

Drug Buying Behavior and Quality Strategies Implemented in This Market

Anca Madar¹ and Nicoleta Andreea Neacșu²

^{1),2)} *Transilvania University of Brașov, Brașov, România.*

E-mail: *madaranca@gmail.com; ancamadardar@unitbv.ro*

E-mail: *andreea.neacsu@unitbv.ro; deea_neacsu@yahoo.com*

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Abstract

The desire of people to live longer and better has led to the large-scale development of the pharmaceutical industry. Being a sector with high profitability, but also with certain restrictions imposed by regulations, the producers did not delay to appear. Thus, this market abounds with an unprecedented diversity of products, which put consumers to the test, especially when buying over-the-counter products. In this case, the sources of information are diverse (friends, family, internet, advertising) which makes the decision to buy a certain product, difficult. On the other hand, as competition in this market is fierce, manufacturers have to resort to various quality strategies in order to stay in the market and attract new consumers. In this article, the authors wanted to highlight, based on an exploratory research, which are the most used quality strategies in this market. On the other hand, based on a marketing research, they identified the opinions, attitudes and behaviors of consumers in Romania on the pharmaceutical market. The results show that the most used quality strategies that manufacturers in this field use are: the strategy of maximum performance, the strategy of domination through quality, the strategy of diversification and the strategy of continuous improvement. Marketing research has shown that most consumers trust and buy medicines based on the recommendations of doctors and pharmacists, do not have more confidence in medicines produced in other countries and are not heavily influenced by advertising. The article contributes to the study of the pharmaceutical market, because we did not find studies on the quality strategies implemented in this market. The results of this research may be the basis for further expanded research into the pharmaceutical market, but may also be used by manufacturers / distributors to formulate competent competitive strategies.

Keywords

buying behavior, quality strategies, pharmaceutical market, and exploratory research.

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Introduction

The production and consumption of pharmaceuticals has had and continues to grow, with some syncope due to unpredictable factors such as the COVID pandemic 19. Being a market with a wide variety of products and manufacturers, consumers may be concerned about the choice of certain products, especially if they are not prescribed by doctors. This concern may be related to product quality, active substance content, compliance with required standards and regulations, but also adverse effects of drug use. These issues are even more pronounced for those who buy these products online without the advice of a doctor or pharmacist (Tran et al, 2013; Alwhaibi et al, 2021). A study by Aljadhey et al, (2015) shows that in Saudi Arabia many consumers buy over-the-counter drugs (mostly antibiotics and painkillers) without knowing if the drug they bought is a prescription or over-the-counter drug.

Under these conditions, producers need to better communicate to consumers the issues they have to take to: ensure the quality of their products, comply with the relevant regulations on the production and marketing, and the possible adverse effects of a product irrational and uncontrolled consumption. In order to better address market segments, producers need to be well aware of their consumer behavior, the factors that influence the purchasing decision and then, to implement quality strategies that give consumers confidence and ensure the competitiveness of producers.

In order to highlight the quality strategies implemented by the producers present on the Romanian market of pharmaceutical products, the authors carried out an exploratory research. This was followed by a marketing research among Romanian consumers to identify consumer opinions, attitudes and behaviors regarding: the factors that influence their purchasing decision, determining the extent to which drug advertisement influence purchasing behavior, and how quality strategies are perceived by respondents.

1. Literature review

The pharmaceutical industry is one of the fastest growing and steady industries, but also one with high profitability. Although the health crisis led to global losses of trillions of dollars in 2020, the pharmaceutical industry recorded increases of \$1.22 trillion in 2020 and \$1.25 trillion in 2021 (ASTRA ONLINE, 2021). This is also supported by Hole et al., (2021) which shows that the pharmaceutical market had an annual growth rate of 5.8%.

This development shows that the pharmaceutical industry can meet any challenge and will stand by the fact that people will always need these products to heal and maintain their health. Therefore, the quality of medicines must be regulated and controlled very carefully, because, as Sehlstedt et al. (2016) argues, the slightest mistake can have consequences on patients' lives, a severe business, legal and reputational impact on the manufacturer. To ensure the quality, purity and potency of medicines, many states have developed Good Practice Guidelines (GMPs) for this industry. For example, in the US, these guidelines are developed by the US Food and Drug Administration (FDA) and cover process validation, data integrity, and a wide range of other areas. In the European Union (EU), GMP inspections are carried out by national regulatory agencies. The European Medicines Agency (EMA) oversees inspections to ensure that these standards are met, and are key players in standardizing GMP activities in the European Union (EU) (Hole et al., 2021). As Haleem et al. (2015) states, these guidelines aim to reduce any hazards associated with pharmaceutical production that cannot be avoided by testing the finished product.

There is more and more talk about Industry 4.0 (the fourth industrial revolution), which brings together rapidly evolving technologies such as the Internet of Things (IoT), artificial intelligence (AI), robotics, and advanced computing. Industry 4.0 is characterized by integrated, autonomous and self-organized production systems. In the pharmaceutical industry, the experience gained through digitization and automation determines the possibility of moving to Industry 4.0 and promises progress in both production systems and infrastructure (Arden et al., 2021). In the pharmaceutical industry, this new type of industrial organization can connect external information (patient experience, market demand, supplier inventories and public health emergencies), with internal information (energy and resource management, modeling and simulation results and laboratory data), leading to an unprecedented ability to respond, monitor, control and predict in real time (Markarian, 2016).

The increase in the consumption of medicines and the fact that some of them are dispensed without a prescription, creates the possibility that through an unsupervised consumption side effects may occur in consumers. Brass et al. (2011) say that those who buy over-the-counter drugs are responsible for their use, with all that means (dose, frequency, duration of treatment). Therefore, their marketing must be strictly regulated. Also, the quality of the medicines, the composition, the proportion of the active substances as well as the mode of consumption and possible side effects must be well defined and explained to the consumers.

There is a wide variety of products on the market for pharmaceuticals / medicines, from competing companies. In order to face the competition, each producer must better understand the wishes and needs of consumers (Redding et al., 2021) and try to satisfy them by using certain strategies, including quality strategies. It should be known: how consumers buy pharmaceuticals / medicines, whether they consult a doctor, pharmacist or not, the sources from which the consumer is informed about the products, what are the criteria based on which they choose a particular manufacturer and whether they are interested and informed about product and manufacturer certifications. In order to choose the most appropriate strategies, organizations must rely on well-founded forecasts for the development of the industry, which will help to set out policies in this area, to allocate resources, to set future goals (Shnaydman, 2020).

2. The pharmaceuticals market

The drug is the key link between all components of the pharmaceutical market and has the role of curing certain diseases of patients and improving their health.

Increasing competition in this market, the continuous review of product portfolios and the technologies used, require drug manufacturers to make the necessary changes to adapt to the dynamic requirements of consumers.

A study conducted by Euler Hermes in 2019 shows the evolution of the pharmaceutical sector, which is worth approximately \$ 1.3 trillion globally. The global market for prescription drugs grew by 5.2% to \$ 830 billion in 2018 compared to 2017. This increase was mainly due to the 9% increase in the number of new drugs launched on the US market in 2018, especially in the field of oncology. Because innovative drugs are better than outdated, but also the most expensive, doctors who choose to prescribe these drugs to patients, contribute to increasing the value of the pharmaceutical market (Euler Hermes Study, 2019).

The demand for medicines has increased in volume even in countries where medicines are not easy to obtain. The US, which is the largest drug market with a market value of 35%, has a significant advantage over all others, as drug prices are the highest on average worldwide (Euler Hermes Study, 2019).

The Romanian market seems to follow quite well the trends manifested globally, so that in 2019, the annual volume reached almost EUR 4 billion, with an annual increase of 19% (Euler Hermes Study, 2019).

The Romanian pharmaceutical products market grew by 1.3% in 2020 compared to the previous year, to 18.05 billion lei (3.73 billion euros), according to data from the research company Cegedim, quoted in a report by the company Antibiotice Iasi (Antibiotice, 2020).

The market fluctuated significantly in 2020 due to the Covid-19 pandemic, which affected the release of drugs in certain periods (<https://360medical.ro>).

The main local producers of medicines - Terapia Cluj, Zentiva Bucharest, Antibiotice Iași, worked with pandemic engines, supporting the market demand, by producing medicines such as paracetamol or products such as disinfectants. (Ziarul Financiar, 2021).

There are about 120 companies on the market whose object of activity is the manufacture of pharmaceutical products. These companies generate total business of 2.5 billion lei (Mihalache, 2020).

According to the results of the Pharma & Hospital Report study, Cegedim Customer Information estimates that between April 2020 and March 2021, the volume of medicines delivered to patients in Romania was 605.1 million boxes, down 5.7% from April consumption. 2019 - March 2020. The total number of treatment days increased by 4.4%. Also in the same period, the total market value was 18.16 billion lei, increasing by 1.0% compared to the period April 2019 - March 2020 (Romanian Pharmacists' Review, 2021).

At the end of 2020, the top 5 local pharmaceutical manufacturers looked like this (Economica.net, 2021):

1. Terapia. In 2020, it registered a turnover of 791 million lei and a net result of almost 192 million lei.
2. Zentiva recorded a turnover of 558 million lei and a net result of approximately 66 million lei.
3. Sandoz with a turnover of 427 million lei and a net result of over 10 million lei.
4. Antibiotice, the only company in the top 5 that registered an annual decrease, respectively of -12.7% (with a turnover of 341 million lei and a net result of 26 million lei)
5. Biofarm, registered the largest annual advance in the top 5 (+ 10.8%), with a turnover of 216 million lei and a net result of 54 million lei.

3. Methodology

In this paper, the authors first conducted an exploratory research that aimed to highlight the main quality strategies used by pharmaceutical manufacturers operating in the Romanian market. For this, the authors read studies conducted on the evolution of this market, documents of various market players (analysis, internal reports) that were posted on their websites. A quantitative marketing research was then conducted with the aim of identify consumer opinions, attitudes and behaviors regarding: the factors that influence their purchasing decision, determine the extent to which drug advertisements influence purchasing behavior, and how they are perceived quality strategies by respondents.

In order to achieve the purpose of this research, the following objectives have been established:

- O1. Identify the factors that trigger the purchase decision.
- O2. Determine the extent to which drug advertisements influence buying behavior.
- O3. Identify consumers' perceptions of the quality strategies used by producers in this market.

Taking into account the fact that the research is an exploratory one, it was considered to obtain as many completed questionnaires / answers as possible. The sample consisted of 620 people, of whom 65% were women and 35% were men. Most respondents are between 18 and 60 years old (70% are between 18 and 30 years old, 18% are between 30 and 50 years old, 9% are over 50 years old and 3% are under 18 years old). 53% of respondents come from urban areas and 47% from rural areas.

The data were collected through a questionnaire containing 21 questions, using the CAWI (Computer Assisted Web Interviewing) technique. This involves uploading the questionnaire to the Google Forms app, where it can be completed directly by respondents. Data collection was performed between November 1 and December 30, 2021. Data processing was performed using the IBM SPSS (Statistical Package for Social Sciences) program.

4. Results and discussions

Analyzing the studies and documents that reflect the activity of the main producers in the pharmaceutical industry, the authors identified the following quality strategies most commonly used in this market:

a. Maximum performance strategy - aims to gain supremacy in quality through maximum performance, which can be obtained from the products or services provided. This strategy is visible to the manufacturer *Antibiotice*, ensuring the company a sustainable growth, by constantly renewing its portfolio of medicines, by optimizing and perfecting manufacturing technologies in accordance with technical progress. The team of over 70 specialists of the Antibiotic Research-Development Center is involved in the activities of pharmaceutical formulation, physico-chemical analysis, technology transfer, bioequivalence studies, regulatory affairs and pharmacovigilance. In the R&D department, *Biofarm* conducts studies for the development of new pharmaceutical formulas, develops and validates methods for the evaluation of intermediate and finished products. Given the importance of this sector in the development of the company, Biofarm constantly invests both in the qualification of the research and development team and in the modernization of equipment.

b. Quality domination strategy - involves maintaining a market or market segment and involves a high volume of production and sales. *Terapia*, the most important generic drug and OTC company in Romania, has over 300 pharmaceutical forms in its portfolio. It covers a wide range of therapeutic areas, produces 93 million boxes of medicines annually and exports pharmaceutical preparations to 25 countries. *Biofarm* has over 200 products in its portfolio and covers over 60 therapeutic areas. On 9 of them, Biofarm is the market leader, a record that honors the company and obliges it to do more. It holds the leading position and positions in the top 3 on most of the categories in which it operates (digestive & metabolism, cold & flu, cardiovascular & circulatory segment). The medicines in the *Antibiotice* portfolio are delivered to the local market and to markets in Europe, Asia, North America and Africa. The 158 products in the nomenclature reach, through distribution partners, more than 8,000 pharmacies and all hospitals in the country. 37 drugs in the company's portfolio are considered essential according to the qualification of the World Health Organization. In 2021, Antibiotice strengthened and maintained its position as the world leader in the active substance Nystatin.

c. The strategy of diversification through quality - through the existing research-development and technological potential, it tries to enter new fields of activity with products or services, oriented on quality classes or at higher quality levels compared to the competition. *Terapia* has managed to make an essential contribution to people's lives through the drugs it has produced and which today are known for their effectiveness for generations: from the launch of the most popular Romanian brand Faringosept® in 1963, to the appearance of the product that protected Romanians from palpitations, starting with 1987 - Aspacardin®, until the development 20 years ago of the best selling drug in Romania (in therapeutic units): Aspenter®. *Sandoz* invests in research and development to improve patients' lives and maximize healthcare system resources through increased access to high-quality, affordable biosimilar drugs. It is a pioneer and world leader in biosimilar medicines, with three products on the market: Binocrit®, Omnitrope® and Zarzio® / Zarzio®. Sandoz launched five major biosimilar drugs in 2020 in the fields of oncology and immunology globally. In 2016, *Antibiotice* obtained 7 new Marketing Authorizations in Romania for drugs of the following classes: cardiovascular (Ramipril Atb® 2.5 mg, 5 mg and 10 mg tablets, Candesartan Atb®

8 mg and 16 mg tablets), anti-infective, (Norfloxacin Atb® 400 mg film-coated tablets) and genitourinary tract, (Zifex® Ovule Complex).

d. Continuous improvement strategy - the gradual, continuous improvement of the quality of products and services, as well as of productivity and competitiveness. In 1999, *Terapia* marked a premiere for the local pharmaceutical industry when it became the first holder of a Certificate of Good Manufacturing Practice (GMP) issued in Romania. For the first time, in 2002, it opened the first Bioequivalence Clinical Trials Center, which had its own clinical unit with qualified staff. *Terapia* also stood out through the accreditations acquired over time, being the first company in Romania to obtain the certification of Good Laboratory Practice and Good Clinical Practice in 2003, from the National Medicines Agency. It has received the audit certification for the Integrated Environmental System according to ISO 14001/2004 and OHSAS 18001/2008, and the Quality Assurance System is ISO 9001: 2015 certified by SGS Romania, starting with 2015 (Adevărul, 2021).

The authors structured the research results taking into account the established objectives:

O1 - Identify the factors that influence the purchase decision.

Asked how often they buy pharmaceuticals, 44% of respondents said that they buy monthly, 17% buy only when absolutely necessary, 8% buy weekly and the remaining 5%, less than a few times a year.

When asked how people treat their health problems, 60% of respondents said they prefer the treatment recommended by the specialist, 21% of respondents choose the treatment recommended by the pharmacist while 19% prefer self-medication.

Respondents were asked to rate, on a scale of 1 to 10, the extent to which they trusted the advice of the pharmaceutical staff. The answers show that more than half of them (64%) trust the pharmaceutical staff quite a lot, giving grades from 8 to 10, while 36% of the respondents do not have much confidence, giving grades below 8: (11% gave a grade of 7, 11% a grade of 6, 9% a grade of 5, 4% a grade of 4 and only 1% a grade of 3). Similar results can be found in Kim and King (2009). The authors wanted to know if consumers of pharmaceuticals have the same confidence in Romanian medicines as in those produced in other countries. To this question, 76% of respondents answered that they have the same confidence in Romanian medicines as in those produced in other countries, while the remaining 24% have less confidence in medicines produced in our country.

O2- Determine the extent to which drug advertisements influence purchasing behavior.

Respondents were asked to what extent they are influenced by online and media advertising when buying pharmaceuticals. From the answers received, it was found that 32% of the respondents are influenced to a large and very large extent by the advertisements, 22% are neither influenced nor ignore the advertisements, and the remaining 46% are influenced to a small or very small extent by the advertisements. A similar study (Al-Haddad et al, 2014) shows that TV and Internet advertising have the greatest influence, and radio and leaflets have the least influence.

Another question related to the influence of the purchasing decision on this market was whether the reputation of the drug manufacturer (brand) influences the purchasing decision. Respondents had to rate this influence on a scale of 1 to 5, where it means 1 - to a small extent, and 5 - to a large extent. Analyzing the answers to this question, it can be seen that the reputation of the drug manufacturer is not very important for Romanian consumers (78% of respondents said that the brand of manufacturers has little influence on their decision to buy pharmaceuticals), while the remaining 22% are largely influenced by the brand of the manufacturers. Other studies (Shekhar et al, 2019) have reported the importance of factors such as trust and brand in making drug purchasing decisions.

O3 - Identify consumers' perceptions of the quality strategies used by producers in this market

Regarding the quality strategies applied on the medicine market, most of the interviewed subjects (83.55%) stated that they do not know these strategies and that they were not interested in this regard. A small part of the respondents (16.45%) claimed that they have some information on this subject and that occasionally when they choose their medicines they study and seek to find out more about the manufacturer. Asked who they buy from when they buy medicines, the answers were as follows: 59% went to the doctor, 52% to the pharmacist, 9% to relatives, friends and 9% to the internet, newspapers, journal (Närhi and Helakorpi, 2007; Kautsar et al, 2012).

By collecting data from various questions addressed to the subjects, the authors identified that for respondents the most important quality strategy that are applied by drug companies are; continuous improvement strategy and quality diversification strategy. Respondents appreciate the manufacturing

companies that offer them a diverse range, at superior levels of quality and extra security regarding the products offered. Thus, 88.55% of respondents stated that they prefer to buy medicines from manufacturers who have obtained Good Laboratory Practice and Good Clinical Practice accreditations.

Conclusions

The pharmaceutical market is constantly expanding, even though it has been hit by the pandemic crisis, but much less so than other markets. The need for healing and maintaining health is found all over the world. In this context, being a market with strong competition, bidders must adopt well-thought-out market / quality strategies, which will help them to keep their customers, but at the same time to attract new customers. For this, they need to know very well the needs of customers, the factors that influence the decision to buy a certain product or another, the trust that consumers have in different manufacturers, doctors and pharmacists. The marketing research carried out shows that most Romanian respondents trust doctors and pharmacists, are more confident in the products of Romanian bidders and are not greatly influenced by online and media advertisements.

Based on the results of the research, the authors recommend local manufacturers, but also doctors and pharmacists to improve the communication system with consumers, to increase their confidence in the quality of Romanian pharmaceuticals and to reduce the number of those treated by the advice of neighbors and friends.

The research has certain limitations, due to the fact that the sampling was non-random, so the sample could not be statistically validated and the results could not be extrapolated to the entire research population. However, the authors believe that its results could be a starting point for further research on this topic, bringing new market information to producers.

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