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MASTER THESIS

GRAŽINIMO IR PERDIRBIMO PROGRAMŲ ĮTAKOS VAISTINIŲ LOJALUMUI TIEKĖJAMS TYRIMAS	RESEARCH ON THE IMPACT OF RETURN AND RECYCLING PROGRAMS ON PHARMACIES' LOYALTY TOWARDS THEIR SUPPLIERS
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INTRODUCTION

Relevance of the topic. The relevance of this research lies in the growing importance of return and recycling programs in the pharmaceutical industry. Pharmaceutical production is constantly growing, along with the amount of waste. Besides environmental concerns, this trend leads to increased costs for recycling and disposal. At the same time, growing competition between pharmaceutical suppliers forces them to look for ways to retain old customers and attract new ones. Return and recycling programs offer a practical solution to growing costs for waste disposal while at the same time being the key to improving customer loyalty. Researching the impact of such programs on pharmaceutical loyalty can provide suppliers with valuable advice on implementing these programs.

The level of exploration of the topic. The topic of return and recycling programs in the pharmaceutical industry is well studied from the point of view of its impact on the environment and human health. This topic is also well studied from the point of view of the development of standards and government regulation. However, there is limited research on the specific impact these programs have on pharmacies loyalty to suppliers within the pharmaceutical industry. This research aims to fill this gap by providing a comprehensive analysis of how these programs impact pharmacies' loyalty towards their suppliers within this promising but underexplored area.

The novelty of the Master thesis. The novelty of this master thesis lies in its focus on combining research in two areas important for the pharmaceutical industry. Such studies are usually conducted separately, which makes it impossible to determine the impact of return and recycling programs on pharmacy-supplier relationships. This research aims to explore this relationship as well as help pharmaceutical suppliers develop more effective strategies to improve customer loyalty.

The problem of the Master thesis. The problem addressed by this thesis is the lack of understanding of the impact of such programs by all participants in the pharmaceutical industry. Despite the increasing demand and implementation of these programs both by suppliers and pharmacies separately, their cooperation is limited due to a lack of understanding of how return and recycling programs impact pharmacy loyalty towards suppliers. This gap in knowledge is obstacles to effective cooperation in the fields of return and recycling. Suppliers risk losing clients and can struggle to find new ones, while at the same time, pharmacies will suffer losses due to the increasing cost of recycling programs.

The aim of the Master thesis. The aim of this master thesis is to examine the impact of return and recycling programs on pharmacy loyalty towards suppliers. By identifying and investigating the key variables that influence pharmacy loyalty towards their suppliers, researcher desire to provide a general evaluation of the impact of these programs and predict pharmacies behavior for future cooperation with the aim of formulating recommendations for suppliers that will help them improve pharmacy loyalty.

The objectives of the Master thesis. Can be described in this order:

1. Indicating research gap in the literature analysis.
2. Create a hypothesis and develop a research model.
3. Collect all the necessary information for the study.
4. Perform a research.
5. Describe and present the results

The methods deployed by the Master thesis. The research method employed in this study is a representative survey. This quantitative approach involves collecting data from a sample of pharmaceutical industry professionals to evaluate their opinions and experiences regarding return and recycling programs and their impact on pharmacy loyalty towards suppliers. The survey method ensures that the findings are statistically significant and can be generalized to a larger population within the industry.

The description of the structure of the Master thesis. The Master thesis structurally contains an introduction, three sections, conclusions and proposals, a list of references and sources, a summary in Lithuanian, a summary in English, and annexes.

1. THE LITERATURE REVIEW AND ANALYSIS OF THE EXISTING RESEARCH ON RETURN AND RECYCLING PROGRAMS

1.1. Theoretical aspects of the green logistics process

Before we look at the pharmaceutical industry's return and recycling programs, it's necessary to consider the theoretical aspects of the green logistics process. When researching these programs, it is important to realize that processes associated with the return and recycling of waste in the pharmaceutical industry or any other industry never exist on their own but are part of numerous processes included in the concept of green logistics.

Examining the theoretical aspects of green logistics is necessary for a comprehensive understanding of the impact of such programs on the pharmaceutical industry. This information provides the necessary context for assessing the efficient operation of processing infrastructure in the Ukrainian pharmaceutical industry.

1.1.1. Meaning and origin of green logistics

One of the most commonly used designations is that logistics is the process of managing the movement and storage of materials from suppliers to companies or customers (Christopher, 2016). This term first been used by the French for troops accommodation in the early 19th century and defined by the military as the planning and movement of troops (Elkader et al., 2019). Later, in 1964, logistics was first introduced as a business process under the name “Business logistics” and used only for physically distributing goods (Elkader et al., 2019). Over time, under the influence of the growing trend of environmental care, more and more eco-friendly elements began to appear in logistics. At some point, the totality of these elements has become commonly referred to as green logistics. Green logistics can be described as expanding of the traditional logistics process by adopting more eco-friendly activities in order to conserve the environment. (Zhang et al., 2020). Another simplified definition of green logistics is described as an attempt to minimize the footprint of transportation and logistics processes on the environment (Hernandez et al., 2022).

1.1.2. Differences between logistics, green logistics, and reverse logistics

Traditional logistics (sometimes called conventional logistics) and green logistics are related concepts, but there are some differences between them. Considering these concepts in terms of supply chain management reveals that a green supply chain is based on practices used in traditional supply chains but incorporates ecologically valuable ideas into every stage of the service or product inside the supply chain (Bhattacharjee, 2015). The main difference is that there are different approaches to aspects of these logistics. These differences are generally highlighted in Table 1.

Table 1

Difference between traditional (conventional) and green logistics

Aspect	Traditional (conventional) logistics	Green logistics
Motivation	Economic	Economic and ecological
Environmental impact	Negative	Positive
Relationship with supplier	Short-term relationships	Long-term relationships
Transportation focus	Focus on the cost	Focus on ecological aspects
Speed and flexibility	High	Low

Source: adopted by researcher, based on Difference- Conventional & Green SCM. Bhattacharjee (2015)

Another term that needs to be mentioned is reverse logistics. These concepts share some similarities and sometimes perceived as the same thing. The core difference is that green logistics focuses on improving processes of transportation, recycling, and reuse in order to gain a positive effect on the environment. At the same time, reverse logistics is designed to help fully or partially regain profits and reduce operational costs by reusing or recycling materials (Seroka-Stolka, 2014). Table 2 provides a comparison between these types of logistics.

Table 2

Comparison of Green logistics, Reverse logistics, and Green Reverse logistics

Feature	Type of logistics		
	Green logistics	Reverse logistics	Green Reverse logistics
Definition	Green logistics part of supply chain management methods that decrease negative impact on the environment	Reverse logistics is a system of utilization, remanufacturing, and recycling	Green reverse logistics is a subdivision of reverse logistics with the goal of combining environmentally-friendly practices with economic benefits
Focus	Focuses on fixing problems of transportation, waste management, recycling, and re-using of the materials	Focus on cut-back in spending by performing measures to remanufacture and repair used materials or equipment	Focus on protecting the ecological environment while bringing economic and social benefits
Aim	Minimize the environmental impact and reduce energy footprint	Increasing profits by reducing operational costs through reusing material resources	Increase resource efficiency through remanufacturing and reuse
Impact on Environment	Positive effect on the environment, reduction of the energy footprint	Minimizes waste through recycling, remanufacturing, and reusing materials	Positive effect on the environment, keeping economic benefits
Advantages	Social benefits (improve reputation and public opinion, regulatory compliance)	Economic benefits (waste reduction, cost savings)	Positive environmental impact, in combination with economic and social benefits
Connection between this type of logistics	Green logistics is a part of logistics that involves environmental operations	Reverse logistics is a branch of green logistics but can operate separately from it	Green reverse logistics is a relatively new type of reverse logistics

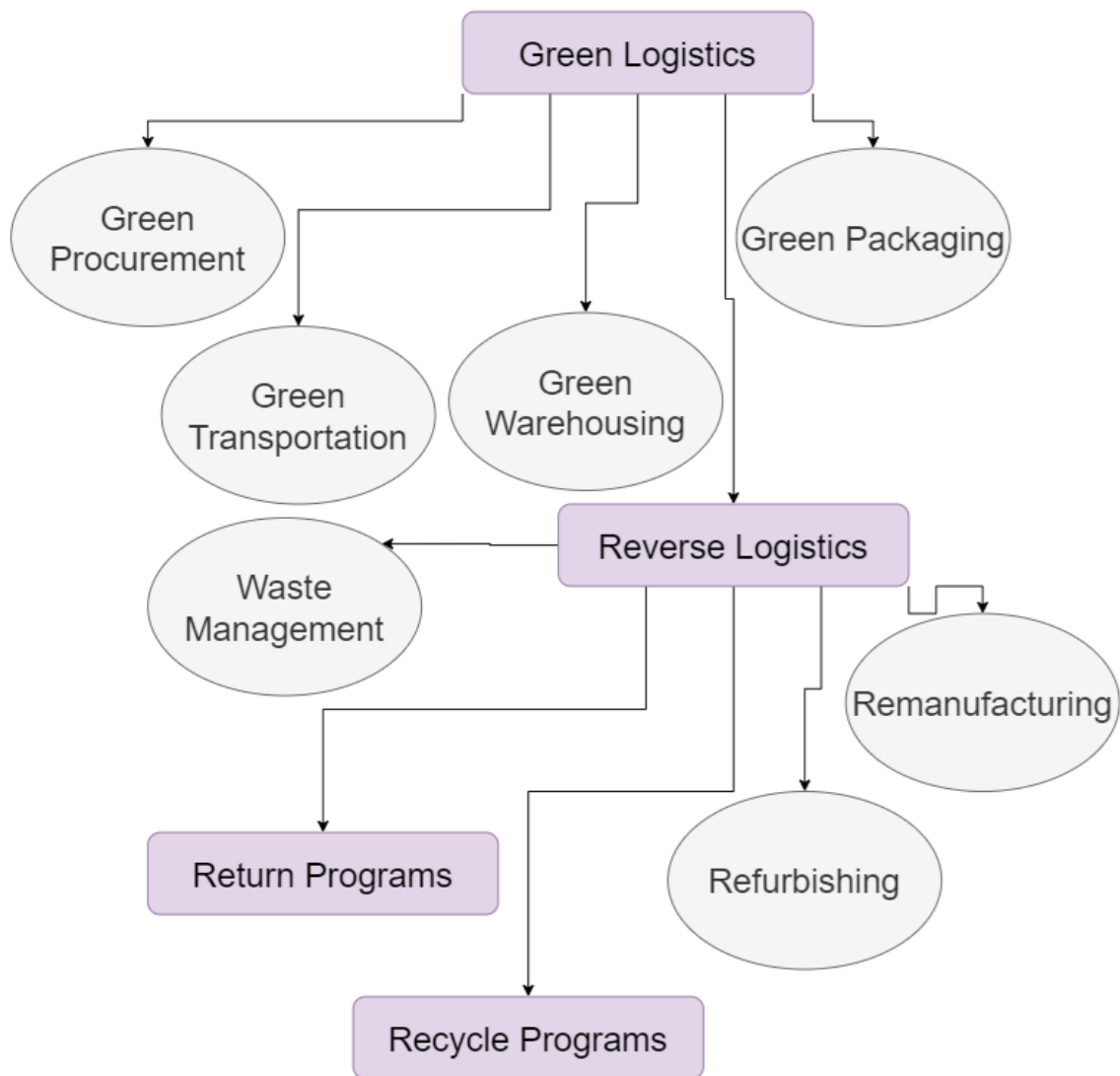
Source: adopted by researcher, based on Seroka-Stolka (2014) and Wu and Zhao (2022).

1.1.3. The role of return and recycle programs in green logistics

Return and recycle programs are part of reverse logistics, and they should be considered an important component of green logistics. By analyzing the literature, a Figure 1 was compiled reflecting the place of return and recycling programs in logistics processes.

Figure 1

The place of return and recycle programs in green logistics processes



Source: compiled by author, based on Plaza-Úbeda et al. (2020) and Banihashemi et al. (2019).

The pharmaceutical industry return program promotes the recycling of expired medications as well as medications that remain unused. As a rule, such programs are used by pharmacies, suppliers, manufacturers, and, in some cases, healthcare facilities. It is important to note that according to the law of Ukraine, patients cannot return medications and thus do not participate in return programs. This omission is a serious gap in the effective functioning of the return and recycling system.

In some countries, pharmaceutical waste disposal practices are used in the form of take-back programs. Take-back programs allow individuals to bring their unused or expired medications to a designated location, where they can be properly collected and disposed of (Ingale,

Tayade, Patil, & Salunkhe, 2023). Such programs are a good example of reverse logistics; however, due to current legislation, they are not applicable in Ukraine.

The return program is also used by suppliers; for example, when a new shipment of goods is delivered, the supplier takes away the reusable container from which the previous shipment was delivered. This also includes the return of goods delivered by mistake and the movement of goods within the pharmacy chain. The exception is the return of damaged or falsified products; they do not go on the balance sheet of the pharmacy but are returned to the supplier immediately upon completion of all necessary reports.

Programs for recycling, in turn, focus on the recycling and reuse of packaging materials. The most typical packaging materials processed by the pharmaceutical industry are cardboard, plastic and glass. These materials are then processed and reused in the production of new products in the pharmaceutical industry or outside of it. Unlike return programs, the end recipient can participate in recycling programs, thereby becoming part of the recycling system.

Another link between return and recycling and green logistics programs is waste management. When processing pharmaceutical waste, a wide range of methods can be used, the most popular of which are presented in the Table 3.

Table 3

Pharmaceutical waste management methods

Methods	Application
Incineration	Solid waste
Autoclaving	Neutralization of microorganisms in order to safely dispose of waste
Microwaving	
Chemical disinfection	
Deep burial	Most types of pharmaceutical waste, including biomedical waste
Secure land filling	Biomedical waste, expired pharmaceuticals, cytotoxic drugs, and solid chemical waste
Waste immobilization	Immobilizing pharmaceutical solid waste in a plastic or steel barrel (75% solid or semi-solid waste, 25% filler)
Sewers	Human-safe liquids, such as liquid syrups and IV fluids, are mixed with water and discharged into sewers in modest amounts

Source: Adopted by author, based on Talele, Talele, Shah, Kumari, and Sadhu (2023).

1.1.4. Recycling infrastructure in the pharmaceutical industry in Ukraine

Like many other industries, the recycling infrastructure in Ukraine is unevenly divided.

First, let's look at the overall picture in the recycling infrastructure industry in Ukraine.

The Ministry of Regional Development estimates that only 600,000 of the 10 million tons of rubbish that are disposed of in Ukraine each year are recycled or burned. The remainder is buried in landfills, of which there are more than 6000 in Ukraine, based on government data. They take up 9000×10^4 m², while 1000×10^4 m² are illegal landfills (Ishchenko et al., 2021). These figures indicate an unsatisfactory level of implementation of such programs and raise concerns about the state of Ukraine's environment in the future. In order to solve this problem, government organizations regularly adopt amendments to laws and develop new strategies.

While Cabinet of Ministers of Ukraine has approved National Waste Management Strategy until 2030 for continuation of the implementation of the waste management reform that Ukraine started in 2017 (Cabinet of Ministers of Ukraine, 2019). It is unclear what the current status of this program is, as the majority of similar projects were scratched or postponed due to the beginning of the war in 2022.

The degree of recycling infrastructure development in Ukraine's pharmaceutical sector is contingent upon numerous factors. In addition to the development of such infrastructure, conditioned by the legislative framework and rules of the markets in which this company operates.

Medical waste comprises only 3-5% of the total waste generated, yet it is typically considered the most hazardous (Popovych et al., 2020). Nowadays, this percentage is likely even higher due to increased demand for pharmaceutical products caused first by a pandemic and then by war.

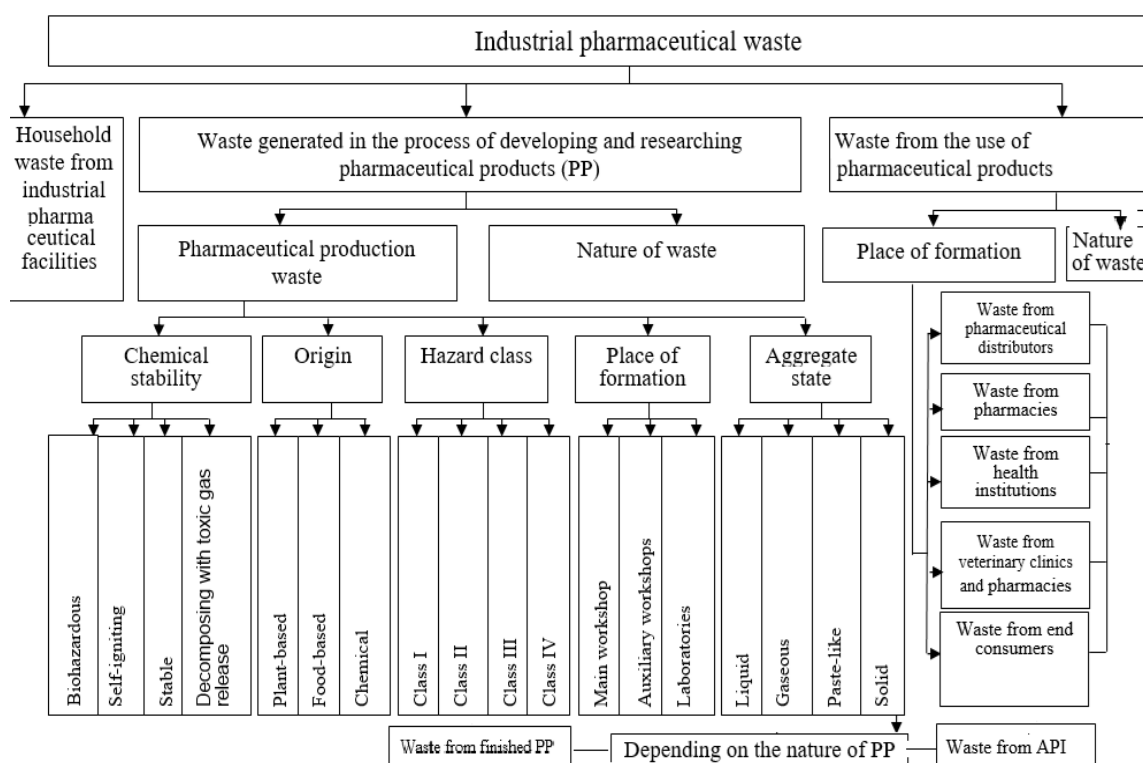
From the government's point of view, the most important objective of recycling programs is the disposal of falsified medicines. As for the last 10 years, the number of falsified medicines has turned into a concerning trend, despite all the efforts from drug control to counter it (Eiben et al., 2021). Other participants in the pharmaceutical supply chain most often resort to recycling pharmaceutical waste due to expiration dates and the accumulation of waste during their production.

The infrastructure for waste recycling from the pharmaceutical industry in Ukraine is still in the process of development and can differ significantly even among companies with the same specifics. While some big international pharmaceutical companies that operate in Ukraine maintain a high level of recycling programs, the Ukrainian companies, which focus on domestic

production and distribution, usually have medium or all-low levels of such programs. Since different pharmaceutical industry enterprises generate different types of waste, this creates a challenge in the form of a lack of rules and guidelines regarding the management of pharmaceutical waste, which in turn makes it difficult to recycle them. Pharmaceutical waste varies significantly in its type, hazard, and location of origin, and their classification is shown in the Figure 2.

Figure 2

Pharmaceutical industry waste classification



Source: adopted by author, based on Pharmaceutical industry waste classification. Sagaidak-Nikituk, (N. d.).

Pharmacy waste recycling is a complicated and understudied subject. Usually, pharmacies do not have their own waste recycling infrastructure and use the services of specialized companies. The organization of the waste recycling process differs in each pharmacy and depends on its size, specificity, form of ownership, and presence or absence of production.

Thus, in retail pharmacies, pharmaceutical waste is usually expired medications that are stored in the quarantine zone and, after appropriate registration for recycling or disposal, given to contractor companies with a license to provide these services. In large pharmacy chains, this process is centralized and occurs according to schedule. While in small independent pharmacies and pharmacies in the periphery, recycling occurs as pharmaceutical waste accumulates. This also

includes online pharmacies, which are often part of large pharmaceutical stores chains, that specialize in online trading.

Pharmacies in hospitals and other medical institutions can dispose of and recycle pharmaceutical waste along with medical waste. In some cases, pharmacies in a hospital belong to third parties and are not part of the hospital structure, and therefore all processes related to processing and disposal are regulated by separate agreements.

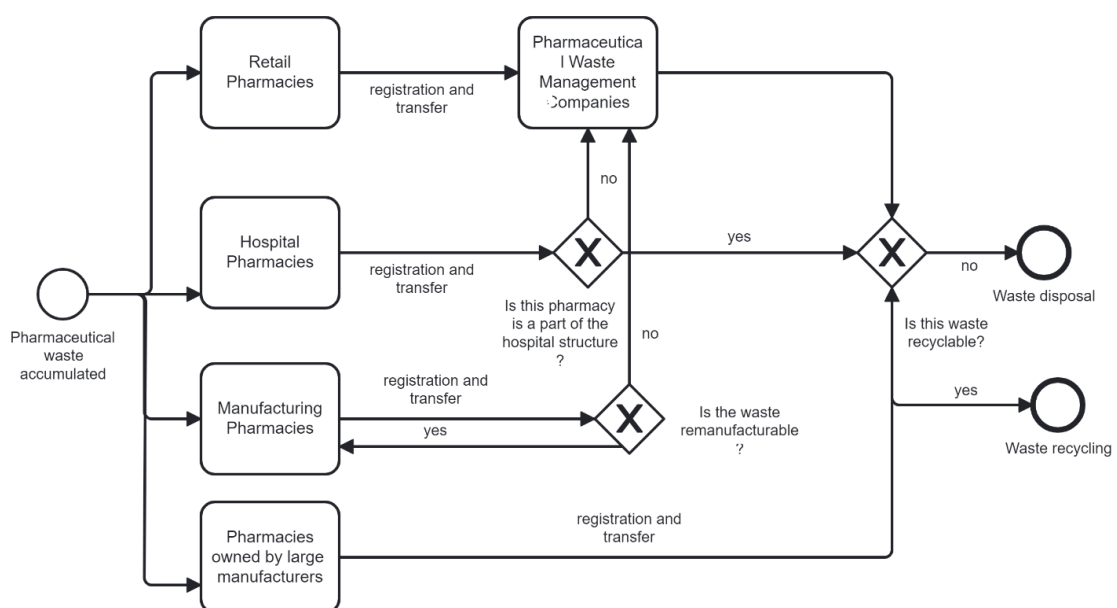
Manufacturing pharmacies, in addition to expired or damaged medicines, generate a significant amount of waste during the production of drugs from raw materials as well as parts of tools and equipment. Often, such waste is simply disposed of due to the high cost or impossibility of recycling. However, such pharmacies receive a significant amount of secondary packaging made from cardboard and glass, which can be used in the remanufacturing process.

Large pharmaceutical manufacturers that have their own pharmacies can use existing recycling infrastructure in their production facilities. In such cases, as a rule, the company is its own supplier.

The algorithm for recycling pharmaceutical waste is a rather complicated process that may differ in each individual pharmacy and depends on a large number of different factors. This algorithm can be schematically depicted in the form of a business process model, as shown in the Figure 3.

Figure 3

The algorithm for recycling pharmaceutical waste by pharmacies



Source: created by the author

Recycling or waste disposal processes are an important part of pharmacy operations. The requirement of such practice is a prerequisite for obtaining a pharmaceutical license. But, since the process of processing and disposal requires additional costs and, in some cases, may exceed the cost of the waste itself, pharmacies try to use it as little as possible or not use it at all. For this purpose, when the product approaches the expiration date, the pharmacy provides additional discounts and also motivates employees to offer these products as a priority.

The same problem applies to suppliers. Unlike pharmacies, suppliers usually have their own waste recycling infrastructure. This infrastructure could potentially be used to help pharmacies address the problem of pharmaceutical waste accumulation; however, cases of such cooperation are quite rare and mostly relate to pharmacies with special terms in the contract or when the pharmacy and the supplier have common owners.

Based on these data, we can conclude that although the government is aware of the importance of this problem, the pace of infrastructure development to solve it is still low. The level of waste recycling often depends on the availability of recycling infrastructure at the company level. In the absence of government funding enterprises in the pharmaceutical industry can only rely on their own strength or on potential investors. The main motivation for the voluntary development of return and recycling programs is often the need to meet high standards in order to be present on the markets of European Union countries. The management of pharmaceutical companies understands the importance of these programs in their development strategy and the benefits to their public image. However, due to the significant costs of implementing such programs, pharmaceutical companies can sometimes overestimate their level of development using greenwashing. The problem of greenwashing is described in more detail in Annex 3.

1.2. Customer loyalty and satisfaction in the pharmaceutical industry

1.2.1. Pharmaceutical supply chain

Pharmaceutical supply chain begins with manufacturing stage. This process involves transformation of raw materials and active pharmaceutical ingredients (APIs) into ready product.

The next stage will be product distribution. This process can be performed in various ways. Usually pharmaceutical manufacturer company have a sales department that is responsible for distributing products to customers. The distribution of medicines to pharmaceutical wholesalers or to different kinds of pharmacies, such as hospital pharmacies, online pharmacies, specialized pharmacies, and retail chains, is the responsibility of the sales department of pharmaceutical

manufacturers (Kaylor, 2023). The benefit of distribution straight from the manufacturer comes in form of lower purchase price and saving time. On the other side, purchases directly from the manufacturer usually require ordering large quantities, and costs associated with logistics, paperwork, qualitative and quantitative analysis are paid by the buyer. This style of distribution certainly benefits a big customer like pharmaceuticals networks, hospitals, and government organizations.

However, the most common way is to buy products through wholesalers. Wholesalers gives its customer a benefit of purchasing products according to demand and financial requirements. This does not create a stockpiling of goods, since pharmaceutical products have precisely designated expiration dates, which can lead to financial losses. Another important factor is that wholesaler take care about logistics (including supplier of products with special transportation requirements), documentation and performing qualitative and quotative controls. The list of advantages also includes export, since the registration and import of pharmaceutical products is strictly regulated by the government, which makes the wholesaler sometimes the only channel for importing foreign medicines into the country.

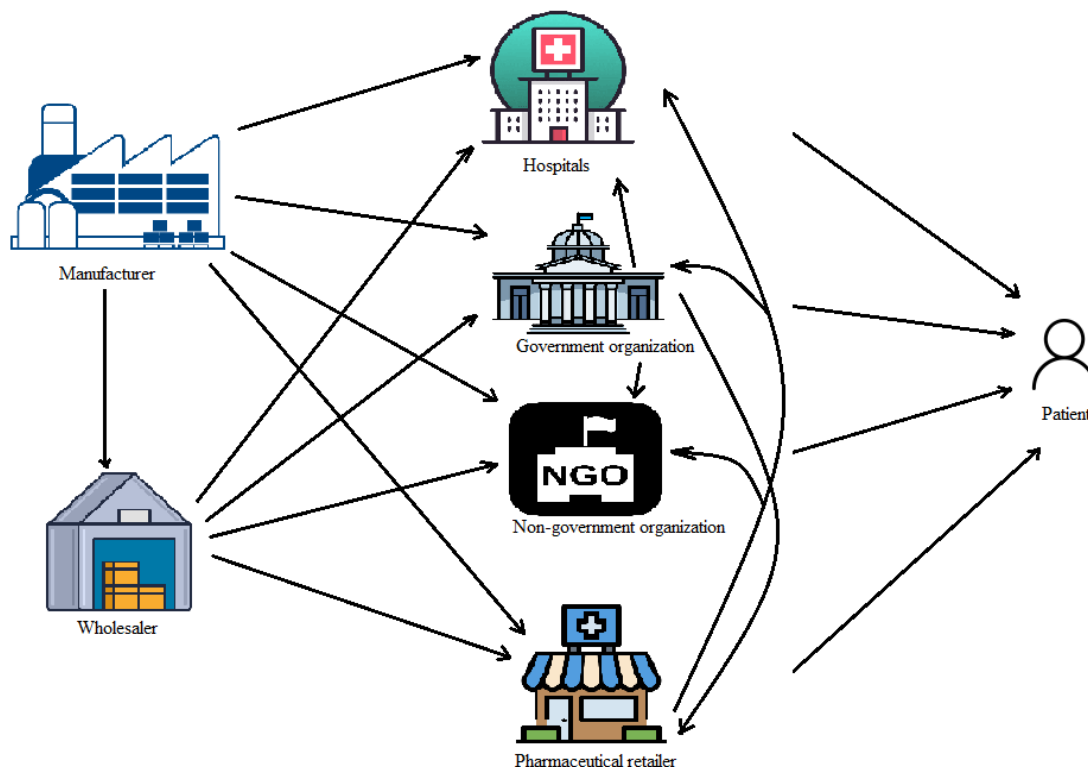
After purchasing, the, the product goes to the next link in the supply chain, such as pharmacies, hospitals or government agencies. Each part of the chain then provides the products to the final recipient - the patient. For hospitals, these are doctors who use drugs in the treatment process; for pharmacies, these are clients who buy drugs for their own treatment; for government organizations, these are individuals who receive them through various social programs.

It is also worth mentioning that different parts of the supply chain can also exchange goods with each other. As an example: government organizations often provide pharmacies and hospitals with vital drugs from their stocks at a fixed price, in case of increased demand. Another example: hospitals often buy small quantities of drugs from pharmacy chains, since such a purchase allows them to receive the drugs immediately. The same applies to non-governmental organizations, such as charitable foundations; they purchase drugs both from pharmacies and wholesalers, and receive them through various government programs.

In general, the pharmaceutical supply chain is quite extensive and complex. In each individual case, this chain will be different, recent experience with supplies during the COVID-19 pandemic shows that even supply chains that have existed for years can change dramatically under the influence of circumstances. The pharmaceutical supply chain is shown schematically in the Figure 4.

Figure 4

Pharmaceutical supply chain



Source: created by the author

The pandemic of COVID-19 incredibly influenced all aspects of our daily lives and the processes that surround us, supply pharmaceutical chains are no exception.

One of the most painful blows has been taken by the pharmaceutical supply chain, as 40% of all active pharmaceutical ingredients are manufactured in China, in contrast, India, the third largest COVID-19 essentials supplier, more than 70% depends on raw materials from China, which led to severe shortages of raw materials for production (Tien, Nguyen, 2022).

Pharmaceutical companies and supply chain participants have had to reimagine the approach to supply chain management. to ensure just-in-time deliveries and, at the same time, not endanger the lives of employees and customers. Despite the incredible damage to the economy, logistics, and the entire pharmaceutical supply chain, some positives can be identified. Firstly, due to a decrease in transport activity, in a short period of time, the ecological situation has improved in many parts of the planet. Secondly, restrictions on contact between people, introduced to counter the spread of the virus, showed the potential and further prospects for developing of digital technologies. Many companies have begun to send employees to work remotely actively, and educational institutions have switched to online learning, which has modernized the learning

process. Even such important events as The United Nations General Assembly held an online meeting for the first time in its history exactly during the pandemic (Tien, Nguyen, 2022).

The pandemic left us with a lot of valuable lessons and left us with many questions. Pre-pandemic supply chains were heavily globalized and oriented on cost efficiency, speed, and quality. Nevertheless, lockdowns between countries and quarantine of employees show that disruption of just one of the of the supply chain links led to severe consequences for the whole system.

Pharmaceutical supplies will become even more difficult in February 2022. The outbreak of war amid ongoing COVID-19 restrictions has led to a significant increase in pressure on pharmaceutical supply chains. Many companies had to repeatedly change logistics routes that had already been changed once during the pandemic.

Increased demand for food and medical products against the backdrop of the closure of Ukrainian airspace and the blocking of shipping led to an increased role of motor transport in the supply chain (Melnyk & Negoda, 2022). This trend has led to a significant increase in the price of logistics services. In addition to increased demand and higher fuel prices, companies included the cost of insurance against risks associated with military operations.

Such circumstances led to a significant delay or complete absence of logistics services in some regions of Ukraine. Although after 2 years, for the most part, the situation has stabilized, in some regions the situation remains tense or continues to deteriorate.

1.2.2 Supplier-customer relationships

The pharmaceutical industry is known by its complexity, which arises by strict regulations, and engagement with multiple stakeholders on different levels.

First and foremost, it is necessary to determine who the pharmaceutical supplier is and who its customers are. Pharmaceutical supplier can be divided in two types. The first one is the suppliers for pharmaceutical manufacturing. Including, suppliers of raw material, packaging material and equipment, as well as, different service providers. Second type is called pharmaceutical wholesalers. A wholesaler is acts as an important intermediary between manufacturer and distributor. This link of supply chain sourced as an access to wide range of products from multiple manufacturers. And also responsible for imports of products of foreign origin, to the pharmaceutical market (Lee et al., 2020). As buying both from manufacturer and wholesaler have their own advantages and disadvantages it is needed to highlight them. Such comparison is presented in the Table 4.

Table 4

Comparison of buying pharmaceutical products from wholesalers and manufacturers

Criterion	Wholesalers	Manufacturers
Price	The price is higher due to the inclusion of a markup	Direct supply is cheaper due to markup elimination
Variety and range	Diverse range of products from various manufacturer.	Limited set of products from one manufacturer
Expenses for laboratory control	Included in the final cost of the product	Not included in the final cost of the product
Delivery speed	Fast delivery speed	Moderate delivery speed
Quantity of order	Any order quantity	Only large quantities of products
Products availability	Directly depend on the manufacturer	The constant availability of products from this manufacturer
Availability of discount programs	Presence of discount programs	Presence of discount programs
Level of cooperation with the client	Significant level	Minor level
Provision of regulatory documentation	Provision of an advanced package of documentation, including results of laboratory control	Provision of a minimum package of documentation

Source: created by the author

1.2.3 Analysis of the existing research on customer loyalty and satisfaction in the pharmaceutical industry

A brand-new research in China found, that products recycling program helps company's keep their customer retention by improving brand image. Moreover, this recycling program in combination with product buyback program reduce risk of switching the brand from customer side (Hu et al., 2022). Another research article from Poland present return programs as a good way to improve customer satisfaction and competitive tool. At the same time author admit that the lack of knowledge and awareness about benefits can lead to fail of successful implementation (Lysenko-Ryba, 2017).

Although researchers are notice significant positive effect on customer satisfaction, it still lacks direct comparison with the company that do not implement such programs. The real impact of such practices in a direct comparison may not be as significant, since clients often prioritize economic advantages and other factors. It is especially important to consider the impact of the COVID-19 pandemic on the relationship between pharmaceutical retail and supplier, since during this period the most important factors were supply stability and assortment.

Return and recycling processes are big problems for pharmaceutical retail, because this process are strictly regulated and usually takes a lot of time and financial effort. Implementing these programs combined with increasing positive influence on brand image can be a huge benefit to supplier on attract future customers, or increase loyalty from already existing one.

Meanwhile recent research in pharmaceutical industry shows significant positive influence on customer satisfaction by brand image. While factors like product quality, service quality and price are not show enough significance for customer satisfaction (Kesumahati & Jurnal, 2020).

As an alternative, another research points out that integrated social media activities positively affect business–client relationships and help manage the communication between all of supply chain (Awad et al., 2022). This allows us to conclude that return and recycling programs are often used by the companies to promote their brand and public image both online and in person.

Loyalty is another important factor in successful cooperation. Results of specific research identify vast range of products, competent and polite service and low prices key factors, that built loyalty to the pharmacy (Nikolova et al., 2017). Moreover, the results of a study of customer loyalty to sustainability indicate a significant positive social, economic and ecological effect on entrepreneurship through the customer involvement (Al-Haddad et al., 2022).

The pharmaceutical business has a huge competition between suppliers. To get some competitive advantage, these companies often offer bonuses for cooperation to pharmacy, as well as, some benefits for be exclusive supplier. From the other side pharmaceutical retail very dependent on suppliers, as the both online and stores retails are also competing with each other's. It is necessary to study in more detail whether the factor of implementation of return and recycling programs can become decisive in the decision to change the supplier, partially influence or have no effect on the decision.

Taking into account the specifics of the pharmaceutical industry, it is important to take a responsible approach to choosing a supplier. The research article analyzed a number of criteria for evaluating a supplier. The most significant factors were: product quality, price, compliance with regulatory documents (Forghani et al., 2018). Return and recycling programs may not be the main factors that will decide the prospect of further cooperation. However, since most pharmacies use the services of several suppliers at once, it is necessary to find out what influence this factor has when choosing between suppliers with similar parameters.

Ignoring trends and demands from customers can lead to loss of the customer, as customer can easily switch to different supplier. Some suppliers specializing in certain types of pharmaceutical products sometimes turn out to be monopolists in the market, but the use of return and recycling programs can bring in customers who were not previously even interested in working with this supplier.

The analysis of the publication showed a wide range of studies on customer loyalty and satisfaction. However, when these studies are conducted in the pharmaceutical industry, they are usually general in nature and do not examine the relationship between pharmacies and suppliers.

Separately, from the literature review, we know that there are a large number of studies on return and recycling programs. Which in turn is not focused on the impact of these programs on customer loyalty and satisfaction. Here we can add a little knowledge of the interaction between pharmacies and pharmaceutical suppliers.

Despite the abundance of publications, all these factors do not make it possible to comprehensively answer the question about the impact of return and recycling programs on the loyalty of pharmacies to their suppliers.

2. METHODOLOGY FOR RESEARCHING THE IMPACT OF RETURN AND RECYCLING PROGRAMS ON PHARMACIES' LOYALTY TOWARDS THEIR SUPPLIERS

2.1. Aim, model, and hypotheses of the research

The aim of this research is to investigate the impact of return and recycling programs on pharmacy loyalty towards their suppliers. More specifically, the research seeks to explore the impact of return and recycling programs on pharmacies behavior regarding their current work and potential cooperation with pharmaceutical suppliers on the territory of Ukraine.

2.1.1. Research design

After analyzing scientific literature and research papers on the topic of return and recycling programs, a number of research gaps were identified. These gaps can be summarized as limited geography, lack of industry-specific studies, and constant change of data under the influence of external and internal factors. Based on this data, the following hypotheses have been formulated:

H1: While working with pharmaceutical suppliers that implement return and recycling programs, pharmacies exhibit higher levels of loyalty compared to pharmacies whose suppliers do not implement them.

H2: Pharmacies engagement in a supplier's efforts in return and recycling programs is positively associated with increased loyalty.

H3: Pharmacies which are currently working with suppliers that don't provide return and recycling programs can switch to suppliers that use such programs.

H4: When deciding on future cooperation, the pharmacy will prefer to work with a supplier that uses return and recycling programs, instead of a supplier that doesn't use it.

H5: Pharmacy that currently work with suppliers, identify the level of satisfaction as the main factor of the loyalty to the suppliers.

On the basis of these hypotheses, the following research questions were developed:

Research Question 1: How significant is the difference in loyalty levels between pharmacies whose suppliers implement return and recycling programs compared to pharmacies whose suppliers do not implement such programs?

Research Question 2: To what extent does pharmacy engagement in supplier return and recycling program efforts affect pharmacy loyalty to suppliers?

Research Question 3: How likely that the pharmacies whose currently working with suppliers that do not provide return and recycling programs will switch to suppliers that offer such programs?

Research Question 4: How much influence does preference to work with suppliers that implement return and recycling programs in comparison to suppliers that do not offer such programs have on decisions about future cooperation?

Research Question 5: How strong is the correlation between pharmacies' satisfaction levels with their current suppliers and their levels of loyalty to them?

To conduct research, it will also be important to indicate what dependent and independent variables may affect this research. This information is shown in Table 5.

Table 5

Dependent and independent variables of the research

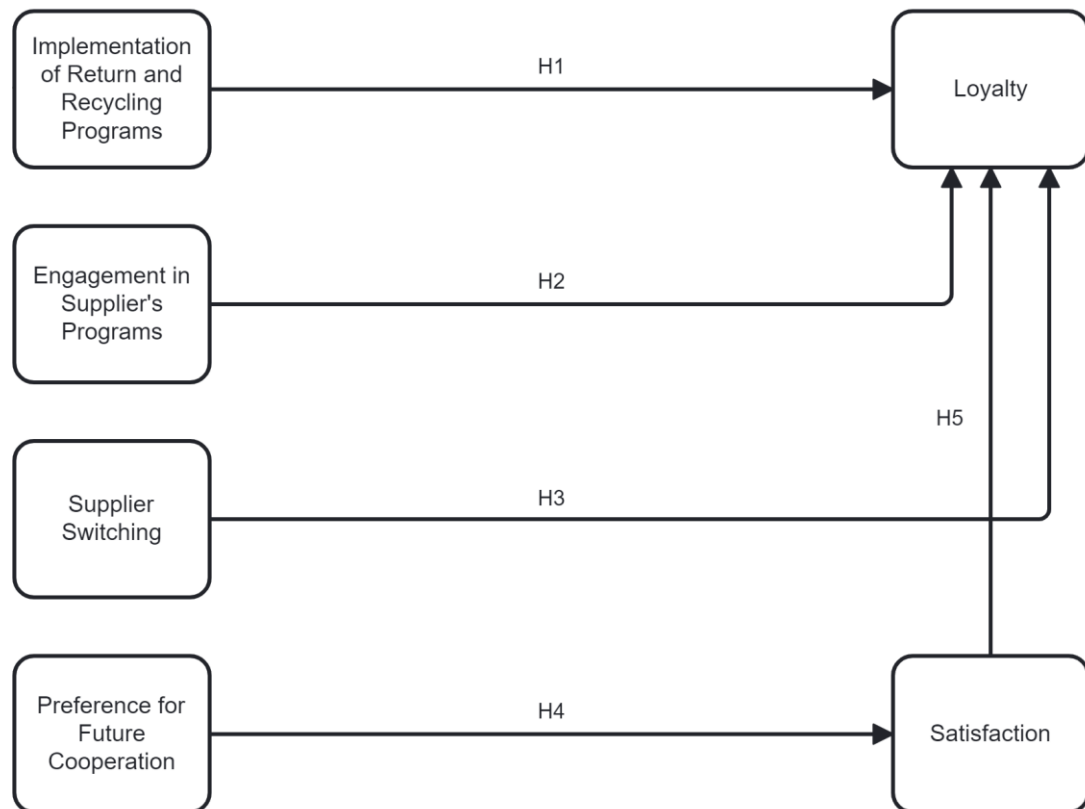
Dependent Variable	Measurement
Pharmacy loyalty is influenced by the implementation of return and recycling programs.	A balanced Likert scale
Likelihood of recommending the current pharmaceutical supplier based on their implementation of return and recycling programs	
Pharmacy's engagement level with the supplier's return and recycling programs	
Belief in the positive influence of the pharmacy's engagement with the supplier's return and recycling programs on loyalty	
Willingness of the pharmacy to consider switching to a supplier offering return and recycling programs	
The importance of return and recycling programs in choosing between pharmaceutical suppliers	
Prioritization of collaborating with a supplier that implements return and recycling programs in future agreements	
Dependence of decision-making on the supplier's implementation of return and recycling programs for future cooperation	
Pharmacy's satisfaction with the supplier and its influence on loyalty	
Satisfaction of the pharmacy with the current supplier's overall services, including return and recycling programs	
Independent	
Age	Numeric scale or categories
Gender	Response option
City of residence	Open-ended question
Job position	Response option
Experience	Numeric scale or categories

Source: created by author

After a literature review and developed hypothesis, this research introduces the conceptual model. Figure 5 shows the proposed model of this research.

Figure 5

Research proposed model



Source: created by author

2.2. Research instrument

In this research, data will be collected from the primary source. The survey will be collected in the form of the questionnaire. The questionnaire consisted of three parts. First part is gathering general information about the respondent. This section includes five questions that will allow us to collect demographic data: age, gender, city of residence, job position, and experience in the pharmaceutical industry. All of these questions, except the one about the city of residence, are closed-ended questions. The second part consists of 10 questions, two questions for every of the five hypotheses. All of the questions in this part are closed-ended questions with a balanced Likert scale. In the third chapter of the questionnaire, respondents can leave any additional information or feedback and find the contact information of the research author. All questions, with the exception of the feedback field, are required to be filled out; the questionnaire will be sent after all questions have been filled out.

The survey takes place online, in a digital form. The language on the survey is Ukrainian language. All the participants received the same questionnaire. The survey is conducted via Google

Forms. Respondents can access the questionnaire via a link or QR code. An example of this questionnaire is provided in Annex 1, and its English translation is provided in Annex 2.

2.3. Respondents selection process and sample of the study

In this research, the customers of pharmaceutical suppliers, which are pharmacies, will be the respondents. This choice of respondents will allow to properly evaluate the impact of return and recycling programs pharmaceutical by suppliers to the pharmacy's satisfaction and loyalty. By filling in information about location, working experience and job position, respondents will form a representative survey.

2.3.1. Sample of the study

To calculate the sample size needed for a representative survey, formula for sample size calculation is being used:

$$\text{Sample size } (n) = \frac{N \times Z^2 \times p \times (1 - p)}{(N - 1) \times E^2 + (Z^2 \times p \times (1 - p))} =$$

Where:

Z stands for Z-score (confidence level)

p stands for Estimated proportion of the population with the characteristic of interest

E stands for Margin of error

N stands for Total population size

For this research, data set as:

Confidence level = 95%, (Z = 1.96 for 95% confidence level)

Margin of error (E) = 5%

Estimated proportion (p) = 50%

Total population size (N) = 1200

$$\text{Sample size } (n) = \frac{1200 \times 1,96^2 \times 0,5 \times (1 - 0,5)}{(1200 - 1) \times 0,05^2 + (1,96^2 \times 0,5 \times (1 - 0,5))} = 291,184$$

n= 291,184 rounded up to 292

By performing a calculation, at least sample of 292 will be needed to collect information for the representative survey.

2.3.2. Reliability test

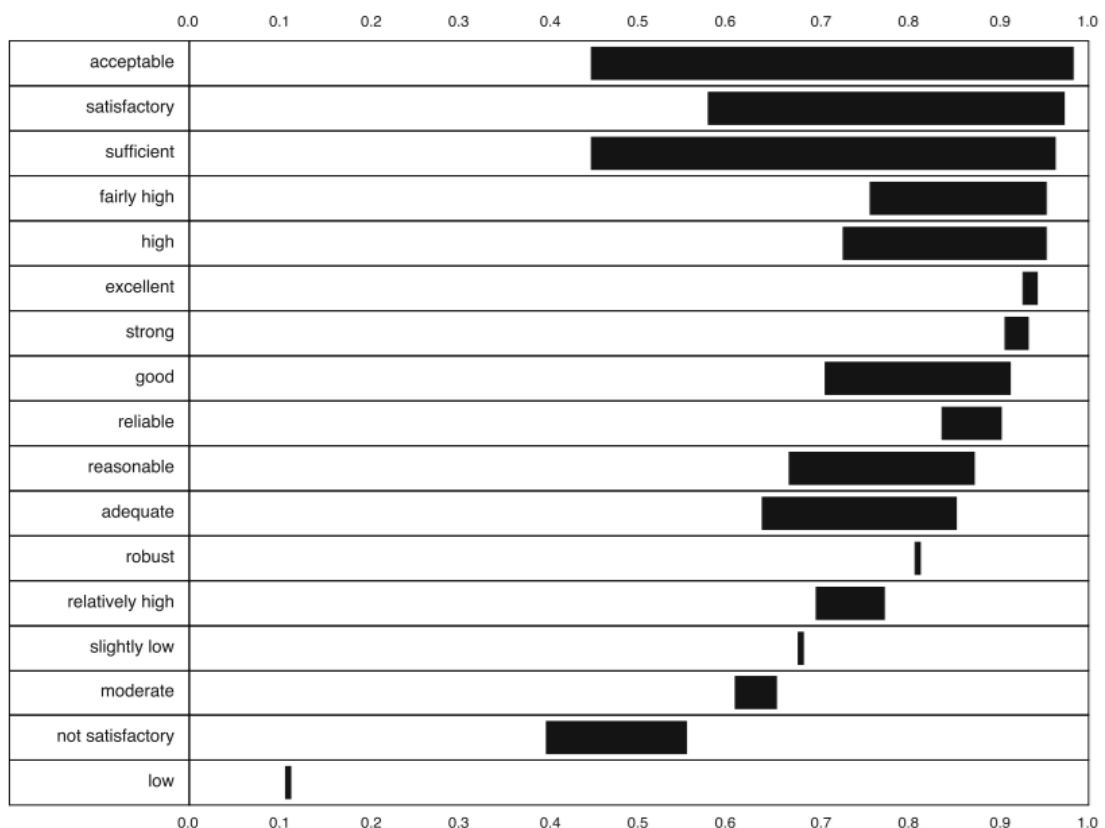
To make sure that survey questions are reliable, we need to conduct reliability tests. Through the test results, we can verify that the survey is reliable and that the conclusions that would be drawn from the survey responses are meaningful.

As the performed research is affecting the pharmaceutical industry, the application of the alpha test seems logical, as it has become typical practice in medical education systems when researchers measure multiple items of the concept or employed construct (Tavakol & Dennick, 2011).

The internal consistency or reliability between several objects, constructs, or concepts is measured by Cronbach's alpha. What this means is that it assesses the degree of reliability of a researcher's instrument or a questionnaire results, thus revealing the stability of the instruments (Bujang et al., 2018). In order to correctly interpret the results of our test, we need to match them with the list of qualitative descriptors of Cronbach's alpha from Figure 6.

Figure 6

Qualitative descriptors used for values/ranges of values of Cronbach's alpha reported in papers in leading science education journals



Source: Taber, K. S. (2017). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273-1296.

Hypothesis 1:

H1: While working with pharmaceutical suppliers that implement return and recycling programs, pharmacies exhibit higher levels of loyalty compared to pharmacies whose suppliers do not implement them.

Associated questions from the questionnaire:

1. To what degree do you agree that your pharmacy's loyalty to its suppliers is influenced by the implementation of return and recycling programs?

2. How likely are you to recommend your current pharmaceutical supplier to other pharmacies based on their implementation of return and recycling programs?

A total of 295 valid cases, or 100% of the total cases, were included in the analysis. Listwise deletion did not result in any cases being removed from the study, meaning that every case had full data on every variable used in the reliability analysis. Table 6 highlights the case processing summary for the inclusion of valid cases for the reliability analysis for Hypothesis 1.

Table 6

Inclusion of valid cases in reliability analysis for the Hypothesis 1

		N	%
Cases	Valid	295	100,0
	Excluded ^a	0	,0
	Total	295	100,0

a. Listwise deletion based on all variables in the procedure.

Source: created by the author based on a case processing summary for the inclusion of valid cases for the reliability analysis for H1.

By conducting Cronbach's alpha test in SPSS, the coefficient is reported as 0.808 for the scale. Test results for the Cronbach's alpha test results of H1 are highlighted in Table 7.

Table 7

Cronbach's alpha test results for Hypothesis 1

Cronbach`s Alpha	Cronbach`s Alpha Based on Standardized Items	N of Items
,808	,809	2

Source: created by the author based on Cronbach's alpha test results for Hypothesis 1

The result of Cronbach's alpha coefficient of 0.808 corresponds with the "reliable" descriptor from the Figure 6, suggesting that the items are measuring the same underlying construct consistently. The result gives confidence in the reliability of the scale for Hypothesis 1.

Hypothesis 2:

H2: Pharmacies engagement in a supplier's efforts in return and recycling programs is positively associated with increased loyalty.

Associated questions from the questionnaire:

3. How active is your pharmacy's engagement with your supplier's return and recycling programs?

4. Do you believe that your pharmacy's engagement with your supplier's return and recycling programs positively influences your loyalty towards them?

The analysis includes 295 valid cases in total, or 100% of the total cases. No cases were eliminated from the study as a consequence of listwise deletion, indicating that all cases had complete information on all variables included in the reliability analysis. The result of the case processing summary for the inclusion of valid cases is depicted in Table 8.

Table 8

Inclusion of valid cases in reliability analysis for the Hypothesis 2

		N	%
Cases	Valid	295	100,0
	Excluded ^a	0	,0
	Total	295	100,0

a. Listwise deletion based on all variables in the procedure.

Source: created by the author based on a case processing summary for the inclusion of valid cases for the reliability analysis for H2.

By the scale's coefficient, obtained by conducting the Cronbach's alpha test in SPSS, is reported as 0.761. In Table 9, the test results for H2 are emphasized.

Table 9

Cronbach's alpha test results for Hypothesis 2

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,761	,761	2

Source: created by the author based on Cronbach's alpha test results for Hypothesis 2

The result of Cronbach's alpha coefficient of 0.761 matches the "fairly high" result from Figure 6, indicating that items are measuring the same underlying construct consistently. The provided report shows moderate reliability of the scale for Hypothesis 2.

Hypothesis 3:

H3: Pharmacies which are currently working with suppliers that don't provide return and recycling programs can switch to suppliers that use such programs.

Associated questions from the questionnaire:

5. Would your pharmacy consider switching to a supplier that offers return and recycling programs if your current supplier does not provide them?

6. How important are return and recycling programs in process of choosing between different pharmaceutical suppliers you currently work with?

For this hypothesis, all 295 cases were recognized as valid and were included in the analysis. Any of them weren't deleted from the study, meaning that every case had full data on every variable used in the reliability analysis. The result of the case processing summary for the inclusion of valid cases is presented in Table 10.

Table 10

Inclusion of valid cases in reliability analysis for the Hypothesis 3

Cases	N		%
	Valid	295	100,0
Excluded ^a	0	,0	
Total	295	100,0	

a. Listwise deletion based on all variables in the procedure.

Source: created by the author based on a case processing summary for the inclusion of valid cases for the reliability analysis for H3.

The result for Cronbach's alpha test is reported as 0.846 by SPSS. Cronbach's alpha test results for Hypothesis 3 are given in Table 11.

Table 11

Cronbach's alpha test results for Hypothesis 3

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,846	,847	2

Source: created by the author based on Cronbach's alpha test results for Hypothesis 3

The result of Cronbach's alpha coefficient is 0.846. These results, when compared with the Figure 6, can be classified as "good" suggesting good internal consistency and reliability for the scale, suggesting that the items are measuring the same underlying construct consistently. This result provides confidence in the reliability of the scale for Hypothesis 3.

Hypothesis 4:

H4: When deciding on future cooperation, the pharmacy will prefer to work with a supplier that uses return and recycling programs, instead of a supplier that doesn't use it.

Associated questions from the questionnaire:

7. Would your pharmacy prioritize collaborating with a supplier that implements return and recycling programs over one that does not in future agreements?

8. How heavily your decision depends on supplier's implementation of return and recycling programs when considering future cooperation?

100% of the 295 total valid items were included in the analysis based on their validity. All of the results stay in the study, meaning that every single case includes full data on every variable used in the reliability analysis. The result of the case processing summary for the inclusion of valid cases is shown in Table 12.

Table 12

Inclusion of valid cases in reliability analysis for the Hypothesis 4

		N	%
Cases	Valid	295	100,0
	Excluded ^a	0	,0
	Total	295	100,0

a. Listwise deletion based on all variables in the procedure.

Source: created by the author based on a case processing summary for the inclusion of valid cases for the reliability analysis for H4.

By conducting Cronbach's alpha test in SPSS, the coefficient is 0.716 for the scale. Cronbach's alpha test H4 is portrayed in Table 13.

Table 13

Cronbach's alpha test results for Hypothesis 4

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,716	,719	2

Source: created by the author based on Cronbach's alpha test results for Hypothesis 4

When comparing this result with Figure 6, it was concluded that the results correlate to the "relatively good" measure, so we can assume that the items are measuring the same underlying construct consistently. The provided result suggests moderate reliability of the scale for Hypothesis 4.

Hypothesis 5:

H5: Pharmacy that currently work with suppliers, identify the level of satisfaction as the main factor of the loyalty to the suppliers.

Associated questions from the questionnaire:

9.To what extent does your pharmacy's satisfaction with your supplier influence your loyalty towards them?

10.How satisfied is your pharmacy with your current supplier's overall services, including return and recycling programs?

All 295 cases (100%) were recognized as valid cases and were included in the analysis. Not a single one of them is being removed from the study, giving confidence that every single case includes all necessary data to use in the reliability analysis. This result of the case processing summary for the inclusion of valid cases is presented in Table 14.

Table 14

Inclusion of valid cases in reliability analysis for the Hypothesis 5

Cases	N		%
	Valid	295	100,0
Excluded ^a	0	,0	
Total	295	100,0	

a. Listwise deletion based on all variables in the procedure.

Source: created by the author based on a case processing summary for the inclusion of valid cases for the reliability analysis for H5.

By running Cronbach's alpha test in SPSS, the scale's coefficient is reported as 0.787. Cronbach's alpha test results for H5 are featured in Table 15.

Table 15

Cronbach's alpha test results for Hypothesis 5

Cronbach`s Alpha	Cronbach`s Alpha Based on Standardized Items	N of Items
,787	,787	2

Source: created by the author based on Cronbach's alpha test results for Hypothesis 4

Comparing the Figure 6 again, the result obtained at 0.787 corresponds to the value “fairly high”, This indicates moderate internal consistency and reliability for the scale, which proves that the items are measuring the same underlying construct consistently. The provided conclusion shows moderate reliability of the scale for Hypothesis 5.

2.4. Limitations and difficulties of the research

Possible limitations that may affect the study is sample bias, self-reporting biases, and engaging in multiple surveys by a single individual. Some errors may arise due to the fact that a large number of respondents with diverse roles in the pharmaceutical industry, as well as the pharmaceutical industry itself, which includes a huge number of processes, participated. It is not possible to interview all participants and evaluate all processes. Research results can be clarified and expanded in future research.

The research was significantly affected by the Russo-Ukrainian War. The continuous Russian invasion of Ukraine, which began in 2022, has an enormous effect on each aspect of everyday life in the entire nation. The war is the main factor of limitation and difficulty in this research. As working conditions become more challenging, pharmaceutical professionals are paying less attention to recycling programs and shifting their focus to factors such as price and

reliability. However, economic instability and uncertainty in the country's future do not mean that companies give up on return and recycling programs completely, as, even in tough environments, Ukrainian companies adapt and find new opportunities as limitations of resources arouse interest among suppliers and pharmacies in return and recycling programs. Overall, this factor can influence respondents' opinions one way or another.

Another difficulty caused by the war is a limitation in demographics: it's impossible to conduct research on the whole territory of Ukraine, and mass migration or relocation of the Ukrainian population limits the pool of respondents.

3. IMPACT OF RETURN AND RECYCLING PROGRAMS ON PHARMACIES' LOYALTY TOWARDS THEIR SUPPLIERS

The survey research was conducted from April 5 to May 5, 2024. The research was conducted in the form of an online survey through the Google Forms. 295 pharmaceutical industry professionals from sixteen cities of Ukraine took part in it, as the result of such demographic research detailed information about respondents was obtained.

3.1. Demographics of the research

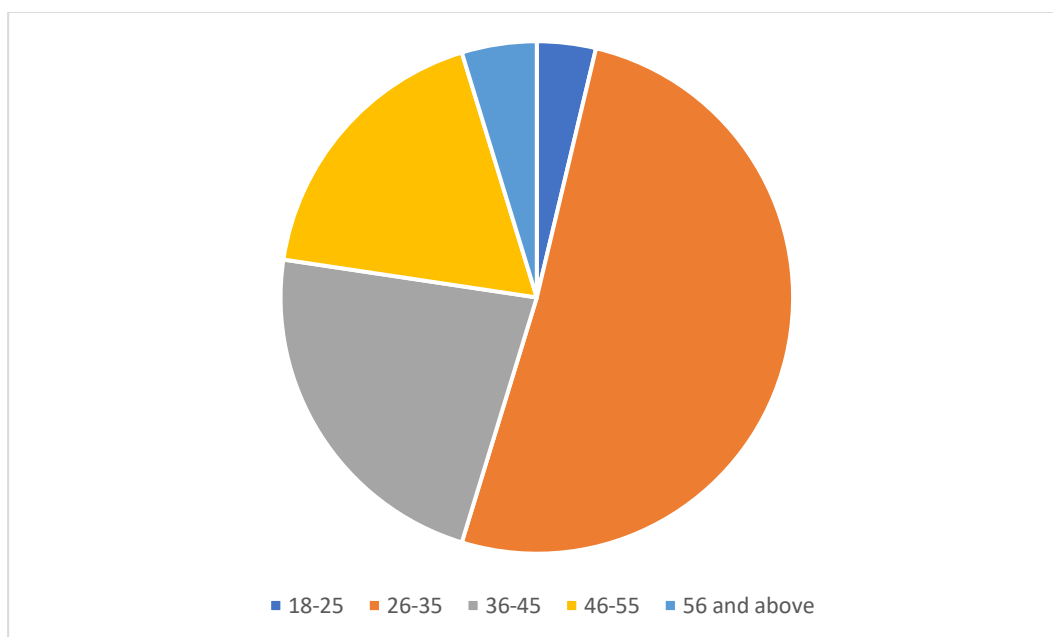
Comprehending the demographic composition of the participants is crucial for evaluating research outcomes and guaranteeing the applicability of findings. By dividing the sample of 295 respondents based on age, gender, area, professional background, and experience level, we hope to shed light on the many viewpoints that professionals in the field of pharmacy have on the subject of the research.

3.1.1. Age distribution

The survey respondents were split into five age categories, ensuring representation across a broad spectrum of ages. The distribution of participants across these categories is as follows: from 18 to 25 years: 11 cases; from 26 to 35 years: 151 cases; from 36 to 45 years: 67 cases; from 46 to 55 years: 53 cases; and from 56 years and older: 14 cases. The Figure 7 depicts the participant distribution as a diagram.

Figure 7

Distribution of survey respondents by age category



Source: created by the author based on survey results.

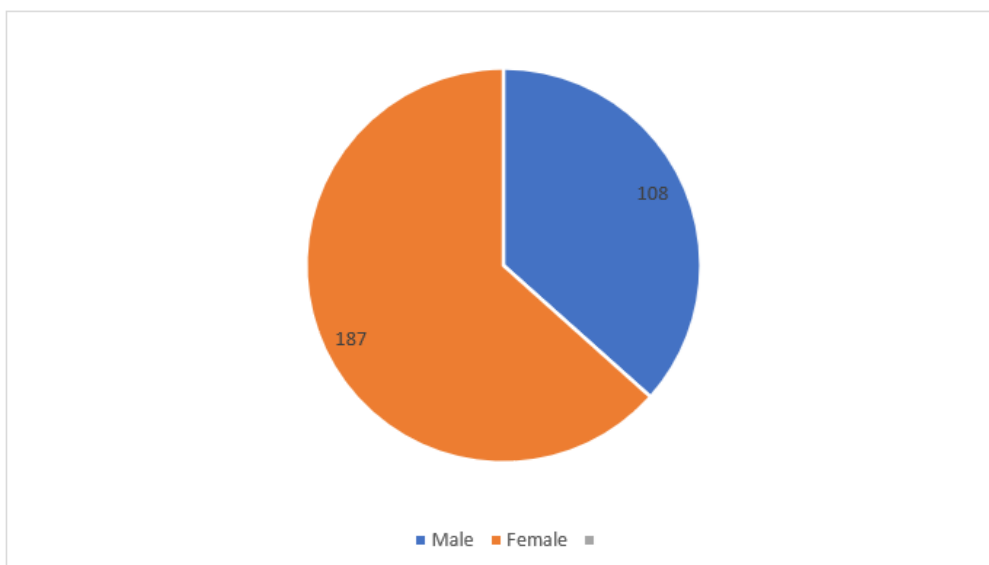
The demographics of the pharmaceutical sector are reflected in the age distribution of survey participants, with those ages 26 to 35 (51.2%) and 36 to 45 (22.7%) having a preponderance. There are only 18% of participants in the 46–55 age group, which is smaller than the previous two. The two groups that have the fewest participants are age groups from 18 to 25 and 56 and above, with 3.7% and 4.4%, respectively. A possible explanation for the lower representation of the age group from 18 to 25 is that these individuals are usually students of pharmaceutical institutions but do not always work in the pharmaceutical industry. The circumstances are different for the age group 56 and older, since retirement age is getting closer and therefore, they are working less actively.

3.1.2. Gender representation

In order to guarantee representation from both genders, survey participants were split into two groups according to their gender. The distribution of participants across these gender categories is as follows: male population: 108 cases, which corresponds to 36.6%, and female population: 187, which corresponds to 63.4%. The gender composition, which favors female respondents, can be explained by the specifics of the industry. Historically, pharmaceutical industry gender representation was not evenly balanced, and now the balance shifting even more towards women as the ongoing war in Ukraine has forced men to quit their jobs and join the armed forces. As the pharmaceutical industry has a higher proportion of female employees, this could explain the higher number of female respondents in the survey. A participatory distribution based on gender is depicted in Figure 8.

Figure 8

Gender distribution of survey respondents



Source: created by the author based on survey results.

3.1.3. Regional distribution of survey respondents

The number of respondents is expected to be higher in cities with larger populations and more developed pharmaceutical infrastructure, such as Kyiv (134 respondents, or 45.4%), Kharkiv (41 respondents, or 13.9%), and Odesa (25 respondents, or 8.5%). The explanation for this is that, given its central location and abundance of workplaces, Kyiv—the nation's capital and headquarters to numerous pharmaceutical businesses and organizations—may bring in a higher number of responders from the sector. Likewise, Kharkiv, which is frequently regarded as a major industrial and academic hub, can possibly have a sizable population of pharmacists. A well-established network of manufacturing and retail pharmacies is present in Odesa.

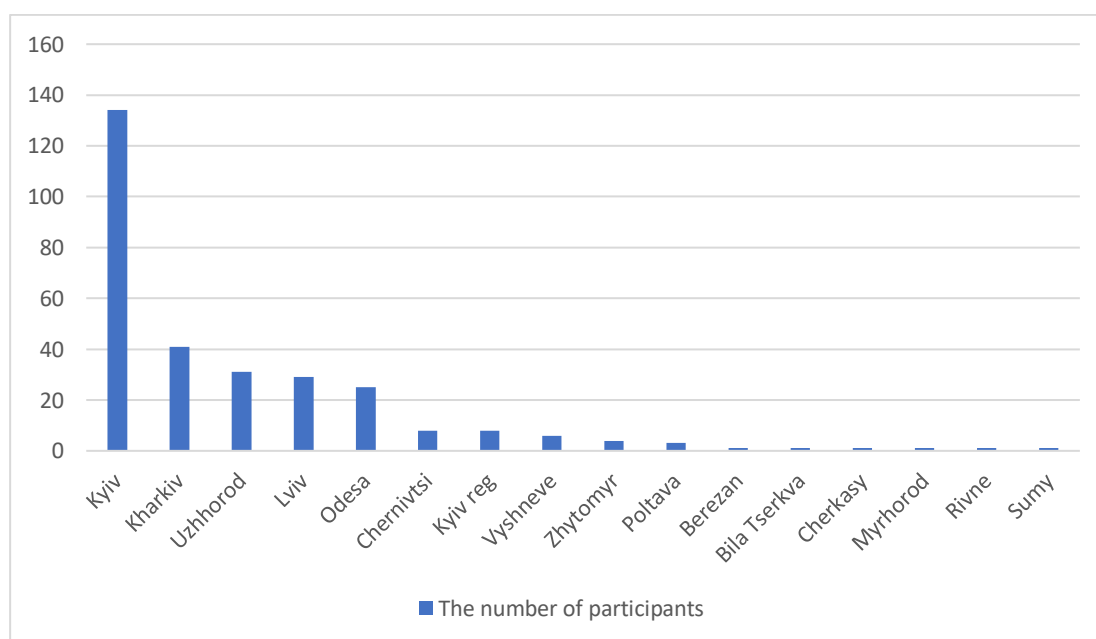
The number of participants from cities like Lviv (29 respondents, or 9.8%); Uzhhorod (31 respondents, or 10.5%); and Chernivtsi (8 respondents, or 2.7%) is connected with the increasing activity of the pharmaceutical industry in the western regions of Ukraine.

This trend arose due to the decisions of pharmaceutical companies to move their production to the west of the country due to the ongoing war, which mainly affects the east and south. The Kyiv region (8 respondents, or 2.7%) as well as cities such as Vyshneve (6 respondents, or 2.0%), Berezan (1 respondent, or 0.3%), and Bila Tserkva (1 respondent, or 0.3%) are a continuation of the pharmaceutical infrastructure of Kyiv.

A summary of the city of residence of the respondents is highlighted in the Figure 9.

Figure 9

Distribution of survey respondents by city of residence



Source: created by the author based on survey results.

3.1.4. Survey distribution among industry professionals

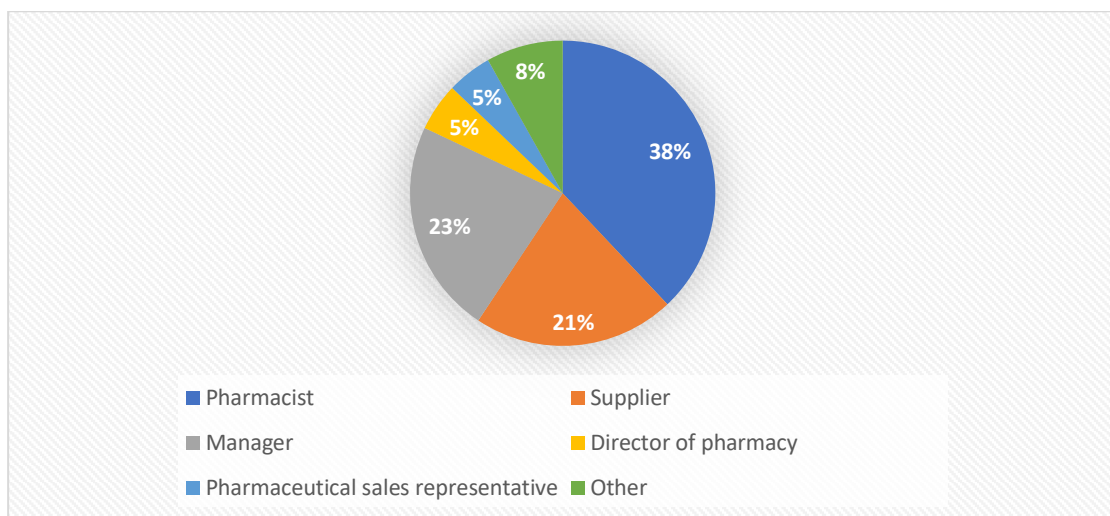
Multiple viewpoints exist within the pharmaceutical business about the significance of implementing return and recycling initiatives into supplier selection. By analyzing participant responses from diverse professional backgrounds, we can identify factors that affect their choices and motivations behind pharmacies' loyalty to suppliers based on their implementation of return and recycling programs.

The survey attracted responses from a diverse range of professionals, including pharmacists, suppliers, managers, directors of pharmacies, pharmaceutical sales representatives, and others.

The most represented group are pharmacists, with 112 cases, or 38%. which is logical, as pharmacists are the most common profession in the pharmaceutical industry. Supplier and manager are represented by 63 cases (21.4%) and 67 cases (22.7%), respectively. It is important to note that in these two positions, the person does not always have a pharmaceutical background, which may be reflected in their experience in the pharmaceutical industry. 15 respondents, or 5.1%, indicated their position as director of pharmacy; another 14 respondents, or 4.7%, were pharmaceutical sales representatives. Both positions are typical for the pharmaceutical industry and are one of the possible career paths for a pharmacist. The remaining positions less typical for the pharmaceutical industry were implied by the option "Other" and amount to 8.1%, or 24 cases. The Figure 10 depicts the job position distribution as a diagram.

Figure 10

Job position distribution of survey respondents in the pharmaceutical industry



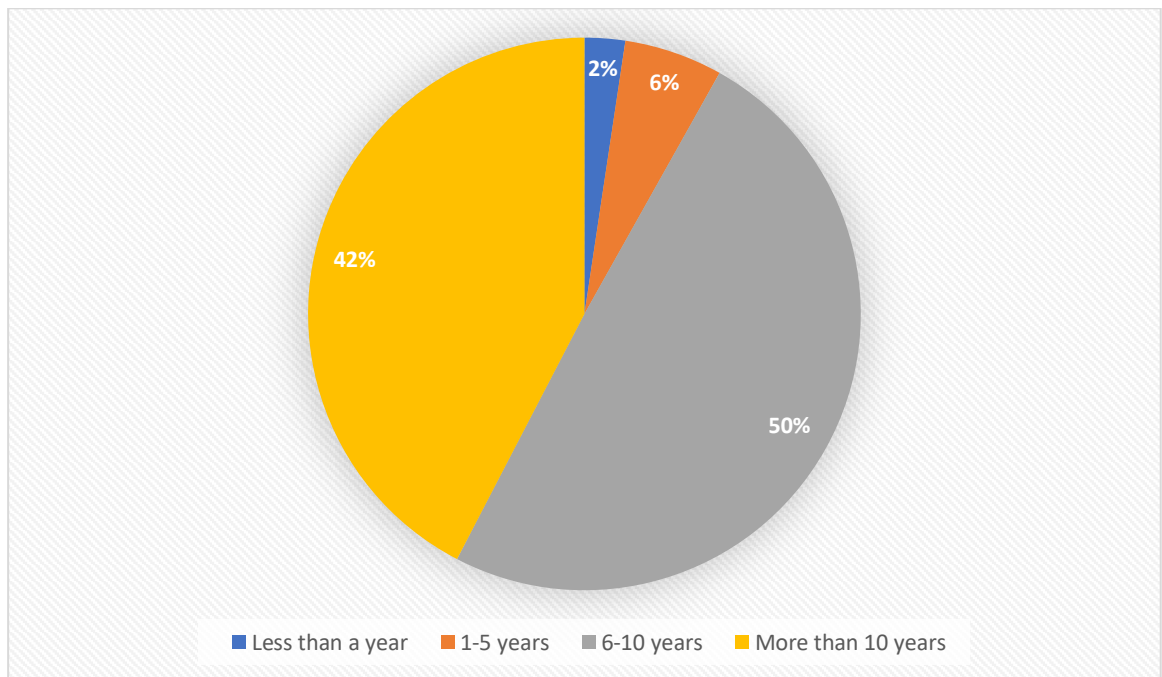
Source: created by the author based on survey results.

3.1.5. Experience levels of survey respondents

Collecting responses across different experience levels can help gain an understanding of how experience affects participants points of view on the research topic. Usually age corresponds with experience levels; however, some job positions, like managers, can have a lot of work experience across different industries, excluding pharmaceuticals, where the respondent just starts working. Another exception is that sometimes pharmacists switch to different job positions outside the pharmaceutical industry in search of better conditions but eventually come back. In general, respondents have sufficient work experience. The majority have experience from 6 to 10 years—146 cases (49.5%)—or 10 or more years—125 (42.4%). More rare were cases when the experience ranged from 1 to 5 years—17 cases (5.8%)—or less than a year—7 cases (2.4%). The Figure 11 depicts the job experience distribution as a diagram.

Figure 11

Distribution of survey respondents by job experience levels



Source: created by the author based on survey results.

3.2. Analyzing factors influencing pharmacy-supplier dynamics

3.2.1. Impact of return and recycling programs on pharmacy loyalty

To answer Research Question 1, we need to compare two independent groups: pharmacies with and without return/recycling programs. The independent sample t-test will be the most appropriate method for this analysis since it can establish whether the difference in means between the two groups is statistically significant.

Initially, our test determines if the variations between the two groups—pharmacies with and without return and recycling programs—are equal. Since the p-value ($p = 0.194$) is higher than 0.05, the assumption of equal variances is confirmed.

The mean loyalty levels between the two groups are compared with the t-test. The data points to a statistically significant difference in loyalty levels between the two groups, proven by the two-tailed p-value of 0.028 and the t-value of -2.350 with 22 degrees of freedom. The data with equal variances not assumed suggests a statistically significant difference in loyalty levels between the two groups as well, as indicated by the t-value of -3.684 with 9.155 degrees of freedom and the p-value of 0.005 (two-tailed). The results of the independent sample t-test are depicted in Table 16.

Table 16

Independent sample t-test results for the mean loyalty level

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
To what degrees do you..	Equal variances assumed	1,793	,194	-2,350	22	0,14	0,028	-1,25000	,53193	-2,35317	-,14683
	Equal variances not assumed			-3,684	9,155	0,002	0,005	-1,25000	,33931	-2,01560	-,48440

Source: created by the author based on independent sample t-test results

Furthermore, the effect sizes (Cohen's d, Hedges' adjustment, and Glass's delta) all point to a sizable effect, emphasizing the practical importance of the two groups' differing levels of loyalty. The results of the effect sizes are highlighted in Table 17.

Table 17

Effect sizes of loyalty levels

To what degrees do you..	Standardizer ^a	Point Estimate	95% Confidence Interval	
			Lower	Upper
Cohen's d	,97118	-1,287	-2,412	-,136
Hedge's correction	1,00593	-1,243	-2,329	-,131
Glass's delta	1,02598	-1,218	-2,345	-,064

- a. The denominator used in estimating the effect sizes.
 Cohen's d uses the pooled standard deviation.
 Hedge's correction uses the pooled standard deviation, plus a correction factor.
 Glass's delta uses the sample standard deviation of the control group.

Source: created by the author based on effect size results

The results of the analysis indicate a mean loyalty level of 3.00 for pharmacies whose suppliers implement return and recycling programs and a mean loyalty level of 1.75 for pharmacies whose suppliers do not implement return and recycling programs. The results of the analysis are highlighted in Table 18.

Table 18

Mean loyalty levels of pharmacies with and without return and recycling programs

To what degrees do you..	How likely are you...	N	Mean	Std. Deviation	Std. Error
Very Unlikely	Very Unlikely	4	1,7500	,50000	,25000
	Unlikely	20	3,0000	1,02598	,22942

Source: created by the author based on research results

So, answering Research Question 1, the mean loyalty level for pharmacies whose suppliers implement return and recycling programs is 3.00. in comparison to pharmacies whose suppliers do not implement such programs, whose mean loyalty level is 1.75.

These results lead us to the conclusion that Hypothesis 1 is supported by the data. Pharmacies with return and recycling programs exhibit higher levels of loyalty compared to pharmacies without such programs.

3.2.2. Examining the relationship between pharmacy engagement and supplier loyalty

We have to evaluate the pattern and level of loyalty between the pharmacy to suppliers and their participation in supplier return and recycling programs in order to respond to Research Question 2. Pearson correlation analysis is a suitable tool for this analysis because it allows us to use the correlation coefficient (r) to quantitatively measure the extent of the impact of pharmacy involvement with supplier return and recycling efforts on pharmacy loyalty to suppliers.

The pharmacy's engagement with supplier return and recycling programs and their perception of the beneficial effects of this engagement on loyalty appear to be strongly positively correlated, as indicated by the Pearson correlation coefficient of 0.614. The statistically significant p-value indicates that this correlation is unlikely to have occurred by chance. The results of the Pearson correlation analysis are highlighted in Table 19.

Table 19

Pearson correlation analysis of pharmacy engagement and loyalty to suppliers

		How active is you pharm.	Do you believe that..
How active is you pharm.	Pearson Correlation	1	,614**
	Sig. (2-tailed)		<,001
	N	295	295
Do you believe that..	Pearsons	,614**	1
	Sig. (2-tailed)	<,001	
	N	295	295

Source: created by the author based on Pearson correlation analysis results

In response to Research Question 2, a Pearson correlation coefficient of 0.614 indicates a strong positive correlation between pharmacy engagement in supplier return and recycling programs and the perception that such participation enhances supplier loyalty. It can be interpreted

from this that pharmacies that engage in return and recycling programs with their suppliers more actively are also more likely to feel that their loyalty is enhanced by these activities.

3.2.3. Likelihood of supplier switching

In order to respond to Research Question 3, we must evaluate the possibility that pharmacies that currently deal with suppliers who do not offer return and recycling programs might switch to suppliers who do. In an effort to discover whether there is a significant correlation between two categorical variables—the possibility of pharmacies switching suppliers and the importance that they give to return and recycling programs while picking out pharmaceutical suppliers—we employed the Chi-Square Test of Independence for this analysis.

To begin with, we need to make sure that all cases are valid. In our research, 100% of the cases are valid, and no cases are missed. The results of this test are depicted in Table 20.

Table 20

Validity assessment of survey cases

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Would your pharmacy.* How important are...	295	100,0%	0	0,0%	295	100,0%

Source: created by the author based on survey cases validity assessment results

Next, we use the cross-tabulation method to see the count of responses corresponding to a specific combination of responses to the two variables. The results of this cross-tabulation are depicted in Table 21.

Table 21

Cross-tabulation results of survey responses

		How important are..					Total
		Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important	
Would your pharmacy..	Definitely Not	3	11	0	0	0	14
	Unlikely	2	27	12	0	1	42
	Neither likely nor unlikely	0	2	114	29	1	148
	Likely	0	0	28	54	7	89
	Definitely	0	0	0	1	3	4
Total		5	40	154	84	12	295

Source: created by the author based on cross-tabulation results of survey responses

Following that, we examine the Chi-Square test results.

With 16 degrees of freedom, the Pearson chi-square value is 340.228, and the p-value is less than 0.001. This suggests a statistically significant correlation between the significance of return and recycling programs and the desire to switch suppliers.

A significant relationship is further supported by the likelihood ratio chi-square value of 264.484 with 16 degrees of freedom and the p-value of less than 0.001.

With one degree of freedom, the linear-by-linear association chi-square value is 158.417, and the p-value is less than 0.001. This test assesses the linear relationship between the two ordinal variables. The results of the Chi-Square test for the relationship between supplier switching consideration and the importance of return and recycling programs are depicted in Table 22.

Table 22

The results of the Chi-Square test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	340,228 ^a	16	<,001
Likelihood Ratio	264,484	16	<,001
Linear-by-Linear	158,417	1	<,001
N of Valid Cases	295		

a. 14 cells (56,0%) have expected count less than 5. The minimum expected count is ,07.

Source: created by the author based on Chi-Square test results

Additionally, Cramer's V and Phi Coefficient are used: both the Phi coefficient is 1.074 with a p-value less than 0.001, and Cramer's V is 0.537 with a p-value less than 0.001, indicate a strong association between the two nominal variables.

The results of the Cramer's V and Phi coefficient tests are depicted in Table 23.

Table 23

Results of Cramer's V and Phi coefficient tests for association between two nominal variables

		Value	Approximate Significance
Nominal by Nominal	Phi	1,074	<,001
	Cramer's V	,537	<,001
N of Valid Cases		295	

Source: created by the author based on Cramer's V and Phi coefficient test results

So, in addressing Research Question 3, the results of the Chi-Square Test of Independence indicate a notable association between pharmacies' likelihood of switching suppliers and the importance they attribute to return and recycling programs in supplier selection.

The results of Research Question 3 clearly demonstrate that pharmacies whose suppliers do not already have return and recycling programs are more likely to switch to suppliers who do. The above finding is consistent with Hypothesis 3 and is supported by the observed correlation between pharmacies' tendency to switch suppliers and the significance they give to return and recycling programs.

3.2.4. Preference for supplier collaboration

In order to respond to Research Question 4, we need to evaluate the impact on decisions about future cooperation of the willingness to work with suppliers who have return and recycling programs in comparison to those who do not. For this analysis, we employed the paired samples t-test, which allows us to examine the difference in preferences within the same group of respondents under two different conditions.

First and foremost, we look at the paired sample statistics: the mean preference score for suppliers with return and recycling programs is approximately 3.69, and the mean preference score for suppliers without such programs is approximately 3.79. The result indicates a statistically significant difference. The results of the paired sample statistic are presented in Table 24.

Table 24

Paired sample statistics for supplier preference with and without return and recycling programs

		Mean	N	Std. Deviation	Std. Error
Paired Sample Statistics	Would your pharmacy...	3,6949	295	,75264	,04382
	How heavily your...	3,7864	295	,84424	,04915

Source: created by the author based on Paired sample statistics results

The correlation between preferences for suppliers with and without return and recycling programs is approximately 0.561, which is statistically significant at $p < 0.001$. This indicates a moderately positive correlation between the paired observations. The results of this correlation are presented in Table 25.

Table 25

Correlation between preferences for suppliers with and without return and recycling programs

		Paired Samples Statistics			
		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Paired Sample Statistics	Would your pharmacy... & How heavily your...	295	,561	<,001	<,001

Source: created by the author based on Paired samples correlation results

The mean difference between preferences for suppliers with and without return and recycling programs is approximately -0.09153. This suggests that pharmacists generally have slightly lower preferences for suppliers who offer recycling and return policies than for those that do not.

At $p = 0.038$ (two-tailed), the t-value of -2.089 with 294 degrees of freedom is statistically significant. This implies that there is a substantial preference gap between the matched groups. The results of the paired samples t-test are presented in Table 26.

Table 26

Paired sample t-test results for preferences for suppliers with and without return and recycling programs

Pair	Would your pharmacy... - How heavily your...	Mean	Pair Differences			t	df	Significance		
			Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			One-Sided p	Two-Sided p	
					Lower	Upper				
		,09153	,75261	,04382	-,17776	-,00529	-2,089	294	0,019	0,038

Source: created by the author based on Paired sample t-test results

The effect size (Cohen's d) is approximately -0.122, indicating a small effect size. To adjust for potential bias in small sample sizes, we also apply Hedges' correction. After Hedges' correction, the effect size is still pretty negligible—roughly -0.121. These results imply that there is barely any preference gap between suppliers who have return and recycling programs and those that don't. The results of the Cohen's d and Hedges effect sizes are highlighted in Table 27.

Table 27

Effect size analysis for preferences for suppliers with and without return and recycling programs

Pair	Would your pharmacy... & How heavily your...	Cohen's d	Standardizer ^a	Point Estimate	95% Confidence Interval	
					Lower	Upper
			,75261	-,122	-,236	-,007
		Hedges' correction	,75454	-,121	-,235	-,007

Source: created by the author based on paired sample effect sizes results

Regarding Research Question 4, the results from the Paired Samples t-test reveal a noteworthy difference in preferences for collaborating with suppliers based on their implementation of return and recycling programs. A moderate effect size (Cohen's d = 0.75261) and a statistically significant negative mean difference (-0.09153) verify this observation.

Therefore, it seems that conclusions about potential cooperation are true and influenced by the desire to engage with suppliers who offer return and recycling programs.

The research indicates that, on average, pharmacies may not prioritize return and recycling programs as the main factor when choosing between different pharmaceutical suppliers they currently work with but still prioritize cooperating with suppliers that have implemented these programs in future cooperation decisions.

We might agree with Hypothesis 4 that it would be preferable to work with a supplier who participates in return and recycling programs in the future rather than one who does not, but we still need more information about the variables that influence this choice.

3.2.5. Satisfaction-loyalty relationship

To answer Research Question 5, we seek to investigate how pharmacy satisfaction with suppliers impacts their loyalty to them, particularly when it comes to return and recycling programs.

The independent variable, pharmacy satisfaction, and the dependent variable, loyalty, have a positive connection, as indicated by the correlation coefficient (r), which is roughly 0.649. Pharmacy satisfaction accounts for around 42.1% of the variance in loyalty, according to the coefficient of determination, which is roughly 0.421. Table 28 displays the results for the coefficient of determination and the correlation coefficient (r).

Table 28

Correlation analysis between pharmacy satisfaction and loyalty levels

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	,649 ^a	,421	,419		,65877

a. Predictors: (Constant), How satisfied is your..

Source: created by the author based on correlation analysis results

Next, we test the regression model's overall significance using the ANOVA. The F-statistic is 213.350 with a p-value less than 0.001, indicating that the regression model is statistically significant. The results of the ANOVA test are depicted in Table 29.

Table 29

ANOVA test results for the regression model's overall significance

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	92,588	1	92,588	213,350	<,001 ^b
	Residual	127,154	293	,434		
	Total	219,742	294			

a. Dependent Variable: To what extent does..

b. Predictors: (Constant), How satisfied is your..

Source: created by the author based on ANOVA test results

In order to determine the relationship between the independent variable (pharmacy satisfaction) and the dependent variable (loyalty), we finally evaluate the regression coefficients. When pharmacy satisfaction is zero, the constant term, represented as 1.396, indicates the expected loyalty score. The coefficient for pharmacy satisfaction is 0.658, indicating that for each unit increase in pharmacy satisfaction, loyalty is expected to increase by 0.658 units. With p-values under 0.001, both coefficients are statistically significant. The results for the regression coefficients are presented in Table 30.

Table 30

Regression coefficient analysis for pharmacy satisfaction and loyalty

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
Model		B	Std. Error			
1	(Constant)	1,396	,175		7,966	<,001
	How satisfied is your..	,658	0,45	,649	14,607	<,001

a. Dependent Variable: To what extent does..

Source: created by the author based on regression coefficient analysis results

To address Research Question 5, we investigated the correlation between pharmacies' satisfaction levels with their current suppliers and their levels of loyalty to them.

With a Pearson correlation coefficient of 0.649 ($p < 0.001$), the findings showed a strong positive association between pharmacies' satisfaction levels and their commitment to their existing suppliers. This suggests that as pharmacies' satisfaction with their suppliers increases, their loyalty

towards them also tends to increase. In conclusion, the results provide evidence in support of Hypothesis 5, indicating that pharmacies that currently work with suppliers identify the level of satisfaction as the main factor influencing their loyalty to the suppliers.

3.3. Insights from respondent feedback and regional loyalty dynamics

The qualitative information obtained from respondent's answers to our questionnaire has helped to clarify the underlying causes affecting their answers and allowed for a greater comprehension of their viewpoints. After careful consideration of this feedback, a number of noteworthy findings have been made.

A remarkable discovery indicates a noticeable difference between manufacturing and retail pharmacies about their dependence on recycling and return programs provided by suppliers. The reason for this disparity is a kind of product that each handles differently: manufacturing pharmacies produce a significant amount of waste during the manufacturing of medicines, whereas retail pharmacies receive goods that are ready for sale. As a result, the manufacturers must set aside funds to get rid of or recycle this waste, frequently by hiring pricey specialists on a contract basis. However, manufacturing pharmacies have a good chance to cut costs by utilizing suppliers' return and recycling programs.

Pharmaceutical suppliers and big pharmaceutical businesses frequently work together to train employees in pharmaceutical retail chains on their involvement in multiple programs, such as recycling and waste return. However, since the war began, this type of cooperation has either ended entirely or become rare.

Some responders stated that although their pharmacies are prepared to explore shifting to suppliers that participate in these programs in the future, the current state of affairs in Ukraine prevents them from making the switch at this time.

Examining the feedback, of several respondents we also suggested that the fact that cities in Western Ukraine, like Lviv, have a tendency to be more loyal to the supplier than cities in the east and south of the country, like Odesa, could be a factor in the difference in loyalty. The reason for this discrepancy in uncertainty is that while central and western Ukraine are thought to be relatively safe, the east and south of the country are close to the combat zone. To prove this suggestion, we examined data on loyalty levels collected from Odessa and Lviv. The loyalty levels were measured on a numerical scale, with higher scores indicating higher levels of loyalty. An independent sample t-test was conducted to compare the average loyalty levels between the two

cities. As a result, it was discovered that Odessa pharmacies had an average loyalty level of approximately 3.47. Lviv pharmacies had an average loyalty rating of approximately 3.93. For the independent sample t-test, the calculated t-value was approximately -4.36. The negative t-value indicates that, generally speaking, Odessa pharmacies are less loyal than pharmacies in Lviv. Additionally, a statistically significant difference between the average loyalty levels of pharmacies in the two cities is indicated by the magnitude of the t-value. The results of the research on loyalty levels between Odessa and Lviv pharmacies to the supplier in the form of an independent sample t-test are presented in Table 31.

Table 31

Comparison of pharmacy loyalty levels to suppliers in Odessa and Lviv

	Odesa	Lviv
Sample Size (n)	27	29
Mean Loyalty Level	3,47	3,39
Standard Deviation	-	-
T-value	-4,39	-
Significance (p-value)	<0,001	-

Source: created by the author based on independent sample t-test results

It is evident from the independent samples t-test results that there is a substantial difference between Odessa and Lviv pharmacies' levels of supplier loyalty. When it comes to average loyalty, pharmacies in Lviv prove more loyal than those in Odessa.

It's necessary to be aware that the results might not accurately reflect the nuances of pharmacy loyalty in all of the cities within the corresponding areas due to limitations like limited resources and a limited number of respondents. Consequently, rather than being clear evidence, these findings should be treated with care and seen as an initial investigation. It is advised to conduct more studies with larger sample sizes and more diverse geographic coverage in order to confirm and build upon these preliminary results.

CONCLUSIONS AND PROPOSALS

The aim of this research was to analyze the impact of return and recycling programs on pharmacy loyalty towards suppliers. The study author reviewed existing publications to determine the most important variables affecting pharmacy loyalty and investigated the ways in which supplier return and recycling programs impact this balance.

Based on the developed research methodology, author methodically researched influence on pharmacies loyalty level towards the supplier based on return and recycling programs. The selected quantitative research method, carried out through a survey, offer a comprehensive evaluation of pharmaceutical industry professionals opinions on the researched question, and the feedback added the required background information for interpreting the respondents' responses.

Several conclusions have been obtained from this quantitative research:

1. Return and recycling programs have a significant effect on pharmacy loyalty levels towards the supplier that implements them.
2. The collaboration effort between supplier and pharmacy in return and recycling programs has a significant positive effect on pharmacy loyalty towards the supplier.
3. The lack of return and recycling programs is a significant factor that may influence the decision of pharmacies to change their current supplier.
4. The presence of return and recycling programs can significantly influence the decisions of pharmacies about the prospects for further cooperation with suppliers.
5. Pharmacy satisfaction caused by working with a supplier is the main factor in loyalty towards them.

Based on the research findings, the following recommendations are provided for suppliers to improve pharmacies loyalty levels towards them:

1. Suppliers should consider expanding collaboration with pharmacies in the field of return and recycling programs.
2. Pharmaceutical suppliers should raise awareness of the importance of return and recycle programs to keep their clients and prevent pharmacies from switching to another supplier.
3. When approaching new pharmacies, suppliers should emphasize their return and recycle programs and use them as a competitive advantage.

To further expand on the findings of this research, the following future research directions are suggested:

1. Conducting a repeat study after the end of the war and comparing the results of this and a new study will make it possible to assess the impact of economic instability, limited resources, and geopolitical uncertainty on the opinions of respondents.
2. Conducting this research, covering a larger territory and a larger number of respondents, will allow us to obtain more accurate research data.
3. Performing research separating different types of pharmacies will allow us to establish how their specifics and work processes affect the result of the study.

Certain limitations have an impact on the research's conclusions. The strongest factor influencing the limitations of this study was the ongoing war in Ukraine. This war has caused significant economic instability, resource constraints, and overall uncertainty in the country's future among the entire population of the country and representatives of the pharmaceutical industry as a whole, which may have affected the responses of survey participants. The war undertone, time unavailability, and limited number of respondents should be taken in consideration when interpreting the results.

Despite all the challenges and limitations, this research has gathered insightful information into the role of return and recycling programs in enhancing pharmacy loyalty towards suppliers. By taking the research results into account and drawing conclusions, suppliers can develop their own strategies to use return and recycling programs as a competitive advantage and improve pharmacy loyalty. The ongoing war caused limitations for the respondents but at the same time provided a unique opportunity to get the research results that were influenced by such a challenging condition. The results of the study may be a good starting point for further, more in-depth, and advanced research on the influence of various factors on the loyalty of pharmacies to their suppliers.

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GRAŽINIMO IR PERDIRBIMO PROGRAMŲ ĮTAKOS VAISTINIŲ LOJALUMUI TIEKĖJAMS TYRIMAS

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Master Thesis

Verslo procesų valdymas

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SANTRAUKA

55 puslapiai, 31 lentelė, 12 iliustracijos, 33 nuorodos

Pagrindinis šio magistro darbo tikslas – ištirti, kaip gražinimo ir perdirbimo programos veikia vaistinių lojalumą tiekėjams. Be to, tyrime siekiama nustatyti tokių programų įtaką apsisprendimui dėl tolimesnio bendradarbiavimo su tiekėju.

Magistro baigiamasis darbas struktūriškai susideda iš trijų pagrindinių dalių; literatūros apžvalga, tyrimo metodika ir pats tyrimas su rezultatų interpretavimu, išvadomis ir rekomendacijomis.

Literatūros apžvalgoje nagrinėjama gražinimo ir perdirbimo infrastruktūros padėtis Ukrainos farmacijos pramonėje, esami vaistinių ir tiekėjų santykių tyrimai ir veiksniai, darantys įtaką jų lojalumui.

Remdamasis literatūros apžvalgos duomenimis, mokslininkas nustatė tyrimo spragą ir iškėlė hipotezes. Apklausai atlikti buvo sukurta Likerto skalės stiliaus anketa. Kiekvieno elemento Cronbacho alfa koeficientas buvo didesnis nei 0,7, o tai patvirtino patikimumą. Surinkus 295 respondentų atsakymus ir juos apdorojant SPSS programine įranga, autorius gavo išsamius atsakymus į tiriamus klausimus. Be to, buvo renkami duomenys apie respondentų demografinę įvairovę.

Tyrimo rezultatai palaikė anksčiau iškeltas hipotezes. Jie atskleidė reikšmingą tokių programų poveikį vaistinių lojalumo lygiui tiekėjui, jų bendradarbiavimo svarbą. Be to, buvo nustatyta gražinimo ir perdirbimo programų įtaka vaistinių sprendimų priėmimo procesui dėl tiekėjų pageidavimų ir būsimo bendradarbiavimo su jomis.

Išanalizavus šiuos rezultatus, buvo sudarytas pasiūlymas tiekėjams, kurio tikslas – įtikinti tiekėjus šių programų naudojimo svarba, taip pat padėti kurti strategiją, kaip tokias programas diegti jų

darbe. Pasak autoriaus, šių tyrimų rezultatai gali būti geras atspirties taškas tolesniems, platesniems ir nuodugniems tyrimams apie grąžinimo ir perdirbimo programų įtaką vaistinių lojalumui tiekėjams. Autorius išreiškia viltį, kad šios temos aktualumas ir tyrimo sąlygų išskirtinumas paskatins būsimus mokslininkus tęsti tyrimus šia kryptimi.

RESEARCH ON THE IMPACT OF RETURN AND RECYCLING PROGRAMS ON PHARMACIES' LOYALTY TOWARDS THEIR SUPPLIERS

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Master Thesis

Business Process Management

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SUMMARY

55 pages, 31 tables, 12 figures, 33 references

This Master's thesis' primary objective is to investigate how return and recycling programs impact pharmacies loyalty towards suppliers. Additionally, the research explores to determine influence of such programs on the decision towards future cooperation with the supplier.

The Master thesis structurally consists of three main parts; a literature review, the methodology for the research and research itself with interpretation of the results, as well with conclusions and recommendations.

A literature review examines the state of return and recycling infrastructure in the Ukrainian pharmaceutical industry, existing research on relationships between pharmacies and suppliers, and factors that influence loyalty between them.

Based on the data gathered from the literature review, the researcher identified the research gap and developed hypotheses. A Likert scale-style questionnaire has been developed to conduct a survey. The Cronbach's alpha coefficient for every item was higher than 0.7, which verified the reliability. Through the collection of 295 respondent answers and the follow-up processing of them with the SPSS software, the author received comprehensive answers to the researched questions. In addition to that, data was gathered regarding the respondents' demographic diversity.

The results of the research were in favor of previously developed hypotheses. They revealed a significant effect of such programs on pharmacy loyalty levels towards the supplier, the importance of collaboration effort between them. Further, it was determined that the impact of

return and recycling programs on the decision-making process of pharmacies regarding supplier switching and future cooperation with them.

After interpretation of these results, a proposal was drawn up for suppliers, the purpose of which is to convince suppliers of the importance of using these programs and also provide assistance in developing a strategy for introducing such programs into their work. According to the author, the results of these studies can be a good starting point for further, more extensive, and in-depth research into the impact of return and recycling programs on pharmacies' loyalty to their suppliers. The author expresses hope that the relevance of this topic as well as the uniqueness of the research conditions will encourage future researchers to continue research in this direction.

ANNEXES

Annex 1. Questionnaire for respondents

Анкета

Будь ласка, заповніть інформацію про себе

Ваш вік *

- 18-25
 26-35
 36-45
 46-55
 56 і вище

Ваша стать

- Чоловік
 Жінка
 Інше

Місто проживання *

Будь ласка, вкажіть місто вашого проживання, пам'ятайте, що тимчасово окуповані території України в цій анкеті участі не беруть

Ваша посада *

Будь ласка, надайте інформацію про свою посаду, якщо ваша посада не вказана нижче, оберіть «Інше» та вкажіть її у полі для додаткових коментарів у кінці анкети

- Фармацевт
 Постачальник
 Менеджер
 Директор аптеки
 Фармацевтичний представник
 Інша посада

Як давно ви пов'язані з фармацевтичною промисловістю? *

- Менше року
 1-5 років
 6-10 років
 Більше 10 років

Анкета

Будь ласка, заповніть питання нижче

1. Наскільки ви згодні з тим, що на лояльність вашої аптеки до своїх постачальників впливає впровадження програм повернення та переробки? *

1. Категорично не згоден
 2. Не згоден
 3. Ні згоден, ні не згоден
 4. Згоден
 5. Повністю згоден

2. Яка ймовірність того, що ви порекомендуєте свого поточного фармацевтичного постачальника іншим аптекам на основі впровадження ним програм повернення та переробки? *

Вибірть правильний для вас варіант, де:
1-Дуже малоймовірно; 2-Малоймовірно; 3-Ні ймовірно, ні малоймовірно; 4-Ймовірно; 5-Дуже ймовірно

- 1 2 3 4 5
Дуже малоймовірно Ймовірно

3. Наскільки активно ваша аптека залучена у програмах повернення та переробки вашого постачальника? *

1. Не залучена зовсім
 2. Трохи залучена
 3. Помірно залучена
 4. Значно залучена
 5. Високозалучена

4. Чи вважаєте ви, що участь вашої аптеки в програмах повернення та переробки ваших постачальників позитивно впливає на вашу лояльність до них? *

1. Категорично не згоден
 2. Не згоден
 3. Ні згоден, ні не згоден
 4. Згоден
 5. Повністю згоден

5. Чи розглядала б ваша аптека можливість переходу до постачальника, який пропонує програми повернення та переробки, якщо ваш поточний постачальник їх не надає? *

1. Однозначно ні
 2. Малоймовірно
 3. Ні ймовірно, ні малоймовірно
 4. Ймовірно
 5. Однозначно

6. Наскільки важливі програми повернення та переробки в процесі вибору між різними фармацевтичними постачальниками, з якими ви зараз працюєте? *

Вибірть правильний для вас варіант, де:
1-Не важливо; 2-Трохи важливо; 3-Помірно важливо; 4-Дуже важливо; 5-Надзвичайно важливо

- 1 2 3 4 5

7. Чи віддаватиме ваша аптека перевагу у співпраці з постачальником, який реалізує програми повернення та переробки, над тим, хто цього не робить, у майбутніх угодах? *

1. Однозначно ні
 2. Малоймовірно
 3. Ні ймовірно, ні малоймовірно
 4. Ймовірно
 5. Однозначно

8. Наскільки сильно ваше рішення залежить від впровадження постачальником програм повернення та переробки при розгляді майбутньої співпраці? *

1. Не залежить зовсім
 2. Мала залежність
 3. Певна залежність
 4. Значно залежить
 5. Сильна залежність

9. Якою мірою задоволеність вашої аптеки вашим постачальником впливає на вашу лояльність до них? *

1. Не впливає зовсім
 2. Злегка впливають
 3. Помірний вплив
 4. Значно впливає
 5. Великий вплив

10. Наскільки ваша аптека задоволена загальними послугами вашого поточного постачальника, включаючи програми повернення та переробки? *

Вибірть правильний для вас варіант, де:
1-дуже незадоволений; 2-Незадоволений; 3-Ні незадоволений, ні задоволений; 4-Задоволений; 5-Дуже задоволений

- 1 2 3 4 5

Додаткова інформація та відгуки

У цьому розділі ви можете залишити будь-яку додаткову інформацію або відгук, а також знати контакти автора дослідження.

Будь ласка, надайте додаткові коментарі щодо теми опитування.

Дякуємо, що заповнили цю анкету. З будь-якими запитаннями, пропозиціями чи відгуками звертайтеся за адресою: damienanthonypropov@gmail.com

Annex 2. Questionnaire for respondents (English translation)

Questionnaire

Please fill in information about yourself

Your age *

- 18-25
 26-35
 36-45
 46-55
 56 and above

Your gender

- Male
 Female
 Other

City of residence *

Please indicate your city of residence, keep in mind that temporarily occupied territories of Ukraine do not take part in this questionnaire

Your job position *

Please provide information about your job position, if your position doesn't listed below, choose "Other" and indicate in the field for additional comments at the end of the questionnaire

- Pharmacist
 Supplier
 Manager
 Director of pharmacy
 Pharmaceutical sales representative
 Other

How long have you been associated with the pharmaceutical industry? *

- Less than a year
 1-5 years
 6-10 years
 More than 10 years

In this part you can left any additional information or feedback and find contacts of the research author:

Questionnaire

Please fill the questions below

1. To what degree do you agree that your pharmacy's loyalty to its suppliers is influenced by the implementation of return and recycling programs? *

1. Strongly Disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly Agree

2. How likely are you to recommend your current pharmaceutical supplier to other pharmacies based on their implementation of return and recycling programs? *

Please choose the option that is true for you, where:
1-Very Unlikely, 2-Unlikely, 3-Neither likely nor unlikely, 4-Somewhat likely, 5-Very Likely

- 1 2 3 4 5
Very Unlikely Very Likely

3. How active is your pharmacy's engagement with your supplier's return and recycling programs? *

1. Not engagement at all
 2. Slightly engagement
 3. Moderate engagement
 4. Engagement to great extent
 5. Highly engaged

4. Do you believe that your pharmacy's engagement with your supplier's return and recycling programs positively influences your loyalty towards them? *

1. Strongly Disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly Agree

5. Would your pharmacy consider switching to a supplier that offers return and recycling programs if your current supplier does not provide them? *

1. Definitely Not
 2. Unlikely
 3. Neither likely nor unlikely
 4. Likely
 5. Definitely

6. How important are return and recycling programs in process of choosing between different pharmaceutical suppliers you currently work with? *

Please choose the option that is true for you, where:

1-Not Important, 2-Slightly Important, 3-Moderately Important, 4-Very Important, 5-Extremely Important

- 1 2 3 4 5
Not Important Extremely Important

7. Would your pharmacy prioritize collaborating with a supplier that implements return and recycling programs over one that does not in future agreements? *

1. Definitely Not
 2. Unlikely
 3. Neither likely nor unlikely
 4. Likely
 5. Definitely

8. How heavily your decision depends on supplier's implementation of return and recycling programs when considering future cooperation? *

1. Does not depends
 2. Little dependence
 3. Somewhat dependence
 4. Very dependent
 5. Heavily dependent

9. To what extent does your pharmacy's satisfaction with your supplier influence your loyalty towards them? *

1. Not influence at all
 2. Slightly influence
 3. Moderate influence
 4. Significant influence
 5. Big influence

10. How satisfied is your pharmacy with your current supplier's overall services, including return and recycling programs? *

Please choose the option that is true for you, where:
1-Very Dissatisfied, 2-Dissatisfied, 3-Neither dissatisfied or satisfied, 4-Satisfied, 5-Very Satisfied

- 1 2 3 4 5

Additional information and feedback

Please provide any additional comments feedback regarding the topic of survey.

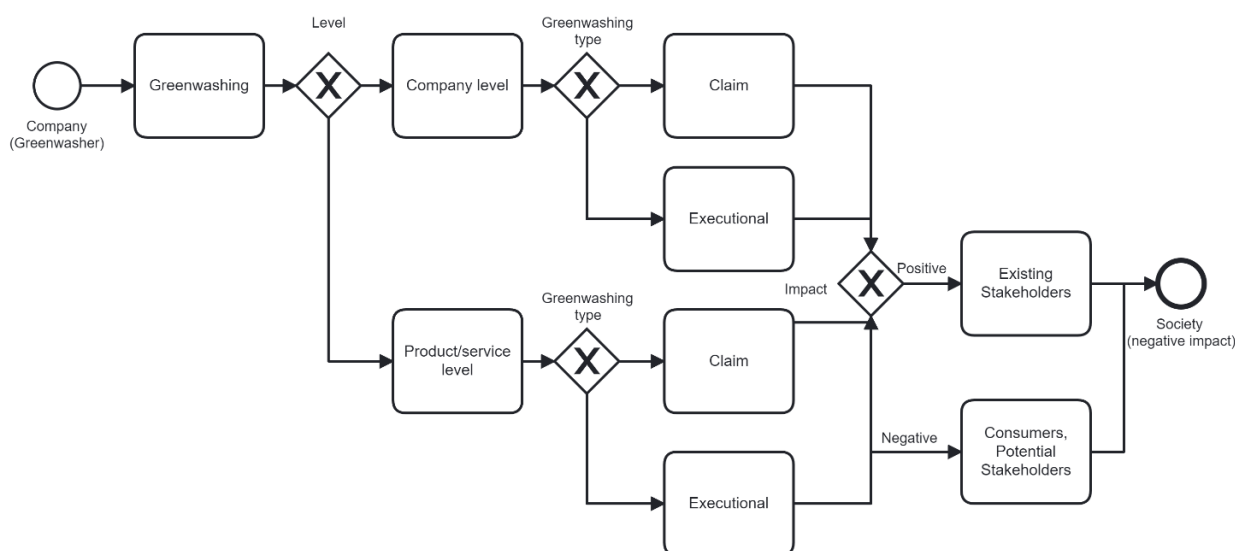
Thank you, for filling out this survey. For any questions, suggestions or feedback please contact: damienanthonypopov@gmail.com

Annex 3. The problem with greenwashing

While global warming is still a big issue, societal pressure continues to grow. The regulation became stricter every year, and ecologic sustainability became a global trend; companies undergo changes to stay on track. Nevertheless, not everyone is willing to pay more for saving the environment. The greenwashing concept is not new, and the first case dates back to 1986, when a hotel pretended to have a water conservation strategy while, in reality, it was fake (Pearson, 2010). In the systematic review on greenwashing (De Freitas Netto et al., 2020), the algorithm of greenwashing was presented in the form of a business process model, which is represented in Figure 12.

Figure 12

Algorithm of the effects of greenwashing on society



Source: adopted by researcher, based on De Freitas Netto et al (2020) and Yang et al (2020).

Greenwashing generally can be divided into two types: misleading claims about the ecological benefits of a product or service, called "claim greenwashing", or "execution greenwashing" which consists of elements that represent company as an environmentally-conscious brand purposely or not (De Freitas Netto et al., 2020). Companies often benefit from greenwashing, that's why it is become a common practice. The reason for usage is very different, from fulfilling the promises made to stakeholders to gaining an advantage over competitors. However, the reason always includes the financial aspect (Yang et al., 2020). No matter how tempting this prospect may look, companies should avoid such practices in order to keep their reputation high and prevent criticism from customers and stakeholders. The use of such practices in the field of public procurement may even lead to an investigation against the company.