https://doi.org/10.31925/farmacia.2022.2.24 **ORIGINAL ARTICLE**

ROLE OF THE PHARMACIST IN IMPROVING INHALER TECHNIQUE IN PATIENTS' OPINION IN POZNAN (POLAND)

BEATA PLEWKA [1]*, MAGDALENA WASZYK-NOWACZYK [1], PATRYCJA TARGOSZ [2], WERONIKA GUZENDA [1], MICHAŁ BYLINIAK [3], PIOTR DĄBROWIECKI [4], MICHAŁ MICHALAK [5], KAROLINA KAMASA [2], MAGDALENA PRZYBYLSKA [2], JERZY ŻABIŃSKI [6]

[1]*Pharmacy Practice Division, Chair and Department of Pharmaceutical Technology, Poznan University of Medical Sciences, 6 Grunwaldzka Street, 60-780 Poznan, Poland*
[2]*Student's Pharmaceutical Care Group, Department of Pharmaceutical Technology, Pharmacy Practice Division, Poznan University of Medical Sciences, 6 Grunwaldzka Street, 60-780 Poznan, Poland*
[3]*Polish Pharmaceutical Chamber, 77 lok. 6 Żeromskiego Street, 01-882 Warsaw, Poland*
[4]*Department of Infectious Diseases and Allergology, Military Institute of Medicine, Szaserów Street 128, 04-141 Warsaw, Poland*
[5]*Chair and Department of Computer Science and Statistics, Poznan University of Medical Sciences, 7 Rokietnicka Street, 60-806 Poznan, Poland*
[6]*Department of Organic Chemistry, Medical University of Warsaw, 1 Banacha Street, 02-097 Warsaw, Poland*

**corresponding author: beataplewka29@gmail.com*

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Abstract

Research shows that professional pharmaceutical services positively affect patients' compliance, errors avoidance and are cost-effective for the healthcare system. Nevertheless, Poland still lacks health programs that could be carried out in a community pharmacy. Our study aimed to assess the opinions and preferences of patients regarding education on the proper use of inhalers, with particular emphasis on education conducted in community pharmacies. A survey was conducted from July 2019 to January 2020 among the patients of Polish clinics in Poznan, Poland. Respondents were asked to indicate their sources of knowledge on the proper technique of using inhalers and evaluate them. They also gave their opinion on whether they would like to receive this type of education in a pharmacy. One hundred seventy-eight patients participated in the survey. 18.5% of patients had never been educated on the inhalation technique. 10.4% of Poznan patients received education from a pharmacist and 68.3% from a physician. 63.8% of patients would like to obtain the information from a pharmacist, mainly at an age ranging from 18 to 40 ($p = 0.0048$) tears old, with higher and lower secondary education ($p = 0.0393$). Polish patients are not sufficiently educated on the correct use of inhalers. A solution could be to introduce educational programs led by pharmacists, especially as patients perceive the pharmacy as a suitable healthcare facility to obtain this type of information.

Rezumat

Cercetările arată că serviciile farmaceutice afectează pozitiv complianța pacienților și evitarea erorilor și sunt rentabile pentru sistemul de sănătate. Cu toate acestea, Polonia încă nu are programe de sănătate care ar putea fi realizate într-o farmacie comunitară. Studiul nostru și-a propus evaluarea opiniilor și a preferințelor pacienților cu privire la programele educative privind utilizarea corectă a inhalatoarelor, cu accent deosebit pe instruirea realizată în farmaciile comunitare. A fost realizat un sondaj în rândul pacienților care s-au prezentat la clinicile poloneze din Poznan, Polonia, în perioada iulie 2019 - ianuarie 2020. Respondenții au fost rugați să indice sursele lor de informare privind tehnica adecvată de utilizare a inhalatoarelor. De asemenea, aceștia și-au exprimat părerea referitor la posibilitatea informării în cadrul unei farmacii. Au participat la sondaj o sută șaptezeci și opt de pacienți. 18,5% dintre pacienți nu au fost niciodată informați cu privire la tehnica inhalării. 10,4% dintre pacienții din Poznan au primit informații de la un farmacist și 68,3% de la un medic. 63,8% dintre pacienți ar dori să obțină informațiile de la un farmacist. Pacienții polonezi nu sunt suficient de educați cu privire la utilizarea corectă a inhalatoarelor. O soluție ar putea fi introducerea unor programe educaționale conduse de farmaciști, mai ales că pacienții percep farmacia ca pe o unitate medicală potrivită pentru a obține acest tip de informații.

Keywords: pharmacists, pharmaceutical services, patient education, inhalation technique

Introduction

Community pharmacies are no longer just places for dispensing medicines because, over the past decades, the role and abilities of pharmacists have changed. They began to provide pharmaceutical services dictated by the growing health needs of patients [1]. One of them may be medication review, other screening services such as monitoring and counselling on blood pressure or educating patients on various aspects, for example, smoking cessation and weight management [2-4]. However, in Poland, it is still rarely practised due to many factors, including the housing conditions or the number of professional staff. Regardless of many obstacles, Polish pharmacists are determined to implement

professional counselling as well as pharmaceutical care, which was reflected in the recently passed act on the profession of pharmacist [5, 6].

On the other hand, patients in Poland rate the service level high, even though the types of pharmaceutical services are not clearly defined [7, 8]. The main challenge in the current situation is the creation of consistent, algorithm-based pharmaceutical service programs in order to ensure that every patient has access to advice and health education at the same high level. Moreover, research worldwide shows that such services are profitable for national public health systems [9]. A systematic review by Perraudin *et al*. led the authors to conclude that pharmaceutical assistance in screening programs and smoking cessation was particularly desirable [10]. Although Polish researchers have confirmed this on the example of blood pressure screening tests, it is a type of time-consuming service that requires appropriate training [11]. It may be worth focusing on simpler tasks, including basic patient education on different pharmaceutical formulations conducted by pharmacists. For instance, one of the important health issues that must be monitored continuously is asthma control [12]. As GINA points out in the Pocket Guide for 2020, the correct use of inhalers and the degree of asthma control in a given patient should be reviewed at least once a year [13]. As pharmacists are one of the most easily accessible health care facilities, it seems justified that pharmacists may provide education on the proper use of inhalers. This is also indicated by, among others, researchers from Norway, who have shown that pharmacies are a suitable place for education on inhalation techniques and that pharmacists, after appropriate training, are adequately prepared for the role of educators [14].

Nonetheless, research in Poland has shown that the positive impact of a single educational session on the inhalation technique is limited in time [15]. Moreover, consultations with specialists are relatively short, and it is not always possible to verify and repeat the patient's knowledge. Thus, the aim of the study was to verify how patients from Poznan (Poland) gain knowledge about the proper use of inhalers and where they would like to receive such education.

Materials and Methods

A questionnaire survey was carried out from July 2019 to January 2020 among patients of eight medical clinics in Poznan, Poland. The study group included chronically ill patients who visited an allergist or pulmonologist and used inhalers. The study was anonymous, and the respondent was informed about it. The actual research was preceded by a pilot study, during which 18 forms were collected following the methodology proposed by Presser *et al*. [16]. All collected data were securely stored in the Department of Pharmaceutical Technology, Pharmacy Practice Division at Poznan University of Medical Sciences, Poland. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee.

The proprietary questionnaire contained two closed questions and six open or semi-open questions. The first three questions were related to the patient's gender, age and education. The next were questions about whether the patient had been using inhalers, for how long and who educated them on the inhalation technique, and whether disassembled inhalers were used for this purpose. They were also asked to rate the received education on a 1 to 5 scale (Likert scale). The last question was to verify whether the patient would like to receive this type of education in a pharmacy. 200 questionnaires were issued, and 178 were completed and returned (89%).

Statistical analysis

The Statistica PL 12 (StatSoft) package STATA14 (StataCorp LLC, TX, USA) software was used. The correlations between data were performed using the Chi-square test. Dependencies on gender, age, education level and duration of inhaler use were assessed. For interval variables where the data was inconsistent with a normal distribution and when the data on the ordinal scale were compared, the Mann-Whitney U test was used to compare the results between the two groups. When developing the Likert scale, the descriptive statistics parameters, i.e. the arithmetic mean, were used on the ordinal scale to examine the respondents' opinions. A p-value < 0.05 was considered statistically significant.

Results and Discussion

Completed questionnaires were obtained from 178 respondents, including 118 women and 60 men. The most numerous group in terms of age were people aged between 18 and 40 years old (48.6%), while in terms of education, the largest number of respondents had higher education (38.8%) (Table I).

Table I

Demographic structure of the study group

Variable	n (%)
Gender (n = 178)	
women	118 (66.3)
men	60 (33.7)
Age (n = 177)	
18 - 40 years	86 (48.6)
41 - 60 years	35 (19.8)
> 60 years	56 (31.6)
Education (n = 178)	
basic	10 (5.6)
lower secondary	8 (4.5)
vocational	34 (19.1)
secondary	57 (32.0)
university	69 (38.8)

All patients enrolled in the study used inhalers, 71.3% for more than two years. The most commonly used type of inhaler was a pressurised metered dosed inhaler (pMDI) containing salbutamol (35.0%), a combination of beclomethasone/formoterol (19.0%), ipratropium/ ciclesonide (12.9% each).

When asked if one had ever been educated on the correct use of inhalers, 18.5% of the respondents answered negatively (Figure 1). In turn, the remaining respondents who received such education most often indicated a physician as an educator (68.3%). The nurse was named next (13.1%), followed by the pharmacist (10.4%). Family, friends, a leaflet or the internet became a source of knowledge on the correct use of inhalers for 6.0% of patients and were rated the highest - 4.6 points on average. On the other hand, education provided by physicians and nurses was similarly rated at 4.4 points. Pharmacists were given the lowest score among those mentioned above and obtained 4.3 points (Figure 2).

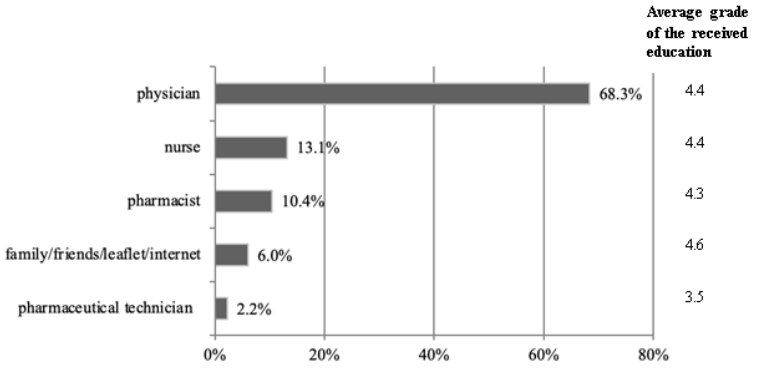

Figure 1.

Sources of education in the use of inhalers and its mean assessment in the opinion of patients (n = 183*)

** possibility of multiple answers*

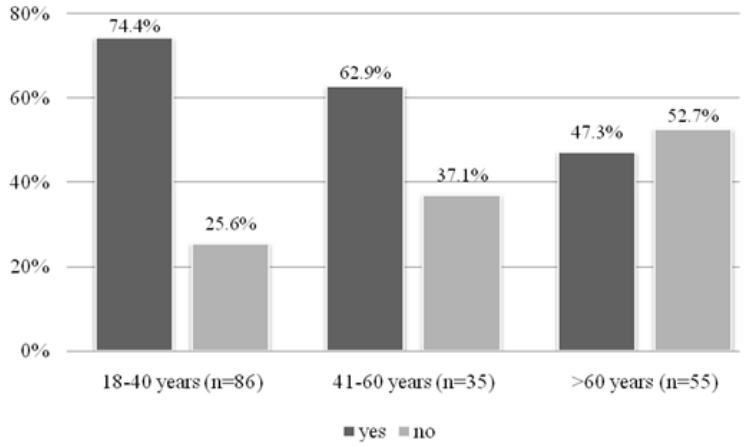

Figure 2.

Willingness to receive information from a pharmacist on the use of inhalers in a pharmacy depending on the age of patients (n = 176, p = 0.0048)

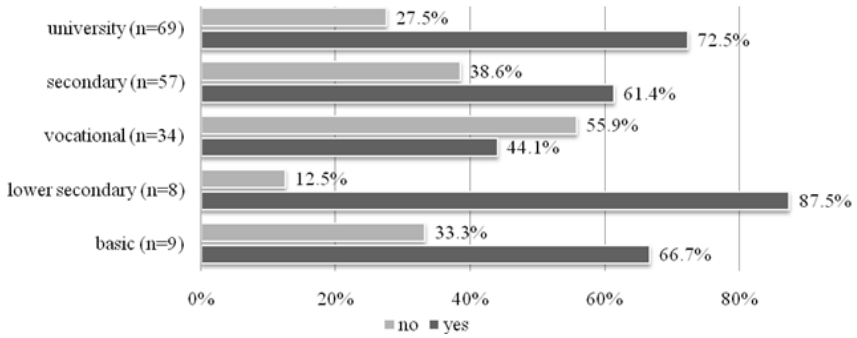

Figure 3.

Willingness to receive information from a pharmacist on the use of inhalers in a pharmacy depending on patients' education (n = 177, p = 0.0393)

Another aspect of inhalation technique education that was investigated was the use of demonstration inhalers. It turned out that 62.1% of patients have never had a demo version of an inhaler presented. The remaining respondents most often indicated the physician as the person who presented them with the placebo version. Occasionally, nurses have had to deal with this; pharmacists have not been mentioned as having ever introduced a patient to a demonstration of the inhaler.

The survey's last, but not the slightest question was whether the respondents would like to receive pharmacist education on the correct use of inhalers in a pharmacy. Almost 2⁄3 of the respondents expressed such a need, which was most often indicated by people aged between 18 and 40 years old ($p = 0.0048$) and respondents with lower secondary and higher education ($p = 0.0393$) (Figure 3).

GINA and WHO experts unanimously emphasise that to obtain asthma control, it is essential to use the correct inhalation technique and follow the doctor's instructions [12, 13]. Not following the recommendations worsens the patient's quality of life and generates additional costs for the patient and the health system. Nonadherence has a multifactorial cause, and in order to avoid it, it is necessary not only to self-discipline the patient, but also broadly understand cooperation between representatives of all medical professions [17, 18]. The role of pharmacists in asthma or chronic obstructive pulmonary disease (COPD) care teams should naturally focus on education about dispensed medications, including inhalers. Despite this, as the survey showed, this role was played mainly by physicians in Poland. However, taking into account the fact that the knowledge of proper inhalation techniques should be regularly reviewed, and some chronically ill patients admit that the periods in which they have not had follow-up visits to the attending physician range from several months to even several years, this is an unsettling result [15, 19]. On the other hand, research around the world shows that education conducted by pharmacists has a significant impact on patients' knowledge and improves their compliance with treatment rules, as they are one of the most accessible healthcare professionals [20-22]. Moreover, the education of a chronically ill patient, who uses inhalers, should be carried out with the doctor and pharmacist's cooperation and repeated regularly. The pharmacist in this team is responsible for providing instructions on the proper use of inhalers, while the doctor's task is to diagnose, prescribe treatment and monitor the progress of the disease [23]. Such a model is also possible to implement in Poland, provided that pharmacists will be properly prepared to provide such a service. A small percentage of patients indicating a pharmacist as an educator may result from the fact that pharmacy employees do not feel fully competent to conduct education on the correct inhalation technique. Research conducted in Poland shows that patients rarely perceive a pharmacy as a place where they can receive health education, and pharmacists themselves do not feel adequately prepared to provide pharmaceutical care services. [24, 25]. Also, studies conducted in other European countries, such as Serbia, show that pharmacists evaluate their managerial and organisational competencies higher than professional ones [25]. Identifying gaps in pharmacists' knowledge, introducing appropriate courses and structured pharmacy educational programs, following the example of other countries could raise the level of knowledge and affect the readiness of pharmacists to act as educators [26-29]. Consequently, the assessment of the level of education awarded by patients would also change, which is currently lower for pharmacists than for such sources of knowledge as a leaflet, the internet, family and friends. Although the internet offers many different forms of health education, research shows that many patients cannot critically assess and select appropriate sources [30]. This can potentially generate further errors in the inhalation technique. In order to avoid such a situation, the patient should be able to consult a specialist - a physician or pharmacist, in order to verify the sources of knowledge or to obtain help in selecting them. Also, the patient's information obtained from friends or family should be checked and discussed with a competent person. At this point, it is also worth paying attention to the employment structure in Polish pharmacies in the context of patient access to a competent pharmacy employee. It is likely that the majority of respondents filled their prescriptions with pharmaceutical technicians, not pharmacists. According to the data from 2019 from the Central Statistical Office in Poland, pharmacists accounted for 40.8% of employees in community pharmacies. The Office does not provide employment information, so we can assume that many of these people did not work full-time and, therefore, worked in more than one pharmacy [31]. Accordingly, patients could be served by a pharmaceutical technician. At the same time, studies conducted in Poland show that the level of education is an important factor that affects the quality of pharmacy professional employees' counselling [32, 33]. What inspires optimism is the willingness expressed by patients to receive education on the correct inhalation technique in pharmacy.

Therefore, it can be assumed that despite the lower evaluation of pharmacists in terms of the education received so far, patients still perceive them as competent representatives of the health service, and they do not associate the pharmacy only with the place where they make specific purchases. Although research in Poland and around the world shows that the offered prices are one of the main criteria for choosing a pharmacy by patients, they highly appreciate the concept of additional pharmaceutical services and care [34, 35]. Basic pharmaceutical services, including information about dispensed drugs, are highly rated by patients, although they are not always comprehensive [7, 8, 36]. It is an excellent basis for improving the quality of

provided services and making them the main factor in choosing a pharmacy while increasing the safety of patients' pharmacotherapy. It is also particularly important to identify the reason why the number of people who do not want to receive education on the use of inhalers from a pharmacist is higher in the group of people aged over 60 and in the group of people with vocational education. According to the research, it is the elderly who constitute the largest group of patients in Polish pharmacies, additionally burdened with an increased risk of drug problems. Therefore, in their case, education provided by a pharmacist is particularly important and necessary [37]. When teaching the proper technique of using inhalers, in addition to structured educational programs, it is worth introducing tutorials using a disassembled form of an inhaler into pharmacy practice. Only 37.9% of patients had the opportunity to learn the proper inhalation technique using demo inhalers, although it has been proven to be one of the best forms of education [38, 39]. Unfortunately, according to the respondents, none of them received this type of instruction from a pharmacy. The reasons for this can be seen, among other things, in the lack of time during patient service, which in turn suggests the need to reorganise the work of pharmacies and assign tasks to their employees according to their competencies.

Limitations of the study

Due to the beginning of the COVID-19 pandemic in 2020, the study was discontinued, and it was not possible to conduct surveys on a representative group of Polish patients using inhalers. Nevertheless, the results can identify trends that require further in-depth research, extended with a broader range of demographic data.

Conclusions

In conclusion, Polish pharmacists have the potential to provide advanced services, but there are many factors that limit them. The solution seems to be introducing specialist patient education programs, which will allow using the full potential of pharmacists for the benefit of patients' health and the healthcare system budget. It is worth paying attention to, especially when patients are very interested in participating in such services in the community pharmacy. Moreover, in the second half of April 2021, a new Act on the profession of the pharmacist entered into force in Poland. According to the act's wording, the work of a pharmacist will become a medical profession, and pharmaceutical care, including consultations, will be a reimbursable health service. Given these changes, it is necessary to define the services provided in a pharmacy, and education on the proper use of inhalers may be one of them.

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Conflict of interest

The authors declare no conflict of interest.

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