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ORIGINAL RESEARCH

Pharmacy-Based Influenza Vaccination: A Study of Patient Acceptance in Romania

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Background: This study explores patient acceptance of influenza vaccination administered by pharmacists in Romania during the 2023 season, considering it a novel strategy to address gaps in knowledge. Pharmacy-based vaccination deviates from traditional methods, providing high-risk patients with full reimbursement and others with 50% reimbursement, allowing a choice between family doctors and pharmacies for vaccine administration.

Material and Method: The survey includes 15 questions covering socio-demographic data, health information, vaccination preferences, and perceptions of pharmacy-based vaccinations.

Results: Respondents showed a positive inclination toward pharmacy-based vaccination, with 68% expressing favorable sentiments, but an awareness gap exists, as only 36% were aware of pharmacy-based vaccination availability.

Conclusion: Challenges include a lack of patient awareness and understanding of benefits, emphasizing the need for structured pharmacist-patient dialogues. Legal changes, a defined funding mechanism, and collaboration are crucial for successful implementation. The study provides valuable insights into patient perceptions, contributing to discussions on optimizing influenza vaccination coverage in Romania and beyond and recognizing pharmacies' potential in achieving broader vaccination goals.

Keywords: pharmacy, vaccine, influenza, vaccination

Introduction

Influenza, commonly known as the flu, is a recurring and preventable ailment with epidemic tendencies, imposing a substantial annual impact on diverse segments of the population, healthcare systems, and the economic well-being of affected countries.[1,2] Despite global efforts to combat this challenge through vaccination goals,[3,4] seasonal influenza significantly contributes to winter mortality rates and increased hospital admissions. Many countries face challenges in achieving sufficient coverage for their at-risk populations, primarily relying on conventional vaccination methods.

Globally, primary care physicians play a pivotal role in providing free flu vaccinations to individuals in high-risk groups, a practice also observed in Romania.[5] Recognizing the convenience and widespread accessibility of pharmacists, an evolving strategy aims to strengthen vaccination efforts by integrating them as administrators. This shift has demonstrated efficacy in augmenting coverage rates, supported by empirical evidence showcasing pharmacists' contributions to safeguarding those susceptible to the flu.[6,7] Experiences in countries such as England, Portugal, and the United States highlight the manifold advantages of pharmacist-led influenza vaccination services, alleviating strain on healthcare systems and benefiting patients.[8,9]

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The term "pharmaceutical service" encompasses the activities of pharmacists within the healthcare system, striving to achieve measurable benefits.[10] Beyond ensuring access to high-quality medications and rational management, pharmaceutical services include preventive medicine.[11] The provision of pharmaceutical services enhances healthcare outcomes and improves patients' quality of life, optimizing the potential of pharmacies and pharmacists.[12,13]

In Romania, a significant shift occurred during the 2023–2024 influenza season with the introduction of pharmacy-based vaccination, presenting a novel strategy. Reimbursement levels now vary; high-risk patients receive full reimbursement, while the rest of the population enjoys a 50% reimbursement. Following the procurement of the vaccine, individuals can choose whether to receive vaccination from their family doctor or opt for the pharmacy-administered alternative.

With this background, the present study aims to assess patient acceptance of Romania's recently implemented pharmacy-based vaccination program. This research seeks to address a critical gap in knowledge regarding patient attitudes toward pharmacy-based vaccination in Romania, aligning with the broader context of global efforts to enhance influenza vaccination coverage and optimize healthcare delivery.

Materials and Methods

The study focuses on the Romanian market, specifically addressing the introduction of pharmacy-based vaccinations during the current year (2023). Notably, the questionnaire employed in this study was developed and implemented before the changes in the vaccination campaign, intending to establish a baseline understanding of participant perceptions.

The questionnaire consists of 15 questions exploring participants' socio-demographic and health data, vaccination preferences, awareness of pharmacy-based vaccinations, and perceptions of the advantages and disadvantages associated with vaccinations administered by pharmacists or family doctors. Developed collaboratively by medical and pharmaceutical researchers specializing in pharmacy, family medicine, and public health, the survey comprises ten closed-ended questions with predetermined response options and five open-ended questions encouraging participants to express their opinions freely. The surveys were conducted by a pharmacist student researcher under the supervision of a faculty member from the medical school, taking place in a pharmacy during regular working hours. Convenience sampling was employed in this study. Participants were recruited, based on their willingness to participate in the survey, from individuals entering the pharmacy, irrespective of their purpose for visitation. This approach facilitated the inclusion of diverse individuals from the community.

Participants were informed about the study's nature and their right to withdraw at any time before starting the questionnaire, as outlined in the survey description section. Informed consent was obtained from participants within the questionnaire description, ensuring their willingness to participate, even when responding to questions involving personal information in anonymized form (eg, age, gender, occupation, etc.). The study was conducted following the Declaration of Helsinki, and approval for the study was granted by the Bioethics Committee of the Faculty of Medicine, "Ovidius" University of Constanta (approval number 2/11.05.2023).

The questionnaire's design, detailed in Table 1, emphasizes user-friendliness and comprehensiveness. It seeks candid and impartial responses to provide a nuanced understanding of participants' perceptions of pharmacy-based vaccination.

Each survey's completion took approximately five to ten minutes, with participants responding on paper, later transcribed into Microsoft Excel — the analysis of patient acceptance regarding the pharmacy-based vaccination program employed descriptive statistics.

For this study, quantitative and qualitative analyses were conducted on the responses of 150 patients. The quantitative analysis utilized descriptive statistics, offering an overview of patient acceptance. Acceptability of pharmacy-based vaccination was assessed with the help of specific questions directed to where the person would prefer to be vaccinated for influenza and opinions referring to the acceptance of the legislative change. Meanwhile, qualitative analysis explored emergent themes from participants' reactions to open-ended questions, providing in-depth insights into their nuanced perspectives. The authors independently analyzed the answers provided for the open questions and identified themes. The research team members discussed and agreed upon these thematic patterns, following the interpretative arrangement of codes.[14]

Quantitative and qualitative analyses enhance the depth of understanding and insights derived from participant responses. Data collection and analysis occurred within a specific timeframe, ensuring a comprehensive examination of patient attitudes during the pharmacy-based vaccination program implementation.

Table 1 Survey Questions on Influenza Vaccination Acceptance in Romania

Item Number	Question	Answer
1	How old are you?	Open answer
2	What is your gender?	Female
		Male
3	What environment do you live in?	Urban
		Rural
4	Have you been diagnosed with the flu in the last 12 months?	Yes
		No
5	If the answer is yes, have you had a medical consultation?	Yes
		No
		I have not been diagnosed with the flu
6	Have you ever had the flu shot?	Yes
		No
7	Have you been informed that from January 2023, you can get vaccinated in pharmacies?	Yes
		No
8	How did you hear about this vaccination campaign?	Internet
		TV
		Neighborhood
		The family doctor
9	Do you know how this can be done and what criteria you have to meet?	Yes
		No
10	Do you think this pharmacy vaccination campaign is a good idea?	Yes
		No
11	Where would you prefer to get vaccinated?	In the doctor's office
		In the pharmacy
12	What do you consider to be the main advantage of vaccination in the doctor's office?	Open answer
13	What is the main disadvantage of vaccination in the doctor's office?	Open answer
14	What do you consider to be the main advantage of vaccinating in the pharmacy?	Open answer
15	What do you consider is the main disadvantage of vaccinating in the pharmacy?	Open answer

Results

A questionnaire was administered to 150 patients from a community pharmacy to evaluate the acceptance of influenza vaccination in Romania. Notably, participants spanned an age range from 18 to 65 years. The gender distribution (Table 2) revealed that 76% of participants were female, while 24% were male. Additionally, the survey assessed the background of patients, with 74% (111 patients) hailing from urban areas and 26% (39 patients) from rural areas.

Table 2 Demographic Criteria of Study Participants

Demographic	n (%)
Gender	
Female	114 (76%)
Male	36 (24%)
Environment	
Urban	111 (74%)
Rural	39 (26%)

Table 3 provides insights into participants' influenza diagnoses in the last year, their vaccination status during illness, and their preferences regarding vaccination location. Of the 150 patients, only 36% knew that starting in 2023, they could receive vaccinations at pharmacies. Television and the internet emerged as primary sources of information, with only a tiny fraction of the program being learned about by family doctors, neighbors, or acquaintances.

Table 3 Influenza Diagnosis and Vaccination of Patients

Questions	n (%)
Diagnosis of influenza in the last 12 months	
Yes	15 (10%)
No	135 (90%)
Medical consult	
Yes	3 (2%)
No	12 (8%)
I have not been diagnosed with the flu	135 (90%)
Flu vaccination in the previous season	
Yes	75 (50%)
No	75 (50%)
Awareness of pharmacy vaccination	
Yes	54 (36%)
No	96 (64%)
Awareness of vaccination campaign	
Internet	58 (39%)
TV	76 (51%)
Neighborhood	6 (4%)
The family doctor	10 (7%)
General Knowledge about the procedure for vaccinating	
Yes	39 (26%)
No	111 (74%)
Agreement with the idea of vaccinating in a pharmacy	
Yes	102 (68%)
No	48 (32%)

(*Continued*)

Table 3 (Continued).

Questions	n (%)
Preferred place to vaccinate	
In the doctor's office	99 (66%)
In the pharmacy	51 (34%)

Concerning comprehension of the pharmacy-based vaccination program, 26% reported understanding the benefits and eligibility criteria, highlighting a significant awareness gap. In contrast, the majority lacked clarity on these aspects.

Patient perceptions were diverse, with 68% expressing favorable sentiments toward the pharmacy-based vaccination project, considering it commendable. However, only 34% conveyed confidence in seeking vaccination services at a pharmacy, revealing a divergence in trust within the surveyed population.

Responses to the question, "What do you consider to be the primary advantage of vaccination in a medical office?" reflected a preference for the safety provided by medical staff expertise, with considerations such as familiarity with the patient's medical history and easy access to medical supervision. Conversely, the disadvantages included concerns about overcrowding, exposure to other viruses, and travel inconvenience.

Participants highlighted several advantages of vaccination in pharmacies, emphasizing accessibility, no need for appointments, and a likely sufficient supply of vaccine doses. Disadvantages included concerns about insufficient staffing, lack of experience in vaccination, reduced hygienic and sanitary protection, and limitations in post-vaccination contact.

Discussion

The primary aim of this study was to assess patient acceptance of pharmacists administering the influenza vaccine in Romania, a topic of heightened relevance considering the prolonged underfunding of Romania's healthcare system, particularly affecting primary healthcare services.[15] The results demonstrate that over half of the surveyed patients anticipate positive impacts on vaccination rates through the pharmacy-based vaccination project, aligning with observations in other health systems.[16] Previous evaluations indicate that individuals opting for vaccination by community pharmacists reported positive experiences, with convenience being a predominant factor in selecting pharmacies as vaccination sites.[16] However, only one-third of participants expressed confidence in vaccinating in pharmacies. This reluctance may stem from insufficiently conveying accurate health and vaccine information to patients, highlighting the necessity for an open commitment and structured pharmacist-patient dialogue to expect significant increases in vaccination rates.

Efficiently designing and implementing the pharmacy's role in improving influenza vaccination acceptance rates is crucial.[17] For instance, studies show that pharmacists' administration of the influenza vaccine has positively impacted vaccination rates, especially among those who might not have otherwise had the opportunity.[18]

The subset of surveyed individuals who do not seek annual vaccination is fascinating. Alarmingly, only half of the respondents opted for influenza immunization in the last year, a concerning statistic given the importance of fostering an annual vaccination habit for seasonal flu performance.[19] Many individuals in socioeconomically disadvantaged areas face higher risks of fatal complications from the flu, such as pneumonia or exacerbation of other long-term conditions.[20] Plans must explicitly address such socio-demographic and ethnic vulnerability factors to efficiently reduce infection burdens, mitigate social disparities, and improve social consequences during future pandemics.[21] Due to their widespread presence, pharmacies offer more territorial equity than other healthcare facilities, mainly benefiting residents in under-served or hard-to-reach areas.[22] Romanian context shows territorial disparities, especially among urban and rural areas,[23] leading to significant inequalities in healthcare quality among different populations.[24,25]

The study underscores convenience and accessibility as the most commonly cited reasons for receiving vaccinations at community pharmacies, suggesting that pharmacists can contribute significantly to the influenza vaccination targets set by the Ministry of Health.[16] Participants preferred vaccination in pharmacies due to their proximity to homes and the abundance of pharmacies, making vaccination more accessible.[26] Recent studies also highlight that pharmacy vaccination

services complement those offered by family physicians, especially appealing to working-age individuals due to convenience and accessibility. Additionally, the active involvement of pharmacists in routine care, including regular vaccine status checks, proactive conversations, vaccination recommendations, and immunization programs in pharmacies, presents further advantages.[27]

However, it was observed that most patients are unaware of the conditions under which this medical procedure can occur in pharmacies, leading to their lack of confidence. Respondents raised issues such as insufficient training of pharmacy staff in vaccination and the lack of suitable vaccination space within pharmacies as main disadvantages. Implementing vaccinations in community pharmacies requires legal and administrative changes in order to determine the vaccination funding mechanism.[28] Successful implementation necessitates cooperation among government representatives, pharmacists, other healthcare professionals, and patients. This collaboration's effectiveness will influence the developed model's success and outcomes. According to Order No. 3262 dated October 19, 2022, published in the Official Gazette No. 1031 bis on October 24, 2022, issued by the Ministry of Health, for a community pharmacy to be authorized to participate in the seasonal flu vaccination program, it must meet specific conditions.[29]

Vaccination in community pharmacies is common in many countries, and its implementation in Romania can potentially increase vaccination rates. Studies from countries that have adopted this strategy have shown a significant increase in the immunization rate of the population following the introduction of flu vaccination in pharmacies.[17,30]

Community pharmacists are authorized to administer vaccines under certain conditions in Argentina, South Africa, the United States of America, the United Kingdom, Portugal, Ireland, Australia, Switzerland, and France.[28] Argentina, one of the first countries to implement such a strategy, authorized pharmacists to administer intramuscular and subcutaneous injections under medical indication since 1958. The law expressly allowed pharmacy vaccination based on a prescription, which started in 1983. However, it was only in 2011 that regulations included intradermal injections in pharmacies with the specific purpose of vaccination.[31–33] Pharmacists promote immunization through various channels in the United Kingdom and are authorized to administer vaccines.[34,35] Switzerland's authorization for pharmacists to administer vaccines is under the control of each canton,[36] with the perceived safety of patient-specific medical information being the main advantage of choosing vaccination in a medical office rather than a pharmacy.[37] The perceived disadvantage is related to the relatively long time allocated for the medical office visit due to congestion[38] and distance. The advantages of vaccine accessibility in pharmacies are evident because, regardless of how crowded the pharmacy is, a patient will not be refused vaccination,[39] and sufficient vaccine doses are available.[40] Additionally, the proximity of pharmacies offers convenience for patients,[41] and the vaccine cost is lower.[42] Patients are hesitant to get vaccinated in pharmacies, citing the insufficient experience of the pharmacy staff in performing vaccinations.[43] There is also a concern about the low level of hygiene and sanitation, although pharmacies have strict hygiene protocols.[44] Finally, patient reluctance is also related to managing adverse reactions after vaccination, although studies show comprehensive and proper management of post-vaccination adverse events by pharmacists.[45]

While the sample is not representative, the results offer an overview of the population's perceptions of new measures for improving vaccine delivery in Romania. Further analysis comparing vaccination rates from the 2023 flu season with previous years and the evolution of the general population's perceptions and attitudes will provide evidence of the impact of this change on the Romanian healthcare system.

Conclusion

The present study's findings on the acceptance of influenza vaccination administered by pharmacists in Romania underscore the potential impact of pharmacy-based immunization on enhancing rates, aligning with observations in other healthcare systems. Convenience is a predominant factor influencing patients' choice of pharmacies as vaccination sites, echoing previous positive experiences reported in various health systems.

Addressing the lack of awareness regarding pharmacist and community pharmacy authorization for influenza vaccination is paramount to building patient trust in seeking this vital medical service in pharmacies. The study emphasizes recognizing and overcoming these awareness gaps through structured pharmacist-patient dialogues, clear communication, education, and addressing existing barriers.

Efficiently designing and implementing pharmacies' role in improving influenza vaccination acceptance rates is crucial. Insights from this study align with previous research indicating that pharmacists' administration of the influenza vaccine positively influences rates, especially among those who might otherwise miss the opportunity.

The study highlights the need to bridge the information gap through structured pharmacist-patient dialogues, emphasizing the importance of open communication to foster increased confidence and participation.

The convenience and accessibility offered by community pharmacies emerge as key motivators for patients to choose this setting for influenza vaccinations. The proximity of pharmacies to homes and the abundance of pharmacy locations makes vaccinations more accessible, supporting the Ministry of Health's vaccination targets.

However, challenges exist, including a lack of awareness among patients regarding the conditions under which pharmacy-based vaccinations can occur. Concerns about insufficient training of pharmacy staff and the absence of suitable vaccination space within pharmacies are identified as barriers to patient confidence. Successful implementation requires legal and administrative changes, a defined vaccination funding mechanism, and collaboration among government representatives, healthcare professionals, and patients.

Drawing insights from countries where pharmacy-based vaccination is common, this study emphasizes Romania's potential to increase vaccination rates through a well-structured implementation plan. Recognizing the role of pharmacists in routine care, coupled with proactive vaccination recommendations and immunization programs, can further strengthen the advantages of community pharmacy involvement.

While the sampled population may not be fully representative, this study provides a valuable overview of patient perceptions regarding new measures to enhance vaccine delivery in Romania. Future research comparing vaccination rates across flu seasons and the evolution of the population's perceptions and attitudes will offer additional evidence of the sustained impact of the changes introduced in the Romanian healthcare system. This study contributes to the ongoing discourse on optimizing influenza vaccination coverage, and the findings have implications for shaping healthcare policies and strategies in Romania and beyond. As the healthcare system evolves, recognizing and harnessing the potential of pharmacies can significantly contribute to achieving broader vaccination goals and fostering a more resilient and responsive healthcare system.

Disclosure

The authors report no conflicts of interest in this work.

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