ANALYSIS OF ONLINE VERSUS OFFLINE BUYING BEHAVIOR OF PET OWNERS DURING THE COVID-19 PANDEMIC

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Abstract
Interest in the pet food market is increasing globally. It is noteworthy that the pet food market is growing in sales especially for dogs and cats. The central goal of the research is to analyze the preference for buying pet products online or offline during the pandemic period. The study also looks at the differences between pet food buyers based on socio-demographic and geographical factors. For this purpose, an online interview was conducted based on a questionnaire with a sample of 1,525 people on Facebook groups related to pets. Investigating the buying behavior of pet owners during the COVID-19 pandemic, the research found several changes caused by restrictions during the COVID-19 pandemic. Due to the restrictions imposed by the government during the pandemic, some pet owners have changed their purchasing behavior and a new trend has emerged in the pet food market. The study offers perspectives for pet food manufacturers, retailers, veterinarians but also for those interested in the evolution of the pet food market.

Key words: *pet food, pet owners, purchasing online, COVID-19 pandemic, Romania*

JEL Classification: M31 Marketing

I. INTRODUCTION

The sales volume of the dog and cat pet food market is increasing every year. The global pet food market size was valued at USD 110.53 billion in 2021. The market is projected to grow from USD 115.50 billion in 2022 to USD 163.70 billion by 2029, exhibiting a CAGR of 5.11% during the forecast period (Fortune Business Insights, 2022). The main factors that contributed to this growth even during the COVID-19 pandemic are demographic factors: the increasing income of the population, the increasing popularity of pet animals, especially among the young generation and, more generally, urbanization of the population (Al, 2020). During the COVID-19 pandemic, pets have been observed to grow in popularity among young adults, which has led to increasing demand for pet adoption or purchase (Hoobs and Shanoyan, 2018).

Another aspect contributing to the upward trend in the pet food market is the growing interest among pet owners to purchase products with certain quality characteristics, such as: being natural products, with health benefits for pets, organic products, tailored to the age, size or breed of the pets, or being certain diets such as BRAF diet (new attributes in this field) and others similar aspects (Alexander et al, 2020).

These trends have prompted pet food companies to re-evaluate their marketing strategies to best meet the needs of each consumer group. Research in this area shows that there is a growing trend to mimic human dietary trends in pet food as pet owners, especially young adults, increasingly humanize their animals (Hoobs and Shanoyan, 2018; Kotler et al., 2020).

As the pet food market has expanded in recent years, there has been growing interest in analyzing consumer preferences for these pet foods, but today the literature on this is still sparse. The emergence of the COVID-19 pandemic and the continuation of the pet food market growth trend during the pandemic have made the pet food market analysis more interesting and provided a good opportunity for research in this field.

The central aim of the study is to analyze changes in pet product consumer behavior during the COVID-19 pandemic. The authors propose the following research questions: RQ1. Have consumers changed their purchasing behavior for online or offline during the pandemic period? RQ 2. Is the preference for purchasing pet food products (during COVID-19 pandemic) online or offline influenced by geographical factors? RQ 3. Have demographic factors such as consumer income or consumer marital status, influenced consumer behavior in purchasing pet food online or offline in the pandemic period?

II.LITERATURE REVIEW

Oftentimes, there are complex relationships between owners and their pets, especially with regard to feeding behaviors, where the affection or love that owner have for their pets is most evident through the provision of food (White et al., 2016; Morgan et al., 2020).

Pets play a very important role for the people from the emotional point of view first, but also from the economic point of view (Rombach and Dean, 2021). Many people need pets to reduce their anxiety or loneliness, but some are pet addicts (working dogs). From an economic point of view, pets primarily generate income for the breeder or retailer who sells the pets, but there are also expenses and income generated from food, veterinary services and other pet products that need to be considered. In the US the average annual budget allocated by individuals strictly for pet food is between $ 254 - $ 287 (Chen et al., 2012; Rombach & Dean, 2021). Women are more concerned about the quality of pet products, especially food choices, and in most cases, they decide which food to buy (Rombach and Dean, 2021; Hobbs, 2020; Islam et al., 2021).

According to research by Rombach and Dean, pet food consumer behavior has changed dramatically during the COVID-19 pandemic (Rombach and Dean, 2021). There were impulse purchases, in very large, unusual quantities and a growing preference for home delivery of products and online shopping for pet food products. This has also been encouraged by the authorities, as governments have issued several recommendations urging pet owners to shop online with home delivery, to the detriment of those who require the movement of individuals, to avoid human contact as much as possible during the COVID period. There have also been changes in consumer preference for certain brands. In general, companies that did not adapt to the pandemic conditions (the possibility to order online, delivery service, stocks, price differentiated brands etc.) but also did not have efficient messages and adapted to the period to consumers, had to lose (Rombach and Dean, 2021).

Boya et al. (2015) showed that Americans often choose healthier foods for their dogs than for themselves and are more loyal to dog food brands than to human food brands. U.S. consumers are also more sensitive to the price of human food products than dog food products. Nowadays, there is a growing trend in demand for the premium product segment determined by the involvement of large retailers and large food producers on the market (like PetSmart, Nestle, Mars etc.) who have conducted and are conducting more and more awareness campaigns of buyers, in terms of food ingredients, certain nutrients, etc. mainly to inform consumers about the importance of purchasing products that have a high level of quality (Armstrong et al., 2019). Also, the pet food market reflects changes in the human food market, increasingly natural and sustainable, adapted to certain niches (Boya et al., 2015; Schaffer, 2009; Suarez et al., 2012).

Another research on a sample with 93% women from 2181 respondents concluded that the most used information source regarding the choice of food is represented by veterinarians (40%), followed by the internet (24%) (Schleicher et al., 2019).

In a 2014 study of pet food buying behavior in New Zealand, consumers preferred supermarkets (80%), while only 8% of respondents preferred pet specialty stores (Surie, 2014). Over 75% of consumers choose to inform veterinarians about the choice of food for their pets (Surie, 2014). Another study analyzing the Chinese pet food market showed that over 68% of respondents considered that one of the main factors in making the purchase decision is the brand awareness (Xiao et al., 2021).

In 2020, the Romanian Association of Pet Food Producers (ARPAC) conducted the first study to gain insight into the attitudes and behaviors of Romanian pet owners. The study targeted urban populations with pets. The results show that the main reason for buying pets is emotional, 66% of pet owners own dogs, mostly small and medium-sized, and 58% own cats. Of the urban pet owners surveyed, 17% of dog owners and 16% of cat owners had pets during the state of emergency. Regarding pet food, 43% of dog owners and 57% of cat owners stated that they feed their pet exclusively on pre-packaged food, purchased from stores, the most common sources of procurement being supermarkets/ hypermarkets, chains of pet stores or nearby pet stores ARPAC, 2020).

According to the literature, several factors have contributed to the continued growth trend of the global pet food market during the COVID-19 pandemic. A first aspect was the development of the companies' sites, but also the imposition of restrictions by authorities during the COVID-19 pandemic, when the offers of industry companies have increasingly focused on the online environment, by trying to best match the needs of consumers who have been at home at that time and wanted more than ever to order products online, both because of the need and because of the individual's more comfortable focus (Kwak and Cha, 2021).

Another extremely important factor sustaining market growth is the increased adoption of dogs and cats during the COVID-19 pandemic (Morgan et al., 2020).

III.MATERIALS AND METHODS

Descriptive research has carried out analyzing the buying behavior of pet owners from Romania, especially those who own dogs and cats, because the dogs and cats products market represent approximatively 95% of the global pet food market (Hoobs and Shanoyan, 2018). The research characterizes the consumption behavior for pet food products during COVID-19 pandemic period. Only a part of the collected data was retained for the present study.

For this research the interview method was used, applying a self-administrated questionnaire, composed of 23 questions. The questionnaire was shared online in various Facebook groups of Romanian origin. The authors choose the Facebook groups addressed to pet owners. Three categories were identified analyzing the groups:

- Facebook groups where pet owners are generally enrolled, both those who have dogs and cats and, also those who have other pets. This category was called 'neutral groups'. Some examples of such groups are Animal Protection, Animal Police, Pet Adoptions and Donations, etc. These groups generally have more than 1.000 members and consist mostly of people from the main big cities of Romania, and to a lesser extent from other individuals living near those cities, in smaller or medium-sized towns, named secondary cities (INSSE, 2017).
- The second type of targeted groups were addressed to dog owners of certain breeds, but also of dog training or dog behavior. Here were only targeted groups that had more than 200 members and tried to find groups from all the main cities of Romania.
- The third type of groups targeted cat owners and here were followed the same rules that for dog groups.

On posting the questionnaire on the Facebook groups, the requirements were explained in detail, and the authors also made sure that the European legislation on personal data are respected. The questionnaire was anonymous and was kept active between 20.11.2021 and 3.12.2021. The number of those who answered the questions was 1.525 people, owners of dogs, cats and other pets, 99,28% of respondents live in Romania and 0,72% live outside Romania.

In total, the questionnaire was posted in 51 Facebook groups as follows: 25 neutral groups (groups with dog and cat owners), 20 groups of dogs (groups that predominantly had members who were dog owners) and 6 groups of cats (groups that predominantly had members who were cat owners).

To be able to get as many answers as possible from those who were enrolled in these groups, several techniques were used so that Facebook would keep the questionnaire visible for as long as possible. This technique involved primarily the main author's prompt response to all the reactions and especially to the comments that were written by some members of the groups. Another technique was that the main author asked the group members to share the questionnaire on their Facebook page and ask their pet-owning friends to fill it in.

The statistical analysis was performed using the IBM SPSS version 25 software (IBM Corp., Armonk, NY, USA). Data were considered statistically significant when the probability of type I error (α-level) was 0.05 or less. Fisher's least significant difference post hoc analysis was performed for pairwise comparisons.

IV.RESULTS AND DISCUSSIONS

A number of 1525 questionnaires were collected for the research, all valid. Considering the demographic characteristics of the sample, more than half of the respondents are between 18 and 36 years old (51.15%). From the gender point of view, the sample is dominated by women (91,67%). More than 75% of the respondents have university studies and upper. Half of the respondents have an income lower that 4000 lei (around 800 EURO/month), and more than 60% of them do not have children. The majority are living in cities with less than 200,000 residents, all are Romanians but live-in different cities all around the country and abroad (Table 1).

From the total number of the respondents, 79.4% are dog owner. A percentage of 26.7 of them are pet owner from 2020 and almost 10% of them have the pet from the COVID-19 pandemic period. Considering the way in which the respondents have their pet, 40% of them are adopted and 31.34% were adopted in pandemic.

Table 1. Demographic characteristics of the sample

Category	Items	Number of people
age	under 18	5
	18-36	780
	37-55	671
	58-75	69
studies	Elementary	18
	Highschool	255
	Post-high school	95
	University	668
	Master	362
	Post-university	127
income	<2.000 lei	171
	2000-4000	602
	4000-6000	394
	6000-8000	165
	8000-10000	81
	>10000	112
relations	Single	320
	In a relationship, without children	661
	In a relationship, with children	544
work	Remote work	466
	From work	565
	Hybrid	310
	Not worked	184
residence	Principle city (> 200.000 residents)	179
	Secondary city (<200.000 residents)	1335
	Other country	11
gender	Female	1398
	Male	127

Source: Analysis performed by authors

Figure 1 reflects the buying behavior of Romanians in respect with the money spent for pet food (expressed in lei, 1 leu = 0.2 EUR, based on https://www.cursbnr.ro/, accessed on 12.22.2021), the way the pet food got to them, category of retailers they have bought and where they have purchased products for their dog and/ or cat.

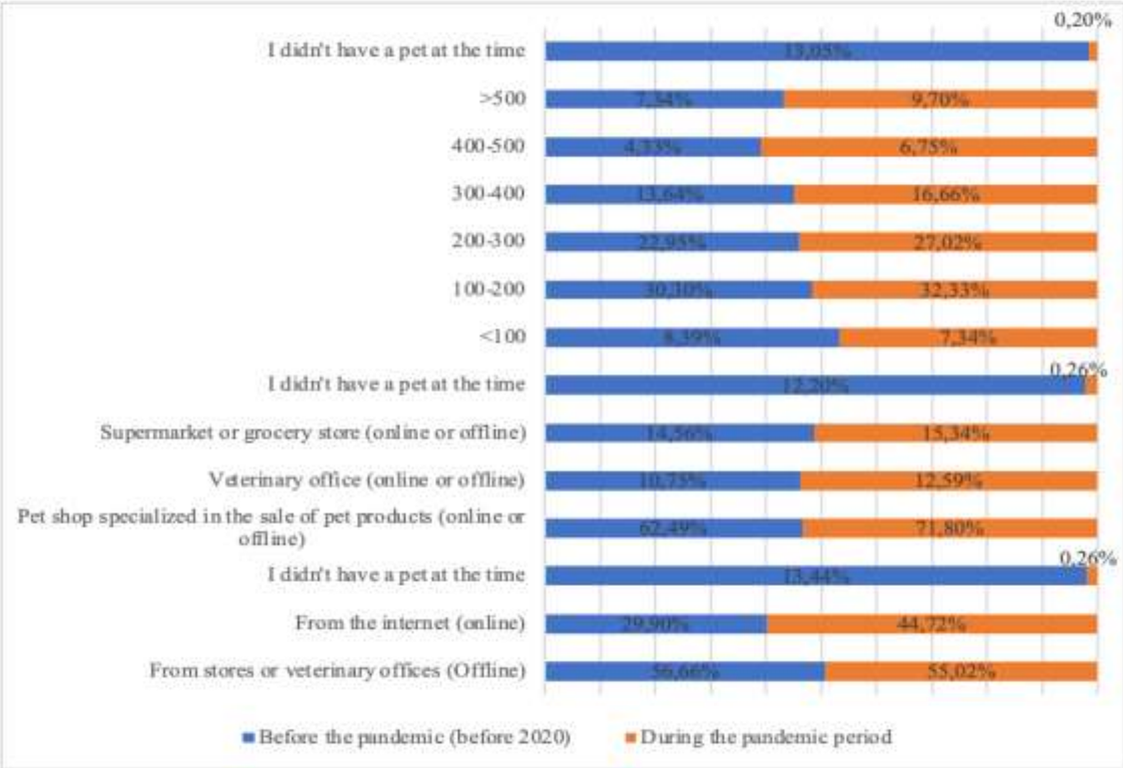

Figure 1. Pet owners' habits before and during the pandemic
Source: Analysis performed by authors

The collected data were analyzed to study if the consumer preferences for online or offline purchase of pet food products and the desires for home delivery service before pandemic, and in the present time of COVID-19 pandemic are correlated with demographic characteristics of the sample.
In the first part of the conducted statistical analysis, the behavior of consumers of pet food products in terms of their preference for purchasing products from online or offline stores, was analyzed before the pandemic, and during pandemic period (Figure 2). Before COVID-19 pandemic, the owners preferred to buy offline. In the pandemic period, the pet food shopping has moved online and remained favorite in the current pandemic ($p<0.001$).

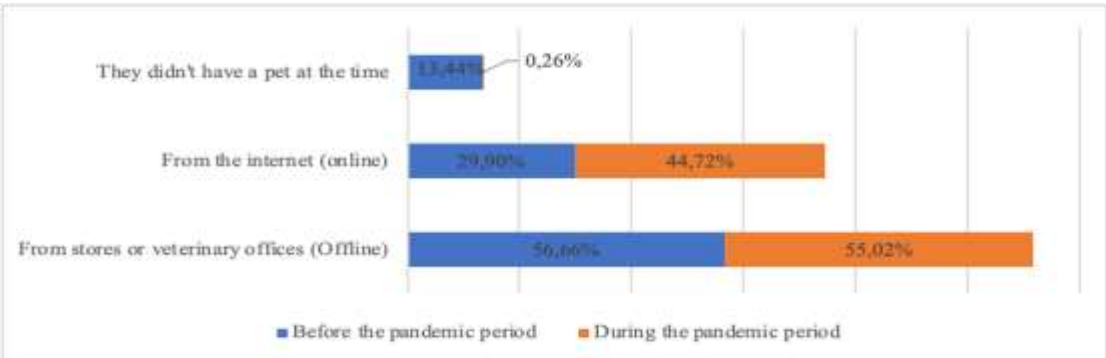

Figure 2. Preference for purchasing online vs offline (before and during pandemic)
Source: Analysis performed by authors

As expected, most respondents changed their buying behavior during the pandemic period, when the imposition of certain restrictions by the government and the demand of all authorities was to leave the house as little as possible and resort to online shopping, with home delivery. During this period, both in Romania and in other countries, as other studies show (Rombach and Dean, 2021) the behavior of pet owners regarding the purchase place of pet food products has changed, as they are directing mostly to online stores. This research shows two very interesting aspects related to consumers' preference for purchasing pet food products from online or offline stores. The first aspect is related to the preference of pet owners for physical stores or veterinary offices, which despite the growing development of the Internet and technology, but also the growing presence of pet food suppliers in the online environment, is preferred especially, at least before the pandemic. Another interesting aspect is that after the end of the lockdown period, a large part of consumers tended to return to the old habit of buying products from physical stores. In fact, the preference for online stores decreased quite a bit with the end of the lockdown period. Comparing with a study conducted on the Chinese market, here consumers prefer to buy products from online stores much more than in Romanian consumers (Rombach and Dean, 2021).

Analyzing further the answers of the respondents regarding their preference for the place of purchase of pet food products, online or offline, correlated with the place in which they live, it has been noticed that there are quite different preferences of respondents depending on the type of the locality in which they reside (Table 2).

Table 2. Preference for purchasing online or offline according to geographical characteristics

	Before pandemic	During the pandemic period
	Other country	
Online	4	6
Offline	5	5
	Secondary city	
Online	385	574
Offline	763	757
	Principle city	
Online	67	102
Offline	96	77

Source: Analysis performed by authors

In order to segment the respondents according to the locality where they live, the respondents have been divided into three groups: those who live in principal cities, secondary cities and those who live outside Romania (INSSE, 2017). Those from the principal cities (according to INSSE) tended to buy products for their pets from online stores, and those in the secondary localities showed a lower preference for the online websites of companies that sell pet products. In the case of those living abroad, they showed a clearly higher interest in purchasing pet food products from the websites of companies that sell pet food products.

In the analysis of the data from the questionnaire it was further analyzed the preference of respondents for purchasing products online or offline depending on their monthly income, for the two periods (before the pandemic, and in the pandemic period). For this analysis, the respondents were divided into 6 segments according to their monthly income (Table 3).

Table 3. Preference for purchasing online or offline according to income

Pet owners Income	**Period**	**Online**	**Offline**
sub 2.000 lei	Before pandemic	35	113
	During the pandemic period	50	119
între 2.000 lei și 4.000 lei	Before pandemic	152	382
	During the pandemic period	239	362
între 4.000 lei și 6.000 lei	Before pandemic	137	205
	During the pandemic period	191	203
între 6.000 lei și 8.000 lei	Before pandemic	57	81
	During the pandemic period	93	71
între 8.000 lei și 10.000 lei	Before pandemic	27	37
	During the pandemic period	42	39
peste 10.000 lei	Before pandemic	48	46
	During the pandemic period	67	45

Source: Analysis performed by authors

Those with incomes below 2,000 lei registered the largest decrease for the preference to buy pet food products online, followed by those with incomes between 6,000 lei - 8,000 lei and those with the highest incomes over 10,000 lei. The smallest and almost insignificant decrease was registered among the segment of those with incomes between 2,000 lei - 4,000 lei, followed by those with incomes between 8,000 and 10,000 lei. The latter have to a large extent continued to purchase products online for their pets, almost to the same extent as during the lockdown period.

Regarding the respondents' preference for the purchase of pet food products online or offline depending on their marital status, it can be noticed a decrease in the preferences for the purchase of offline products among those who are in a relationship but also have children (Table 4). Although it would have been tempted to expect the exact opposite before the study, because it could assume that those who have a family and children are usually busier and have less time to go to the physical stores, the study showed that these are the ones who most tended to return to physical stores immediately after the lockdown period.

Table 4. Preference for purchasing online or offline according to marital status

Marital status	Period	Online	Offline
In a relationship, with children	Before pandemic	150	336
	During the pandemic period	215	328
In a relationship, without children	Before pandemic	206	350
	During the pandemic period	321	340
Single	Before pandemic	100	178
	During the pandemic period	146	171

Source: Analysis performed by authors

The segments represented by those who had a relationship without having children, as well as those who were alone during the entire analyzed period, registered smaller decreases in terms of their preference for purchasing products online. However, they recorded a decrease for this type of preference, but much smaller compared to those who were in a relationship and had children.

V.CONCLUSIONS

In recent years, the figures have reached record levels in the pet food industry becoming a very important one in many countries. As in other industries developed countries have set the growth trend, and lately the demand for pet products has increased significantly in developing countries as well. In developing countries, the growth of the pet market is expected to be much higher, following the trend of developed countries. This is mainly due to the rise in living standards from developing countries where the popularity of pets has increased, especially among the younger generation. Thus, this market is of increasing interest not only to existing players, but also to new producers or retailers, and not least to consumers, as more and more individuals are planning to have a pet in the future.

Current research has revealed several changes in the purchasing behavior of pet food, as well as some differences between certain geographically and demographically segmented groups. With the development of the internet and due to restrictions imposed during the pandemic period, the study analyzed pet owners' preferences for buying pet products online vs. offline. The main aspect observed in this study is the consumer's preference to buy products from online stores, which increased with the pandemic period. Of course, this growth was also due to the fact that the companies in the field adapted to this period of restrictions and developed their websites and also the delivery services of products to consumers. As regards consumer groups, some differences in their behavior may be observed, depending on geographical or demographic factors.

These aspects of consumer buying preferences online or offline, or their changes in purchasing behavior with the development of the pet food market, may present some future directions for retailers and industry manufacturers. It is particularly important currently that those who market such products are present online and have a delivery service for pet products.

Regarding the limitations of the study, the questionnaire was applied online, published in several Facebook groups where most members are pet owners. Even if the present research was unable to identify different profile groups on Facebook to post the questionnaire, there are many pet owners who do not have a Facebook account or are not enrolled in any group even if they use the social networking. Another aspect referring to the sample is that, since the questionnaire was published only online (on the Facebook platform) in these types of groups described above, it has been probably involuntarily targeted only some certain age groups, notably those who make greater use of social media and the Internet.

Considering the small number of studies focused on the pet food market, especially in the context of the

COVID-19 pandemic (in which the present study was focused), the present research is adding value to the existing literature, as well as to participants in the pet industry, especially since the research under consideration is very recent.

In the future research, the authors aim to also obtain data from interviews with experts (veterinarians, breeders, etc.), but also one or more focus groups.

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