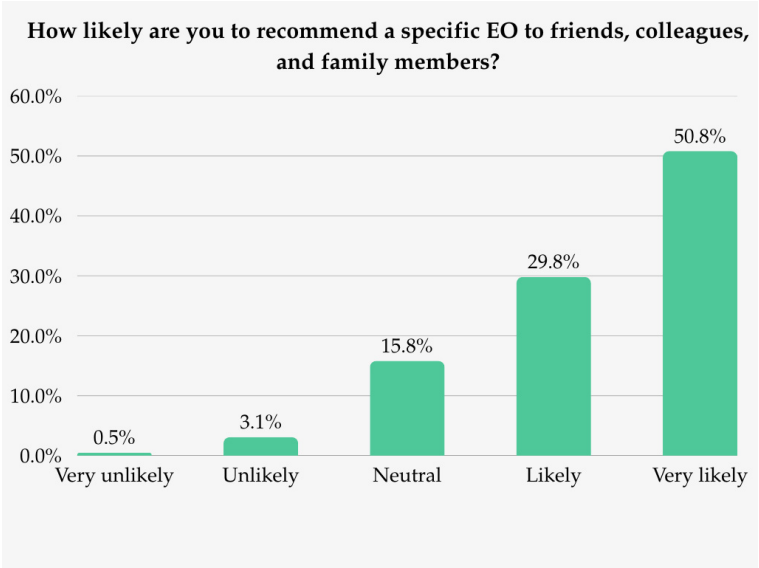


Figure 3. Consumer attitudes toward recommending the use of specific EOs (5-point Likert scale).

4. Discussion

The study was associated with some important findings: usage of EOs among Bulgarian adults is widespread (68.7% of the respondents were EO users); secondly, it was found that EO usage was significantly associated with younger age, higher education, and female sex ($p < 0.001$). The most used essential oil (EO), according to our respondents, was lavender. Bulgaria has deep traditions in the cultivation of lavender. It is considered that these traditions started in 1907, and nowadays, the country is regarded as one of the leaders in the cultivation and export of lavender. Some of the most important factors for this are the excellent adaptation of the herb to the Bulgarian geographical latitudes and the mild climate [10]. However, similar results were obtained from other studies conducted among the general population in countries like France, China, the USA, and Turkey [11–14]. Bulgaria and Turkey are also associated with traditions in the cultivation of *Rosa Damascena* Mill. and in the production of rose oil [15]. At the same time, rose oil is regarded as one of the most expensive EOs, and this could be the possible reason for its less frequent usage compared to other EOs like lavender EO [16].

4.1. Main Purposes of EO Applications

4.1.1. Aromatherapy

Most of the respondents reported the use of EOs for aromatherapy (59.1%). Aromatherapy is used to reduce stress, enhance mood, reduce fatigue, and improve the quality of sleep. Moreover, nowadays, it is regarded as a nonpharmacological natural method for the improvement of the symptoms of some medical conditions. Peppermint and lavender EOs are among the most important EOs used in aromatherapy [17]. This correlates with the findings of our study: the lavender EO is the most frequently used essential oil (68.6%) among Bulgarian adults, followed by tea tree and peppermint EOs. According to some studies, the use of lavender EO in aromatherapy is associated with important benefits, including a decrease in arousal levels and an improvement in attention [16]. Moreover, aromatherapy with lavender oil could be successfully involved in the management of depression, anxiety, and mild sleep disorders [18–20]. In general, the main constituents in lavender EOs are linalool and linalyl acetate [21,22], compounds with pronounced neuroprotective effects and significant anti-inflammatory and antioxidant properties [23].

In recent years, some randomized controlled studies have evaluated the relationship between peppermint EO aromatherapy and different medical conditions [5,24–28]. It was reported that aromatherapy with peppermint EOs could reduce the symptoms of fatigue in hypothyroid and prediabetic patients [25,26]. At the same time, aromatherapy with peppermint EO was reported to reduce anxiety in patients with acute coronary syndrome [27]. In 2020, Nuriye Efe Ertürk and Sultan Taşcı reported that peppermint EO significantly reduced the frequency of nausea and vomiting in cancer patients [5]. In 2023, Mesut Meşe and Serdar Sarıtaş reported that the inhalation of peppermint oil reduced pain and anxiety levels in patients after lumbar discectomy surgery [28]. A small pilot study suggested that peppermint EO could be used in the management of mental exhaustion and moderate burnout [24].

It seems that aromatherapy could be successfully involved in the management of different medical conditions and symptoms. However, some limitations should be considered, including the great differences between the chemical profiles of EOs obtained from the same plant species. Moreover, there is a lack of validated protocols in this area.

4.1.2. Use of EOs as Hair Stimulants

Currently, there is a high demand for natural products for hair/scalp treatments and care. The absence of cumulative synthetic compounds is regarded as a benefit for many

consumers. The main characteristics that are reported to be important for consumers in the hair care category are not only the natural ingredients but also the lack of sulfates, silicones, parabens, and other compounds perceived as harmful [29]. This has pushed the cosmetic industry towards research for natural, green ingredients for the production of new products and to reformulate others [8].

EOs can affect scalp and hair health after topical application. In general, this is associated with antibacterial, antifungal, and antioxidant activity [29]. The application of some EOs on the scalp is associated with some important benefits, including the promotion of an increase in the hair shaft density, a cleaning effect on the hair bulb, and strengthening of the entire bulb/stem system. Some of the most important EOs involved in the stimulation of hair growth and improvement of scalp health are *Rosmarinus officinalis* EO, *Eucalyptus globulus* EO, *Matricaria chamomilla* L. EO, and others. Currently, on the European market, there are many popular products for hair stimulation that include mixtures of different EOs (*Rosmarinus officinalis* EO, *Pelargonium graveolens* EO, *Lavandula angustifolia* Mill. EO, *Eucalyptus globulus* EO, and *Matricaria chamomilla* L. EO) and other components to achieve synergism. Some of these products include hair growth serum sprays, masks, or tonics. According to manufacturers the main benefits after the long-term use of these products include a reduction in hair loss, the stimulation of faster hair growth, the enhancement of the density of the hair, an improvement in the structure and shine of the hair, an improvement in scalp health, the expenditure of the life of the hair, etc. [8].

More than half (59%) of the EO consumers in our study reported the use of EOs for the treatment of hair loss, stimulation of hair growth, or scalp care. Most of these respondents expressed satisfaction with the achieved outcomes.

Currently, there are different European regulations concerning EOs [30–32]. Regulation (EC) N° 1223/2009 on cosmetic products is the main regulatory framework governing finished cosmetic products placed on the European Union (EU) market [32]. All products containing EOs intended to be used as hair stimulants in the EU follow Regulation (EC) N° 1223/2009 [32]. According to this regulation, a cosmetic product is defined as "any substance or mixture intended to be applied to the external surfaces of the human body including epidermis, hair, nails, lips, etc., for the sole or main purpose of cleaning, perfuming, changing their appearance, or correcting body odors". The regulation replaced the Directive 76/768/EC [30], adopted in 1976, and has some significant strengths compared to the old directive including better safety requirements for cosmetic products, and the introduction of the notion of a 'responsible person' (this allows the precise identification of the responsible person and outlines their obligations); a centralized notification of all cosmetic products placed on the EU market and reports of serious undesirable effects, colourants, preservatives and UV filters must be explicitly authorized.

4.1.3. Medicinal Products Containing EOs

In the EU, EOs intended for medical use are regarded as herbal medicinal products (HMPs) and traditional HMPs [33]. Currently, there are some important HMPs on the pharmaceutical market containing EOs [34–45]. Most of these products are used in the management of conditions such as insomnia, anxiety (*Lavandula angustifolia* Mill), cough, etc. [46,47]. Given their widespread availability and popularity, EOs used as active substances in medicinal products must meet specific standards for efficacy, quality, and safety. At the EU level, a simplified registration process for traditional HMPs was introduced in 2004 with the adoption of Directive 2004/24/EU, also known as the Herbal Medicines Directive (Directive 2004/24/EC, 2004) [31]. HMPs containing EOs for oral intake in Bulgaria are limited and are mainly intended for the treatment of symptoms of

sinusitis, bronchitis, and temporary anxiety in adults, including one or more temporary symptoms, such as restlessness, tension, or sleep disturbance [34–45].

More than half (55.6%) of respondents reported an intake of medicinal products containing EOs, while 23.2% of consumers indicated ambiguity if they have ever taken medicinal products containing EOs. However, it is highly likely that most of the consumers have had an oral intake of HMPs containing EOs but are not too familiar with the content of the medications they have taken.

For example, the *Mentha piperita* L. tincture oral drop solution is a quite popular OTC product [34] that contains not only *Mentha piperita* L. tincture but also some amount of *Mentha piperita* L. EO (peppermint oil). Normally, this EO is obtained from the fresh aerial parts of the flowering *Mentha piperita* L.

According to the scientific conclusions of the EMA Committee on Herbal Medicinal Products, HMPs containing peppermint oil are available in solid, semi-solid, or liquid forms to be taken by mouth, applied to the skin, sprayed in the mouth, or inhaled. Peppermint oil containing HMPs is also available in different combinations with other plant extracts. In general, oral intake of this EO is associated with the relief of stomach cramps. Peppermint EO's mechanism of action is still not fully clarified. However, it is considered that this EO relaxes the smooth muscles of the intestines by affecting calcium channels, reducing muscle contractions, and potentially offering relief from pain or discomfort.

Other very popular OTC medicines—Gelomyrtol/Myrtol® (300/120 mg)—are often recommended by physicians/pharmacists to manage the symptoms of acute or chronic sinusitis and bronchitis [35,36].

Anise EO containing HMPs are another important group of natural products used to manage the symptoms of mild indigestion complaints. Moreover, these HMPs can be used as expectorants for coughs associated with colds. Anise EO is obtained by steam distillation of the dry ripe fruits of the plant *Pimpinella anisum* L. Anise EO containing HMPs are available in a solid or liquid form for peroral intake [37]. Anise EO may be found in medicines containing a combination with other EOs or plant extracts.

4.1.4. EOs as Repellents

Nowadays, mosquito control and personal protection are regarded as important issues worldwide. However, these concerns are considered critical, especially for tropical Africa, because of some mosquito-borne diseases including malaria.

Repellents are one of the most effective protection methods against mosquitos. In the last decade, a great demand was reported for natural products for protection that balances effectiveness with safety and environmental impact.

Currently, *N*,*N*-diethyl-m-toluamide (DEET) is one of the most widely used compounds in mosquito repellents [48]. According to recent studies, repellents containing DDET are widely used. For example, about 30% of the US population is using such products [49]. However, DEET is associated with many adverse reactions and toxicity [50].

However, many studies published in recent years indicated that EOs may serve as an eco-friendly and much safer alternative to the classic mosquito repellents [51–53]. Due to their repellent properties, some EOs have been used since ancient times in civilizations such as Egypt, India, and China. According to our survey, 23.4% of respondents reported using EOs as insect repellents. Additionally, one-third of surveyed adults reported that the primary benefit they expect from using EOs is insect protection. Citronella EO is a common ingredient in most of the commercially available repellents of natural origin. The efficacy of citronella EO is mainly due to biologically active substances such as citronellal, citronellol, and geraniol. Except for mosquito repellent action, the latter is also associated with antimicrobial, anthelmintic, antioxidant, and wound healing activities [54]. Almost one-quarter (19%) of the

study's participants indicated the use of citronella EO. Furthermore, most respondents (86.3%) considered EO-based repellents, such as those containing citronella, to be effective.

The eucalyptus and geranium EOs are considered to provide good repellent activity as well [55]. The EO of *Thymus vulgaris* and its main volatile compounds are also associated with strong repellent activity [1,56].

A major drawback of EOs exhibiting repellent activity is the short duration of protection due to their high volatility. For example, citronella EO-based repellents should be reapplied every 20–60 min [53]. Essential oil-based mosquito repellents are easy to apply to the skin or clothing, are non-toxic, and are an affordable solution, especially in developing countries [57]. Moreover, citronella EO-based repellents could be used for the protection of small children.

4.2. Adverse Reactions Associated with EOs

Most of the respondents reported no adverse reactions after the application or intake of EOs. However, 4.0% reported contact dermatitis, skin irritation, and allergic reactions. In fact, other studies also reported some adverse reactions after topical applications or inhalation of EOs. The most commonly reported adverse reaction was skin irritation and contact dermatitis after exposure to lavender, peppermint, tea tree, and ylang-ylang EOs [58]. In general, patients experienced a full recovery after 48 h. However, in some cases, the recovery process lasted for an extended period of time (up to 1 year), and oral or topical corticosteroids were involved in the treatment [59,60].

4.3. Comparison to Similar Studies

The current study is associated with a large sample size (n = 1848) compared to similar studies (Table 5). However, many similarities were found between the studies, including that the consumption of EOs is considerable among the general population in different countries, that lavender EO is the most frequently used EO, and that the EO's application/intake could provoke some adverse reactions, including rash, skin irritation, and allergy.

Table 5. Comparison between studies assessing EO usage.

Country, Year	Key Points of the Study	Participants (n)	EO Users (%)	Privileged Point of Purchase of EOs	The Most Frequently Used EO	Adverse Reactions	Ref.
France, 2014	Evaluation of the dermal exposure of EOs among the French population.	1507	34%	Drug stores (76%)	Lavender	Not reported	[11]
USA, 2019	Use of EOs among the general population.	282	47%	Health cooperatives/food stores (48.8%)	Lavender	Adverse reactions were reported by eight EOs users, including rash, breathing difficulty, burning sensation, and allergy.	[13]
China, 2021	Knowledge and use of EOs among the general population.	617	70%	Department store/trademark	Not reported	Not reported	[61]
China, 2022	Use of EOs among the general population.	1518	35%	Not reported	Lavender	Not reported	[12]
Türkiye, 2024	Attitudes of individuals toward aromatherapy.	985	59%	Not reported	Lavender	Not reported	[14]
Algeria, 2024	Usage patterns of EOs among migraine patients.	145	61%	Herb shops	Peppermint	Not reported	[62]

4.4. Limitations of the Study

Despite the large sample size (n = 1848), our study has several limitations that should be noted. Firstly, no data regarding pregnancy status, marital status, or overall health status were collected. Secondly, specific information regarding the body sites for the dermal application of EOs was not provided. Additionally, the duration of use of specific EOs was not reported.

Since this study employs a cross-sectional design, it does not permit the assessment of causal relationships. Furthermore, self-reported data may be subject to the effects of recall bias and social desirability bias, thereby affecting the accuracy of the results. Using social media to recruit survey participants also presents a considerable risk of undercoverage bias. Even in today's digital era, not all individuals within the target demographic can be reached through online platforms such as Facebook and Instagram. Furthermore, data show that frequent Internet users are generally younger and highly educated.

5. Conclusions

Nowadays, EOs play a significant role not only in the pharmaceutical industry but also in the sanitary, cosmetic, agricultural, and food industries. According to recent reports, the global market of EOs is expected to grow significantly in the next five years.

This is the first study to explore the use of EOs in daily life, including frequency, preferences, and health-related outcomes among Bulgarian adults. The present study revealed several significant findings. Firstly, the use of EOs among Bulgarian adults was found to be widespread, with 68.7% of respondents reporting usage. Secondly, EO usage demonstrated statistically significant associations with younger age, education level, and female gender. Furthermore, the majority of EO users did not report any adverse effects following use. However, 4.0% of participants reported experiencing contact dermatitis after EO application. These findings confirm the high potential of EOs as green and safer alternatives to many synthetic compounds. Bulgarian adults use EOs for various applications, including skin care, general wellness, aromatherapy, and repellents. The majority of the consumers of EOs would recommend EOs to other people. Moreover, the satisfaction level with the use of EOs was found to be significant.

Supplementary Materials: The following supporting information can be downloaded at https://www.mdpi.com/article/10.3390/cosmetics12020053/s1: Questionnaire (English).

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