

Changes in the Pharmaceutical Market in Terms of COVID-19

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ABSTRACT

The first cases of COVID-19 were registered in Wuhan Province (China) at the end of 2019. WHO announced a new respiratory virus SARS-CoV-2 as a global pandemic on March 11, 2020. The current pandemic has had a catastrophic impact on the global economy, including the pharmaceutical sector. Nowadays there is no effective cure for this new infectious disease. Full-scale research and development concerning potential strategies for treatment and a stable drug supply chain in times of crisis are under way in all countries of the world. The current COVID-19 pandemic is putting tremendous pressure on health care systems around the world. Proposed control methods affect a huge number of patients with chronic diseases who are unable to access health-care facilities for regular medical care and medication. Therefore, this study traced the impact on the work of not only large pharmaceutical companies, but also small retail pharmacy chains, as an affordable and convenient mechanism that can help such patients to receive all necessary medication and contribute to the right drug uptake. This study analyzes thoroughly the work of pharmaceutical workers as a powerful force in counteracting the pandemic. The task of this study is to analyze the peculiarities of the pharmaceutical market in many countries during this pandemic. The author addresses the questions of the positive and negative aspects of the pharmaceutical industry. These aspects have developed under the current conditions on the example of Ukraine, as well as the United States, Germany, the Netherlands, Italy, China and other countries.

Keywords: COVID-19, Chronic Diseases, Pharmaceutical Industry, Pandemic, Pharmaceutical Care, Pharmacy.

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INTRODUCTION

The Covid-19 pandemic has grown into the biggest health crisis of the 21-st century. Today the virus has infected more than 55 million people worldwide according to information from WHO. More than 1.3 million people have died. Epidemiological predictions suggest that an outbreak of the disease could bring down the health care system of even the most developed countries in the world [7, 8]. So, many countries have introduced serious measures to overcome the pandemic, such as locking down all areas with a large number of infected people, quarantining of some certain administrative units in order to stop the further development and spreading of the coronavirus infection. In response to such predictions, many countries all over the world have intensified research to develop a vaccine and create antiviral drugs against COVID-19 [7, 10].

Although significant efforts are being made by large pharmaceutical companies, conventional pharmacy chains have undergone serious changes in their work. The coronavirus emergency has significantly affected the economic governance and operation of pharmacies. Changes are focused on human resources in these retail chains in order to overcome such problems (providing the personal with protective equipment, changed work schedule, redistribution of responsibilities) [11,12].

Attention is also paid to the processes that ensure the uninterrupted supply of the basic and most popular drugs for the treatment of coronavirus disease and its complications (antipyretics, solutions for detoxification therapy, antibacterial agents, mucolytic drugs and expectorants, antiplatelet medications, vitamins). In addition, the population needs a systematic availability of personal protective equipment in pharmacy chains

(masks, respirators, gloves), antiseptic solutions, which became scarce at the beginning of the outbreak [16].

The impact of the pandemic on the pharmaceutical market has changed many functions. Some of them can be classified as short-term functions. These are functions that can return in a short time. Others are remote and long-term. The short-term consequences of a pandemic include changes in demand, revisions to regulations, some changes in research and development and the partial transition of pharmacy to telecommunications and telemedicine.

In addition, the slowdown in industrial growth, delays in approval and the shift to self-sufficiency in the pharmaceutical supply chain and changes in health market consumption trends and the ethical dilemma can be predicted as the long-term consequences of the pharmaceutical pandemic, both locally and on a global scale [4, 8].

LITERATURE REVIEW

Despite the fact that the pharmaceutical industry is one of the most popular and profitable, the current changes have not left aside the medical systems of many countries. These changes also affected ordinary citizens of many countries who need a constant supply of medicines [7, 10].

According to the scientific publication SAGE Journals, during the outbreak of coronavirus in early 2020, India faced a problem of a sharp shortage of personal protective equipment. India has rapidly intensified the efforts of many companies to produce such popular products. The growing demand for masks and other medical devices is natural in the absence of a therapeutic vaccine. The surge in global demand has enabled India to develop a promising approach for producers of these

categories. The 'Make in India' initiative has been launched to help to increase the country's export capacity [6].

The pharmaceutical market has been actively developing in recent years in Ukraine, but the pandemic has made its adjustments. The growth rate has decreased significantly in the industry. According to the XIV International Medical Conference that was held on September 10-11, 2020, there was a deep decline in April and May of this year that has not been observed for many years. However, pharmaceutical market, including retail and hospital segments, showed some growth in national and international equivalents in the first seven months of 2020. It is a good indicator compared to the same period last year [18, 19].

The scientific journal The Pan African Medical Journal describes the significant negative impact of the pandemic on the pharmaceutical system in Africa. It has been heard how dangerous it is to rely on the supply of medicines from other countries in recent decades. However, no action has been taken. Many people believe that the global pharmaceutical trade system is functioning well, and that African people have enough drugs at an attractive price. But these warnings have turned from an imaginary problem into a real one this year. This situation is a real problem for millions of Africans.

For example, 70% of medicines in Nigeria are made from active ingredients, which are obtained mainly from China or India. Therefore, it is necessary to invest more in the "resuscitation" of the domestic African pharmaceutical business and research in African countries in order to improve the health and well-being of the population [5].

The Journal of Psychiatric Research is one of the relevant scientific publications and takes the example of Germany. It describes a significant increase in demand for medicines due to the panic that gripped the population at the beginning of the pandemic [14]. There is a clear connection associated with the presence of chronic diseases and a significant increase in purchasing behavior in pharmacies of cardiovascular, neurological and psychotropic drugs [16].

It should be noted that the impact of the pandemic has affected patients with cancer in some way even in developed countries. For example, patients with chronic myeloid leukemia in Italy require treatment with the chemotherapeutic drug Imatinibum. According to "Leukemia" that is a scientific publication, doctors of one of the medical institutions in Italy recorded that the supply of this drug did not change in delivery through local pharmacy distributions, but there were delays with drugs of the second-line therapy, which were important for compliance with regimes and courses of treatment of such patients [1, 9].

MATERIALS AND METHODS

A survey method is used, namely a survey of pharmaceutical workers of retail pharmacy chains in the Netherlands in the process of conducting this study. The study was conducted anonymously, based on a cross-section of the questionnaire on the Internet and included the analysis of the following indicators:

- Changes in pharmacies.
- Logistics procedures.

- Information about drugs and all basic characteristics of employees (age, sex).

All data were entered directly by participants and stored in an online database (LimeSurvey, Hamburg, Germany). Descriptive statistics were used to describe answers to closed questions (multiple choice) and answers to coded questions.

Dutch pharmacies affiliated with the Utrecht Pharmacy Network of Education and Research (UPPER), consisting of approximately 65% (1,300 out of 2,000) of Dutch community pharmacies across the Netherlands. They were invited to complete an online questionnaire through a monthly digital newsletter. All participants received an email reminder one week before the survey. The data were collected in May 2020.

RESULTS

Systematic consultation of patients by pharmacists is extremely important to maintain the correct drug regimen, to prevent problems associated with overdose, to follow the right course of treatment. In addition, pharmacists conduct daily monitoring of the most popular groups of drugs and ensure their uninterrupted supply.

Pharmaceutical workers of retail pharmacy networks play an important role in providing medical care to the population and initial health care. The purpose of this study is to analyze the work of pharmaceutical market workers, who are the first people who provide information to the public about drugs, how to take them, explain compliance with the dose, course, etc.

This study included a survey conducted among 215 participants (208 pharmacists, 6 pharmacists and technologists and 1 pharmacy manager). 64.7% were female. The average age was 43.4 ± 11.5 years. Most pharmacies (61.9%) were located in a health care facility next to the cabinet of a general practitioner, and 53.0% in the city center.

The questionnaire covered the following topics:

1. Changes in pharmacies, logistics procedures.
2. Practice of medical counseling.
3. Issues among patients, health care providers, concerns about drug supply.
4. Basic characteristics (gender, age).

The questionnaire contained mostly closed questions but provided an opportunity to describe additional comments or remarks. Most participants mentioned about a stricter hygiene protocol, such as frequent cleaning (89.9%), hand disinfection (96.7%) and placement of plastic screens on pharmacy counters (93.5%), as it is shown in Figure 1. The response to the pandemic was mainly to limit direct contact with the patient and to limit the number of patients visiting the pharmacy.

There has been a noticeable advantage in the issuance of electronic prescriptions over paper ones, the wider usage of self-service cabinets or special counters for medication, increased delivery of medicines to the patients' houses. In addition, some pharmacies allowed patients to come for medication only after they received an email from the pharmacy. The participants also mentioned about limiting work of pharmacists in order to limit the number of contacts between staff. Only 27.4% of participants stated that it was possible to maintain a sufficient distance between staff while working in the pharmacy.

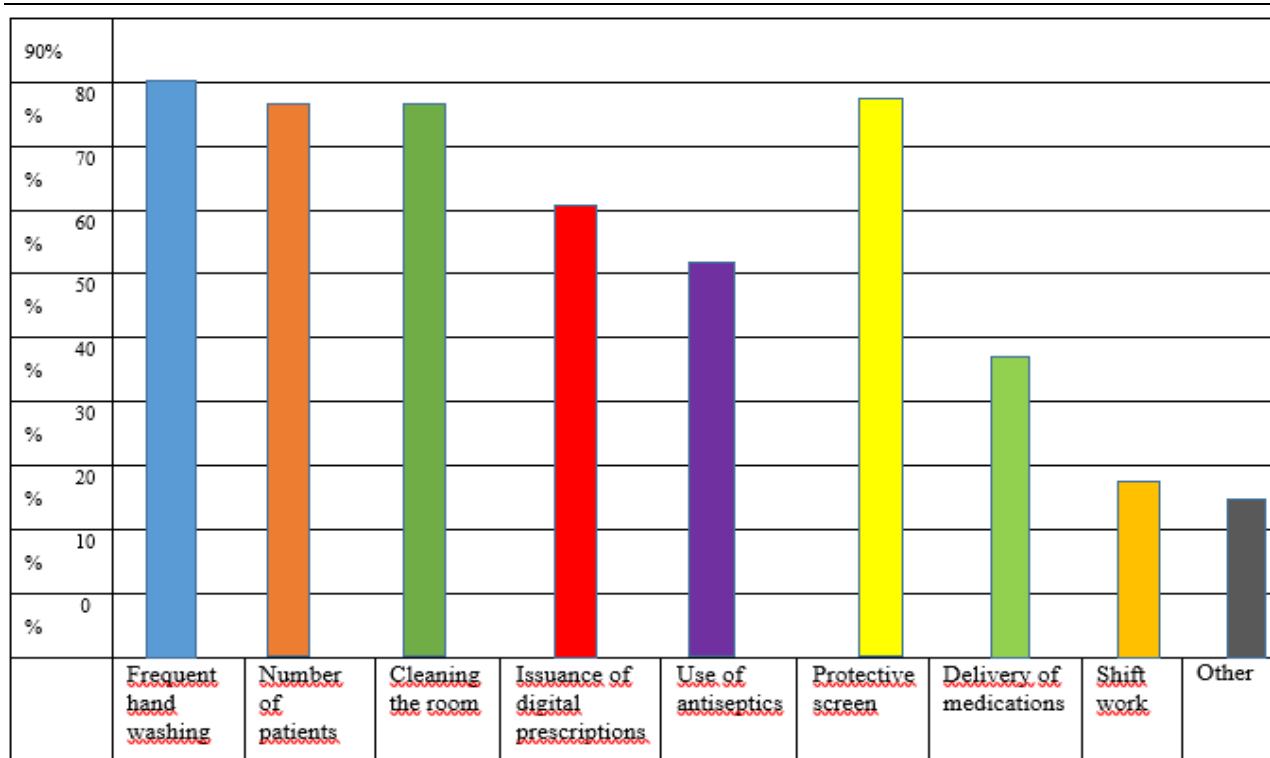


Figure 1. Change in the logistics procedures of pharmacy chains during the pandemic

Source: [17, 19]

Some respondents reported that some of the measures taken to minimize the risk of coronavirus infection will be continued after a pandemic. About half of the respondents suggested that plastic screens on the pharmacy counter could become standard in terms of hygiene, in order to increase the sense of security among pharmacy employees and to protect against "verbal violence". Respondents noted that the usage of electronic tools for patient education, self-care drug cabinets and online drug delivery and prescription services will be relevant after the end of the COVID-19 pandemic [20].

Table 1 shows how patients were consulted on informing about medication, dose and regimen prescribed by a

doctor. Most of the pharmacies first issue (73.0%) and then fill prescriptions (68.4%) in the pharmacy. However, participants noted that the explanation at the pharmacy was too short. Most patients were provided with information in writing (leaflets) or people were given the links on Internet resources (website, video).

The working procedures were adapted by a short demonstration at the counter for the instructions of how to make inhalations and use medications during this process. Later video animations with instructions for using such procedures were also sent. In total, 44.2% of participants stated that they had received advice on medication instructions over the phone.

Table 1. Training and counseling of patients in the pharmacy during the pandemic COVID-19

	At the pharmacy	By phone	Video call	Other	Example
The first recipe,% (n)	73,0 (157)	25,1 (54)	0	1,9 (4)	Link to information on the Internet or written explanation
Recipe supplement,% (n)	68,4 (147)	24,7 (53)	0	7,0 (15)	Self-service, use of video animation
Inhalation instructions,% (n)	42,3 (91)	22,3 (48)	0,5 (1)	34,9 (75)	Short oral explanation, link to information on the Internet
Review of medication instructions, % (n)	7,4 (7/95)	82,1 (78/95)	3,2 (3/78)	7,4 (7/95)	Using the patient's email address

Source: [17, 19]

Many participants (76.7%) expressed concerns about the quality of pharmaceutical care, especially for patients with chronic diseases. Other remarks were about the reduction of privacy in the pharmacy due to the placement of plastic screens near the counter. In addition,

the inability to use a separate office during counseling and maintaining social distance also affected the confidentiality of the patient. Some pharmacists have stated that pharmaceutical care has become more remote and pharmacies less accessible. Patients tended to ask

fewer questions. For example, 60.6% of respondents mentioned that they received very few questions due to quarantine restrictions.

Now let's talk about the communication of pharmacists with doctors during the epidemic. The majority of pharmacy workers noted that most prescriptions were issued by telephone (95.8%). Still, 40.9% of workers personally handed the prescription. Only 11.2% of pharmacists participated in pharmacotherapy advisory groups (regular meetings between groups of general practitioners and pharmacists aimed at improving the quality of prescription drugs). Only 21.9% of respondents regularly received questions from other health care providers, mainly related to the lack of medicines and personal protective equipment, such as masks, respirators and gloves.

DISCUSSION

The results of this study indicate a significant impact of the epidemic on logistics procedures in retail pharmacies and on services related to education and counseling of patients [7]. Most pharmacies have introduced additional hygienic and logistical changes aimed at reducing the length of patient counseling time [20]. To compensate the consulting time in the pharmacy, pharmacists provided patients with Internet materials and video links to the necessary information. Although such materials cannot replace oral explanation, especially for the elderly, they may serve as a form of self-familiarization and self-education [8, 10].

A significant number of pharmaceutical workers emphasized the continuation of the implemented measures aimed at strengthening the epidemiological protection of workers. Here it is about the usage of protective plastic and transparent screens near the pharmacy counter [7].

Pharmacy chains have also used the method of remote health care in order to improve health care and to facilitate instruction and counseling of patients during a pandemic [11]. However, the use of video communication in the provision of information services has been found to be very limited. Recommendations for maintaining social distance and minimizing direct contact with the patient can be implemented over a long period of time. It is important to support pharmacists in the usage of tele-pharmaceutical care and address issues of non-confidentiality during counseling [11].

The use of tele-pharmacy, both among patients and among pharmacists, should be developed to reduce the skepticism of both parties about this method of communication. The government and other government agencies can facilitate this by formulating basic principles and supporting pharmacy chains during training [12, 10]. However, the use of tele-pharmacy can lead to negative consequences for some groups of patients, especially for those who require constant taking of psychotropic or narcotic drugs [14].

In addition to communicating with patients and suppliers, systematic collaboration between pharmacists and general practitioners is extremely important. For example, most pharmacies did not organize pharmacotherapy advisory groups with health care physicians. Such pharmacotherapy meetings are typically used to discuss new treatments and initiate multidisciplinary projects to improve patient care. If we postpone such meetings, the quality of pharmacotherapy is significantly reduced.

This study was conducted anonymously using a specially created online form, which allowed participants to freely express their points of view. Such a study is one of the first that can provide a realistic assessment of the impact of the coronavirus pandemic on pharmaceutical care in Europe on the example of the Netherlands [7].

CONCLUSION

The COVID-19 pandemic has a significant impact on pharmaceutical care. Logistics procedures and patient counseling promote the development of high-quality pharmacotherapy. As it turned out, the most vulnerable groups of the population were particularly affected. We are talking about elderly patients suffering from chronic diseases of the cardiovascular, respiratory and musculoskeletal systems.

The same applies to patients who are illiterate and do not have access to the Internet resources, as well as patients who are addicted to drugs. One of the key changes has been the restriction of access to specialists. So, it is necessary to look for new approaches in decision-making. Marketing has not changed, but the tools of conveying information have changed significantly. As the coronavirus pandemic may continue for a long period of time, the pharmacotherapy industry requires further development and funding of tele-pharmacy.

The current pandemic may have many short- and long-term consequences for the healthcare market, including the pharmaceutical market. Identifying these implications can assist policymakers in profound planning and decision-making to address related issues.

To solve the problem of timely delivery of medicines, which affects many low- and middle-income countries, it is necessary to develop and finance domestic producers to produce active ingredients, which will greatly facilitate the delivery process and affect the financial cost of medicines.

It became known on the basis of this study that the coronavirus pandemic and quarantine restrictions have shown the importance of investment, modernization and transformation of the pharmaceutical market. It needs smooth and efficient work to provide quality care and safe working conditions for pharmacists.

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