

EUROPRENEURSHIP & SUSTAINABILITY

Scientific editors

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Alexandra Borges
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Introduction

The monograph “EUropreneurship and Sustainability” follows the 1st International on-line Scientific Conference “EUropreneurship & Sustainability”, organized by J. Retinger Center for European Studies of the Cracow University of Economics in Poland and Polytechnic Institute of Viana do Castelo in Portugal, with the collaboration of the Institute of Entrepreneurship Development in Greece, held on-line on November 28th, 2023.

The purpose of the development of the study was an attempt to present the recognized potential presented by young scholars of courses on entrepreneurship, innovation and sustainable development issues. The potential resulted in the presentation of a brief study, the content of which reflects the scientific interests of these young academics. The specific goal of the creation of the monograph on entrepreneurship and sustainability was to obtain young people’s views on the topics of sustainability and entrepreneurship.

After a theoretical introduction presenting the EUropreneurship concept, the monograph is divided into two sections: the first is related to entrepreneurship and the second one is related to sustainability.

Section I begins by presenting entrepreneurial perspectives in different countries in Europe, moving later to more applied research in the area of entrepreneurship. The first studies present considerations in the field of entrepreneurship in different European countries such as Romania, Georgia, Poland and Portugal. In the case of Romania, considerations are presented on the level of awareness of entrepreneurs in the field of sustainable development, which plays an increasingly important role not only in the direction of future entrepreneurial activities, but also in the existing businesses. In the case of Georgia, entrepreneurship is fundamental in terms of its role in building the country’s prosperity. This decidedly more macroeconomic dimension of taking up the subject of entrepreneurship was compared with the impact and opportunities provided by European Union (EU) funds. On the other hand, the example of Poland, and the textile and fashion industry in particular, inspired the authors to take up the topic of consumer awareness, particularly in the face of the challenges of sustainable development.

In addition, the study gives the prospects for the development of this market given the turbulence caused by the pandemic period. Among the other issues presented in the section on entrepreneurship, is the example of the pharmaceutical industry in Portugal, where authors consider the issues of e-commerce in pharmaceutical products in Portugal. There is also the example of Southeastern Asian case of Indonesia with its impact of digitalization on entrepreneurship. The authors investigate the interplay between technological advancements and entrepreneurial dynamics within the Indonesian context, to offer a nuanced perspective on the country's digital economy and its impact on entrepreneurial ventures, particularly startups, which are a vital and dynamic part of this landscape. Afterwards, the section on entrepreneurship includes chapters that present considerations on the impact of proper human resources management on business development, as well as the management of a specific type of project, such as the organization of an event.

Section II presents generic studies on sustainable development, the energy crisis and health in Europe, as well as specific technical applications related to improving energy efficiency, and the transparency of information to be reported by companies about their actions and contribution to the sustainable development.

The first chapter entitled *Energy Sector Crisis and its Implications for Public Health and Sustainable Development in Europe* aims to scrutinize the challenges confronting Europe in devising sustainable energy strategies and public health sector strategies that can alleviate the impact of the energy crisis, while at the same time promoting sustainable development across all sectors. The study *Promoting energy efficiency in an Eco School Environment* aims to demonstrate the importance and effectiveness of education for sustainable development (ESD) at Instituto Politécnico de Viana do Castelo (IPVC), in Portugal, through the presentation of two projects developed by students, which intend to improve the energy efficiency in the institution. The work *The Role of Microalgae in a Sustainable Development* presents the development of a project of a Photobioreactor from the first design to its tuning and operation. The main idea of this project is to build a photobioreactor that will response to the requisites to produce a specific type of microalgae. The main work activity is to find the right technologies for this project, making a perfect integration and control system. This equipment is important and contribute(s) to environmental sustainability and innovation. The chapter *Produced Energy Storage System at the Braking of a Train* proposes an onboard energy storage system capable of storing the energy generated from its available electrical braking functionality. This stored energy will be used during train's accelerations, thus achieving peak shaving. This innovative idea contributes

to energy sustainability. A study energy storage systems, DC/DC converters, as well as simulation and experimental work. In the chapter *The evolution of Corporate Social Responsibility disclosure and its relationship with the Sustainable Development Goals*, the authors review the main standards and regulatory initiatives that have been undertaken by several international organisations. They also analyse the disclosure of social and environmental indicators by Portuguese-listed companies in the pulp, paper, and paperboard sector, between 2017 and 2019, and their contribution to the implementation of Sustainable Development Goals (SDG). Results reveal a high disclosure of environmental information, which may be associated with the increased social scrutiny that companies in this sector have in these matters, and a strong connection between the indicators disclosed in terms of sustainability reporting and the SDG to which companies commit themselves. In the chapter *The relevance of environmental accounting. An implementation proposal in the automotive sector*, the authors analyse the evolution of environmental accounting over the years and the process of implementation of an environmental accounting system in an automotive company. They also develop a proposal for the implementation of an environmental accounting system with the main procedures to be followed. The results highlight the need of knowing in detail the specificities of the productive activity of the company, the human resources, and the information system. The incorporation of environmental issues in the companies' strategy and their reporting through new formats, provides valuable information on companies' environmental awareness and commitment. The chapter *Sustainability in the client's policy-related activities* explores various strategies for small and medium-sized enterprises (SMEs) to enhance their business operations that are centered on fostering long-term relationships with customers, broadening the overall consumer base, and turning existing customers into clients. It is organized into several main sections that highlight specific tools for overcoming the challenges described: the critical importance of adopting a client-oriented approach, innovation, and eco-friendly practices in the business management. The results obtained from the research indicate that implementing mentioned strategies can significantly contribute to sustainable SME's grow and succeed in today's competitive business world. The study *Industrial use of bioenergy and high-value molecules extracted from winemaking by-products Ecological aspects* was developed to explore the potential applications of winemaking sub-products, known as grape pomace (GP), which have incomplete exploitation and part of which is dumped as biowaste. In European countries, the winemaking industry converts 22 million tonnes annually of grapes into wine, giving rise to 5 million tonnes of GP as a product. The goal of this research was to examine the

antioxidant capabilities of GP polyphenols in order to identify useful industrial uses. When compared to other biomass heating values, the heating value results of GP samples after the fat and polyphenol extraction, which are between 16.9 and 17.2 MJ/kg, show that GP extracted residue has the potential for energy recovery. This by product offers fresh prospects for alternative industrial uses when considering the quantities of GP that are produced each year and its chemical characteristics.

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Commercial Viability of an Online Pharmacy

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Abstract

The e-commerce market in Portugal was extremely driven by the conjuncture of the Covid 19 Pandemic, leading several sectors of traditional commerce to face the need to reach their customers through online communication channels. In this context, Portuguese pharmacies were no exception, having recognized the importance of electronic commerce for the marketing of their products. Now, this observation led us to think of a commercial viability study with a view to creating an exclusively online pharmacy to operate in Portugal. For this purpose, a market study was carried out, based on secondary sources and a questionnaire survey, with 110 responses having been validated, aiming to understand the impact of online commerce on the lives of the Portuguese, the most sought-after products, and the most valued attributes in customer service. The results of this study allowed us to understand that it would be commercially viable to create an online pharmacy, if it offered a range of products, in the categories of medicines not subject to medical prescription, dermo cosmetics, sunscreen, hygiene products and mom-baby products, as well as competitive pricing and pharmaceutical advice. Based on the results obtained, an online marketing strategy was developed.

Keywords: entrepreneurship, innovation, e-commerce, digital marketing, strategy

1. Introduction

Considering the situation of the pandemic experience and adaptation to the online market, the idea arose to verify the commercial viability of creating

an online pharmacy in the city of Viana do Castelo, Portugal. Traditional commerce, in which pharmacies are inserted, was faced with the need to reach customers through other means, namely online means, which allow a broader visibility, both in terms of the public it can reach, and in terms of the products that can be viewed through digital content. To analyze this viability, it was necessary to carry out a comprehensive and effective market study that would allow a realistic idea of the online market in Portugal, followed by the creation of a digital marketing strategy for the business in question. Digital marketing is an extremely important tool for an online business, as it allows to create a sales development strategy in the online category and at the same time retain a flow of customers who can visit the online store.

According to Faustino (2019), digital marketing is the application of communication and marketing strategies with a view to promoting/marketing products or services, through digital channels (websites, blogs, social networks, mobile applications, etc.) and devices electronics, arguing that “their target audience is constantly connected and online”. In other words, the concept of digital marketing is nothing more than the so-called traditional marketing integrated into the internet. Digital marketing has facilitated the process of buying and selling products and services (Costa et al., 2015). The digital approach has a great influence on the consumer’s decision-making process, as it is through this that sensations, desires and even recognition of the value of the product or service are generated, which will lead the individual to make the purchase (Castro et al., 2015). Digital marketing also allows you to measure the return on investment made, that is, it measures the number of views, people reached, actions and interactions carried out and even allows you to segment communication for a specific target audience (Faustino, 2019). Communication is more assertive and objective, as digital marketing allows you to direct publications to the right people, who are really interested in that product/service, instead of communicating to everyone, hoping that someone will pay attention (Faustino, 2019). To verify the commercial viability of an online pharmacy, a market study was carried out, with the aim of understanding whether the online market is an expanding market, namely in terms of purchases of pharmaceutical products.

This article begins by addressing the main concepts and strategic actions of digital marketing. Next, the pharmaceutical market in Portugal is presented, narrowing down to a characterization of its online context. Subsequently, the research methodology is exposed, as well as the main results obtained. Finally, the conclusions and practical implications of this study are presented.

2. Literature review

2.1. Top digital marketing tools

Marketing aims to identify and satisfy human and social needs through profit generation (de Oliveira Rosa et al., 2017). For this, it is necessary to know the customer well in order to be able to offer a product or service that best suits his personality (Santos et al., 2019).

Digital marketing allows for faster and more effective consumer analysis, as well as segmentation of communication for a specific target audience (Ferreira da Costa et al., 2016), using digital channels (websites, blogs, social networks, mobile applications, etc.) that increase the reach of communication (Faustino, 2019). In addition, digital marketing allows you to measure the return on any investment, such as the number of views, people reached, actions and interactions carried out, conversions, etc. (Faustino, 2019).

According to Marques (2022) and Faustino (2019), creating a digital marketing strategy involves using a set of tools such as the website, social media, content marketing, video marketing, search engine marketing and productivity tools.

2.2.1. Website

The first phase of the digital strategy is the creation of a website. The website is the starting point in this strategy and will link the other points of interest, namely the blog, online store, and landing page. First, we must choose the domain of the website. The “.com” extension is the most well-known and therefore will be the most business friendly. The next step is to register the domain. Finally, the creation of sites can be done through the WordPress platform that allows the creation of sites for free. All pages created through the platform must be configured for tablets and smartphones, an extremely important factor since, nowadays, most internet searches are carried out using smartphones. The aim of the blog is to build trust in the target audience and create a positive perception of the company. Thus, creating interesting and current content marketing related to the company’s products and services is the goal of the blog. Blog posts must have an associated image, to make the content more appealing and some links, either internal (to the online store) or external (to justify what is written on the blog with reliable sources). To publicize the blog, the created contents can be shared through social networks, namely Facebook and Instagram.

The online store is the most important page, which will take more work to build and requires more resources, to provide easy and fast navigation. It should have a link to the blog and the website and contain brief texts explaining what each product contains and how it should be used.

Landing page is a page created associated with a blog or an online store, with information about an offer. For example, the offer of a voucher for a certain amount, with the potential customer providing their name and email in return. The landing page, in addition to generating sales, allows obtaining useful data about customers, namely email, telephone contact, address, among other aspects, which enable the development of new marketing campaigns.

2.2.2. Social Media

Social media are platforms that allow us to interact with the public and thereby boost sales. The main social networks for selling products are Facebook, Instagram, and YouTube. The Facebook account must be a public profile. For identity purposes, the profile image and cover image must match the images used on the company's website. All information about the company, links to the blog, online store and website must be available on the Facebook page. All campaigns created in the online store can be published in this account, with an associated question to generate comments. Titles of blog posts can be shared on this account and through them it will be possible to access the blog. To encourage interaction with the public and, subsequently, lead the customer to purchase, it is advisable to publish a daily image of a product that is for sale in the online store to explain the content and application of the product.

Instagram is the social network that privileges the image. Thus, a good presence on Instagram will be based on sharing product images. A commercial page should be created, with the brand name, profile image, definition of the business, link to access the online store and link to the Facebook page. Creating hobbies on this page allows you to increase followers and, accordingly, collect information about the audience and sales segmentation.

Greater business recognition, increased website visits and better results in the digital strategy can be achieved through a good presence on YouTube. This social network has the advantage of allowing the transmission of content via any computer, smartphone or tablet. However, the results are not quick to achieve. Therefore, the communication to reach the potential client must have an attractive and captivating format.

2.2.3. Content Marketing

Content creation must consider the concept of copywriting, also known as the art of using words to influence and persuade, to trigger an action (sales, for example). As tips for writing online, it is worth mentioning: use of the inverted pyramid (starting from the most important to the least important); knowing the audience, setting goals and using the right words; fall back on typical news questions (Who? What? When? Why?); use the 4Us (useful, urgent, unique and ultra-specific); consider the AIDA model (attention, interest, desire and action); use short sentences; tell stories; avoid time references; apply strong verbs and use good titles. To achieve a strong online presence on social networks, on the blog and on the website, the quality of the photographs that are published and the originality of the images that are created must be valued.

2.2.4. Video Marketing

Creating videos can be useful to introduce the company to the public, as well as to publicize the products that the organization offers. There are tools that easily allow you to create videos, such as Microsoft PowerPoint, Windows Movie Maker and iMovie. However, creating a professional video is always a better option in terms of quality, although it requires investment of money and time. One way to gain an audience in the digital world is through live broadcasting, as it allows interaction with the audience in real time, allowing the audience to stay in touch with the content for longer. There are several social networks that allow live transmission: YouTube, Facebook, Instagram, Twitter, among others. On the other hand, there is some software available to create a good live streaming experience, namely Wirecast Pro, Vmix and OBS Studio.

2.2.5. Search Engine Marketing (SEM)

Search Engine Marketing (SEM) is a digital marketing strategy that aims to increase the online visibility of websites on the search engine results page. The main SEM tools used are Google AdWords and Search Engine Optimization.

Google AdWords allows users to create advertising on the Google search engine and target it to users who are actively looking for information, products or services. Ads can be generated in text, video, shopping and for applications.

Search engine optimization (SEO) allows optimizing the capture of visits taking into account the relevance and semantics of the keywords. Keywords

are the main pillar of SEO. So, there are three important factors when choosing keywords: relevance, volume, and competition. The keyword is considered relevant when it is related to the ad, when the text created for the Landing page is related to the subject and when it is related to the product or service to be promoted. To meet the volume, you must check if it is a keyword with an acceptable search volume, using Google AdWords Keyword Planner. In addition, it is also possible to analyze, in this tool, the existence of competition and check if there are similar contents or products.

2.2.6. Productivity tools

It is increasingly important to use tools that enable organizations to manage customer relationships well, to follow up on commercial proposals or additional information that has an impact on sales and customer satisfaction. These types of tools are called Customer Relationship Management (CRM). Some of them are: Insightly, Prosperworks, Hubspot CRM, Zoho CRM, Sugarcrm, Salesforce, Capsule, Microsoft CRM and Streak.

An organization must also define with its employees simple work processes that everyone understands. Thus, it is important that everyone participates and gives their contribution to the project under development. For this purpose, there are platforms, such as Mind Mapping and Google Docs, which organizations can use, stimulating creativity and the sharing of ideas by employees.

E-mail is considered an excellent tool for disseminating marketing campaigns, due to its universality, popularity, ease, possibility of relationship and regular communication. However, it is necessary to take into account some aspects in an email marketing campaign, namely, always checking that the campaigns comply with the legislation, creating an email list, choosing an email marketing platform, and developing regular and segmented communication.

2.2. The pharmaceutical market in Portugal

In Portugal there are, to date, 2804 pharmacies (Infarmed, 2021) and 1376 non-prescription drug sales outlets (MNSRM) (Infarmed, 2018). Regarding the analysis of the total MNSRM market in over-the-counter establishments, these represent 19.6% of the sales volume of the total MNSRM market, in the period from January to June 2020. In the same period, the value of over the counter MNSRM sales was 15.9% of the total MNSRM market, as can be seen in the table below (Table 5.1).

Table 5.1. Representativeness of MNSRM in the drug market

			PVP value	Representativeness	
		Packaging	€	Volume	Value
	Pharmacies	17 054 638	140 815 776	80%	84%
MNSRM	Outside Pharmacies	4 157 042	26 533 964	20%	16%
	TOTAL	21 211 680	167 349 740	16%	12%
Ambulatory Total Market		131 659 588	1 451 487 645		

Source: (Infarmed, 2020).

The MNSRM market grew both in value and quantity until 2018, with a sharp drop being seen at both levels in 2019, in the period between January and June. Due to this drop both in terms of sales volume and the amount invoiced, the price index has increased in 2019 and 2020 (Infarmed, 2020). Analyzing the distribution of the MNSRM market in mainland Portugal, the districts with the most sales and that earned the most with the MNSRM were Lisbon, Porto and Setúbal. Regarding the price index, the districts with the lowest price indexes and well below the national average were Viana do Castelo, Viseu and Portalegre (Infarmed, 2020).

The pharmaceutical market in Portugal comprises medicines (subject to and non-prescription), as well as Consumer Health – CH products. MNSRM are included both in the category of drugs and in the classification of CH, given the free nature of their dispensation. According to a study carried out by Human Data Science Company Portugal (IQVIA, 2019), in a universe of 1800 pharmacies, the CH category represents 30% of the market in the pharmacy channel in Portugal. The CH category is made up of several subcategories: Over The Counter (OTC) (medicines not subject to medical prescription, but which require specialized technical advice and should not be made available to the user without advice) [MNSRM-EF and MNSRM (11%) and supplements (7%)], which represents 18% of the total CH; Personal Care – PEC (dermo cosmetics, oral hygiene, etc.) represents 7%; Patient Care – PAC (para pharmaceutical products, diagnostic tests and accessories) with a representation of 5% and finally the subcategory Nutrition – NTR (infant nutrition and diet) which corresponds to 1% of sales in the CH category, as shown in the figure below (Figure 5.1).

Chapter 5

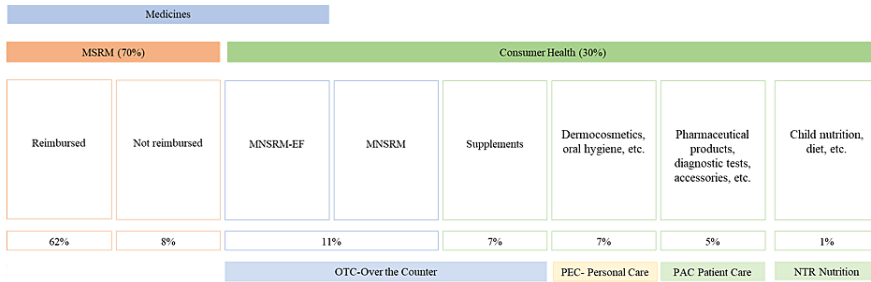


Figure 5.1. Distribution of the medicine and consumer health market in the pharmacy channel

Source: (IQVIA, 2019).

The pharmaceutical industry is one of the most resistant to entering e-commerce, mainly because it is a conservative and highly regulated sector. However, it should be noted that, in 2010, there were only 65 websites of pharmacies authorized to sell medicines in Portugal. Ten years later, there are 2806 pharmacies with an online presence, duly authorized by Infarmed (Digitalks, 2020).

In perfumery and cosmetics, which are not categories of products considered direct competitors, sometimes ranges of these categories can be found in online pharmacies. As can be seen in Table 5.2, these product categories are already part of the online shopping habits of many Portuguese people, thus making it a very competitive market at a national level (Digitalks, 2020).

Table 5.2. Online perfumery and cosmetics stores with the most traffic in Portugal, average visit time and average page views

	Global monthly traffic	Average visit time	Average pages visited
Care to Beauty	1.499M	00:01:58	2.94
Perfumes&Companhia	661.984	00:03:38	4.59
SweetCare	661.259	00:03:07	3.91
Pluricosmética	528.166	00:04:29	6.98
Skin	444.146	00:03:48	4.51
Tulsi Cosmetic	339.342	00:05:26	7.55
Loja do Shampoo	254.516	00:03:09	5.25
Cosmetics	193.541	00:05:16	5.22
Castelbel	43.168	00:01:53	3.13
Claus Porto	34.092	00:02:44	3

Source: (Digitalks, 2020).

3. Methodology

The analysis of results is based on a questionnaire, built on the Google Forms platform, consisting of 26 questions, and entitled “Study of the commercial viability of an online pharmacy”.

One of the peculiarities of a questionnaire is the impossibility of clarifying doubts, therefore it must be extremely well organized in a way that is coherent and logical for the respondents (Carmo & Ferreira, 2008). For the formulation of the questions, it was sought that they were not only clear, concise and unambiguous (Principle of Clarity), but also that they corresponded to the intention of the question itself (Principle of Coherence) and that did not induce an answer (Principle of Neutrality) (Barbosa, 2012). Regarding the type of questions, this questionnaire used completely open questions and closed questions in which the respondent could only select, among the options presented, the one that best suited his opinion. For closed questions, multiple-choice answers and the Likert scale were used, allowing to quantify thoughts, feelings and preferred actions in relation to a given topic (Joshi et al., 2015).

The distribution of the surveys was done through online means, such as email, WhatsApp, and Messenger. Data collection took place between May 20, 2021, and September 15 of the same year, obtaining 110 responses. The results were exported to an Excel file using the platform’s functionalities and the necessary changes were made (response coding) so that the results obtained could be more easily treated and analyzed using the IBM SPSS software.

4. Research results

The main objective of the statistical analysis of the results was to answer the main question of the study and concluding that, if the creation of an online pharmacy was viable, which products/services would make the operation of this pharmacy viable, security aspects on online services and indicators that lead to online purchases. Thus, several questions were introduced in the survey to obtain this information. The analysis started with a descriptive study of the sample and then an inferential study to validate the significance of the results obtained.

4.1. Socio-demographic characterization of the sample

Starting with the descriptive analysis of the sample, most of the 110 participants are young (67.3% are less than 20 years old and between 20 and 29 years old) and 71.8% are female. With regard to marital status, 87.3% are single or married and 84.6% hold a bachelor's or master's degree. Considering the average monthly income earned by pharmacy customers, grouped into the following intervals (<400€, 400€-600€, 600€-800€, 800€-1000€, 1000€-1200€, 1200€-1400€, 1400€-1600€ and >1600€), the analysis show that 57.2% earn between €600-€1400 and 23.6% earn more than €1600. Approximately 50% of respondents go to pharmacy about once a month and 32.7%, between 2 to 4 times a year. About 60% say they spend on average, per purchase at the pharmacy, up to €30 and approximately 30% say they spend between €30 and €60. The results also show that around 32% already shop at online pharmacies and 55.5% say that it is very likely that they will use the services of an online pharmacy. It should be noted that, to facilitate the analysis and interpretation of the results, the participants' ages were grouped into intervals: <20, 20-29, 30-39, 40-49, 50-59 and 60-69.

4.2. Inferential analysis of results

One of the most important aspects to be checked on the study, concerns the frequency of demand for products in a pharmacy. In this sense, the survey considered products such as: general medication, specific medication, dermo cosmetic products, sunscreens, hygiene products, food supplements, products for mom and baby, orthopedic products, ophthalmological products and services. For this set of variables, the Cronbach's alpha value obtained indicates that the internal consistency of the results is good (0.812). General medication, specific medication, dermo cosmetic products, hygiene products and sunscreens are the most frequently sought by respondents. As the internal consistency of the results is good, a factor analysis can be applied. Three factors/groups were extracted using the principal component analysis method, which explain 65% of the variance present in the original variables. Factor analysis proved to be an adequate technique for the data, since the Keiser-Mayer-Olkin test has a value of 0.776. In addition, Bartlett's test confirms the applicability of this technique since it allows rejecting the hypothesis of identity of the correlation matrix (p-value=0.000). The factors obtained were:

Factor 1: Medium turnover products (dermo cosmetic products, sunscreens, hygiene products, mom and baby products);

Factor 2: Low turnover products (dietary supplements, orthopedic products, ophthalmic products and services).

Factor 3: Products with high turnover (general and specific medication);

Also important is to characterize the demand for products by gender and age, in pharmacy. The answers provided by the respondents seem to show the existence of differences in the demand for products when analyzed separately by gender. Using a Chi-square/Fisher test with a significance level of 5%, it is concluded that the demand for dermo cosmetics products, sunscreens, mommy and baby products and orthopedic products depends on the gender of the participant, being more relevant for females. The Kruskal-Wallis test indicates that there are no statistically significant differences in the frequency of demand for products in the pharmacy, based on the participant's age ($p\text{-value} > 0.05$) except for mom and baby products. For this difference, Dunn's post-hoc test was applied, concluding with 5% significance that the age groups [50–59] and [20–29], [20–29] and [40–49] and even between < 20 years old and [20–29] show differences regarding the frequency of demand for mom and baby products.

Next, the search behavior for brands of dermo cosmetics products is analyzed. The existing brands in the Portuguese market pharmacies for this type of product were considered (Avene, La Roche-Posay, Bioderma, Uriage, Lierac, Gálenic, Vichy, Ceravé, Eucerin, Neostrata, Caudalie, Endocare, Isdin, Isdin, Isdin, Martiderm). The reliability/internal consistency of the results is good based on Cronbach's alpha test (0.874) and the distribution of the results shows that there are differences in the frequency of demand for these products. Again, it was considered interesting to verify whether these differences could be associated with the client's gender, age and average monthly income. From the results obtained through the application of the Mann Whitney U test, there is no statistically significant difference only for the Vichy, Endocare and Martiderm brands ($p\text{-value} > 0.05$). This equality of demand for Vichy brand products by individuals of both sexes can be justified because the brand offers quite complete lines of products for women and men. With regard to Endocare and Martiderm, this could be due to the fact that they are fewer commercial brands and often the purchase comes from a medical prescription. For a significance level of 5%, the Kruskal-Wallis test shows that there is no significant difference in demand for brands of dermo cosmetic products, neither between age groups nor between classes of average monthly income ($p\text{-value} > 0.05$).

A more detailed analysis was also carried out for brands of sunscreens. The brands considered in this analysis were Avene, La Roche-Posay, Vichy, Eucerin, Lierac, Pizbuin and Isdin. Cronbach's alpha assesses the internal

consistency of the results obtained as reasonable (0.772) and these show that there are some differences in the demand for these products. Using the Mann Whitney U test at a significance level of 5%, it can be concluded that there is no statistically significant difference in demand for the Vichy and Pizbuin brands assessed by gender ($p\text{-value} > 0.05$). The significant differences found in the other brands are due to the fact that most respondents said they did not know the product. It is concluded, with 5% significance through the Kruskal-Wallis test, that there is no statistically significant difference in the demand for sunscreen brands by age group ($\text{sig} > 0.05$) and by class of average monthly income, the only difference verified refers to the Eucerin brand, which is probably due to the fact that it is the cheapest brand of sunscreen in Portuguese pharmacies.

As mentioned in the previous section, 32% of respondents say they have already made purchases at an online pharmacy and of these 42.9% show that they do it about once a month. It is important to understand, to fill this gap, because the remaining 68% said they had not made purchases at an online pharmacy. The causes are due to worrying security aspects, in particular the possible difficulty with returning the products and the waiting time until the order is received. Factors such as information security and fraudulent transactions are also of concern to consumers. Through a factorial analysis, 3 factors/groups were extracted using the principal component analysis method and that explain 66% of the variance present in the 10 original variables (10 questions related to aspects of safety concern). Factor 1 will be linked to service, factor 2 to security issues and factor 3 to lack of knowledge. The component with the most weight in the respondent's decision to make an online purchase has to do with service issues, followed by security issues. Regarding the indicators that lead to online purchases, price, speed of delivery, discounts and the functionality of the website stand out. Participants were also asked to indicate "products/services" that they consider important to be available in an online pharmacy. The most mentioned was the counseling service. Participants were also asked to indicate "products/services" that they consider important to be available in an online pharmacy. The most mentioned was the counseling service. Within this service, the chat with the health professional and explanation of the product on the website were the most unanimous.

It is also important to know which sources influence the respondent in the online purchase decision-making process. The most mentioned by the respondents was "Online research" but "Information obtained through social networks" and "Opinion from friends" cannot be neglected. These answers offer a reliability/internal consistency of 0.812 which classifies it as good.

5. Conclusions and recommendations

Research carried out on the Portuguese market shows that the online pharmacy market is constantly growing and that there are categories of supply that can be integrated into an online pharmacy concept (eg: personal hygiene products and cosmetics), which are among the most sought after in online shopping, right after clothes and shoes and computer equipment. Moreover, it was found that the cosmetics and MNSRM market is still a little widespread online market, lacking greater investment on the part of e-commerce companies. By the way, of the large online sales chains, only *Continente* and *Auchan* offer products like the ones we intend to make available. However, they do not have a very diversified offer, nor do they offer a wide range of brands of cosmetic products.

Through population surveys, we realized that a significant number of respondents (around 32%) already shop at online pharmacies and approximately 50% of respondents go to the pharmacy at least once a month and look for, in addition to medication, dermo cosmetic products, sunscreens and hygiene products. However, the biggest obstacles to buying from an online pharmacy are related to security issues in the service provided and on the website. Thus, the creation of an online pharmacy should provide a wide range of non-prescription drug sales outlets and dermo cosmetic products, sunscreens and hygiene products at competitive prices. In addition, it will be essential to combine a personalized technical advice service, as well as a commitment to a fast, user-friendly and secure website. Indeed, it will be crucial to create partnerships with the main dermo cosmetics laboratories, as well as with a network of pharmacies throughout the country, to guarantee the existence of product stock and speed of delivery.

As for the sources of information that most influence the purchase decision, we have online research, followed by social networks and the opinion of friends. Thus, it will be fundamental to promote the presence in online search engines in an organic and paid way (e.g. through a CEO and investment in Google Ads), to guarantee a regular presence, with interesting content on social networks, investing in paid advertising in Facebook and Instagram.

Regarding the limitations of this study, it should be noted that the sample is limited both by the size of the sample and by the geographic areas of data collection, making it difficult to obtain a representative sample of the Portuguese population. After verifying all the legal, technological and initial investment requirements for the creation of an online pharmacy, it will be essential to carry out an economic and financial viability study, in order to understand more concretely the potential financial return of the potential business.

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