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**PHARMACEUTICAL ADAPTATION FACED WITH THE NEW HEALTH
CHALLENGES ARISING BY COVID 19 IN ALGERIA: TREND OF DEVELOPMENT
FOR PHARMACEUTICAL MANAGEMENT**

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Abstract. The objective for this paper is to determine the extent to which pharmacists are adapting to the growing needs of customers at the covid-19 era. Both pharmacists and their clients are submitted to five challenges: spread of infections, access to medicines, self-medication, work management and staff training. In order to do so, an online case study using a semi-structured interview concerning the main challenges faced by 50 pharmacies during the covid-19 period to describe the role of pharmacies and discuss their future functions was conducted during the months of September/November 2023 in the region located in the far west of Algeria. Then, to measure the degree of urgency and importance of the challenges encountered, we adopted the Eisenhower matrix while using the Likert scale (of 05 choices) with the help of Sphinx plus software. We then applied the same analysis tool to a sample of 138 customers to reveal their degree of pharmaceutical adaptation. This study revealed a high degree of adaptation in terms of (importance/urgency) of pharmacies in relation to their customers for the five challenges mentioned above: (4.94-4.98) / (5/5) for the spread of infections; (4.56-4.94) / (3.97-4.57) for access to medicines; (3.98/1.66) against (3.88-1.54) for self-medication. (1.60-3.38) versus (1.57-3.39) for work management and (3.40-1.66) versus (3.46-1.37) for training. These results converge towards a concept of pharmaceutical adaptation, which is a trend of development for innovation in pharmaceutical management.

Keywords: Covid-19; pharmaceutical management; development; pharmaceutical adaptation; pharmacists; challenges.

JEL Classification: H12, M12

INTRODUCTION

The Covid-19 pandemic was a real catalyst for the emergence of new needs at all levels of the economy (micro, meso and macro) involving all stakeholders, i.e., households, businesses, banks, pharmacies, customers, universities, etc. Since the first reported case of the novel coronavirus in Wuhan, Hubei Province, China, in December 2019, the spread of novel coronavirus has been out of control and spreading rapidly (Zachary & Charmane, 2021). Access to hospitals as well as to medical practices has been severely restricted (Baratta et al, 2021) with patients being advised to consult their doctor by telephone and not to go in person to work practices or medical services. Healthcare providing first aid (Baratta et al, 2021). Consequently, the only healthcare professionals freely accessible to the public were community pharmacists (Cadogan & Hughes, 2021). This led to a significant increase in the number of people entering community pharmacies to purchase products such as personal protective equipment, but also to receive clarification and information about the new disease. Within this framework, community pharmacies have been encouraged and compelled to expand their range of services from the simple provision of medicines to the provision of patient-centred services (Bragazzi et al, 2020). During the period of this health crisis, community pharmacists globally have faced a range of challenges to ensure continuity of patient care such as: infrastructure issues (Marwitz et al, 2021); weak technological and engineering base (Akande-Sholabi & Adebisi, 2020); access to medicines (Hamadi et al, 2022); Information and Communication Technologies (Djeflat, 2021); supply chain (Hayden & Parkin, 2020) and the challenge of spreading contagion (Djeflat, 2022).

Pharmacies in Algeria, which also face these multiple challenges, have been living on the margins of innovation in pharmaceutical services and practices for a long time (Jou & Datoussaid, 2023). Innovation requires individuals to monitor and modify their cognition or behavior to improve a standard procedure or implement a new idea (Anderson et al 2014). In this context, adaptation is an essential condition for innovation (Tuominen et al, 2004; Savitri et al, 2021). Indeed, it is an important driver of innovation (Smith & Webster, 2018). According to the same authors, to innovate, we must first be able to adapt. Since the scope of practice of community pharmacy and the degree of adaptation vary considerably from one country to another and from one society to another, it is important to examine this dimension from the side of pharmacy customers (Annosi et al. 2016). This new form of adaptation is concretely conditioned by the resurgence of new customer or patient needs dictated by the repercussions of the covid-19 health crisis. In other words, the source of emergence of this innovation is the customer himself; ultimately, he can help generate other types of innovation (Cadogan & Hughes, 2021). In a context that this study contributes to the literature on innovation in pharmaceutical management by evaluating the pharmaceutical adaptation of pharmacies as client companies and of their clients as providers in the face of the various challenges encountered during the covid-19 health crisis in Algeria. We therefore addressed the following main question: to what extent can community pharmacies and their customers adapt to a crisis like that of covid-19? Our research work is centered on the following hypothesis: The pharmaceutical adaptation of pharmacies and their customers is an essential condition for the innovation of pharmaceutical management. The second section concerns the methodology adopted in this work. The third section presents the empirical results in terms of new challenges dictated by the covid-19 crisis. The last section displays the discussion of the empirical results in terms of pharmaceutical adaptation.

METHODOLOGY

This study adopted a qualitative and quantitative approach.

First part- Collection and analysis of data on community pharmacists

The field survey was carried out during the months of September/November 2023 in the region located in the far west of Algeria. Data collection involved both community pharmacists and

their clients. First, we had a sample of 50 community pharmacists of which we contacted either the manager or the owner-employer for each pharmacy. Firstly, all pharmacists were asked the same main question concerning the main challenges faced by pharmacies during the covid-19 period. Secondly, we demanded the 50 pharmacists to rank these according to their degree of urgency and importance, using the Likert scale (05 choices). The latter is considered a psychometric tool for measuring attitudes in individuals. In addition, using Sphinx plus software, we applied the Eisenhower matrix to reveal the degree of urgency and importance of these challenges, enabling pharmacies to make the right decision in terms of priority and investment, the main aim of which is to promote innovation in the pharmaceutical management. The Eisenhower matrix is a time management and analysis tool that classifies tasks according to their urgency (time) and importance to the achievement of the final objective. It is based on a quote by Dwight D. Eisenhower (Bratterud & Burgess, 2020). As shown in figure, this matrix is a double-entry table:

- Horizontal axis: task importance
- Vertical axis: urgency of tasks

The matrix thus comprises four quadrant:

- A: important and urgent activities, tasks to be carried out immediately and on one's own.
- B: important but not urgent activities, tasks to be planned and carried out oneself.
- C: urgent but unimportant activities, tasks to be delegated quickly.
- D: activities of little urgency or importance, useless tasks to be abandoned.

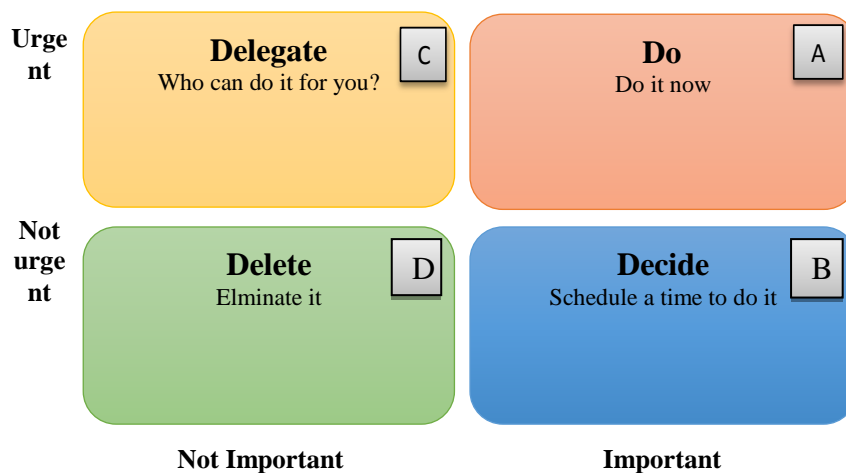


Fig. 1. Eisenhower Matrix (Urgency/ Importance).

Second part - interviews with Customers

To analyze opportunities for innovation in pharmaceutical services, it is necessary to study the degree of pharmaceutical adaptation of customers to the challenges faced by pharmacies at the time of covid-19. To this end, we selected a sample of 138 customers frequenting the pharmacies of the pharmacists in our sample and asked them to rank the five challenges in question according to their degree of urgency and degree of importance, using the Likert scale (of 05 choices). We then arranged these challenges in the Eisenhower matrix to reveal the compatibility of the two matrices: those of the pharmacies and those of the customers.

RESULTS AND DISCUSSION

Eisenhower matrix (urgency/importance): positioning the five challenges - for pharmacists

The Eisenhower matrix was used to rank the top five challenges according to the priorities faced by the 50 pharmacies during the covid-19 crisis period. The ranking was as follows: 1-

Access to medicines, 2- Spread of infections, 3- Self-medication, 4- Work management and 5- Staff training. Figure 2 shows that, from a pharmacy point of view, the challenge of spreading infections with a degree of importance/urgency: (4.94/ 4.98), noting that the higher the score the greater the challenge, as well as the challenge of access to medicine with one degree (4.56/4.94) are important and urgent challenges that should be addressed immediately (as a priority). While the self-medication challenge with a degree (3.98/1.66) and the staff training challenge with a degree (3.40/1.66) represent important but not urgent challenges. These should be planned for the near future. Whereas the work management challenge positioned in quadrant C with a degree of importance and urgency of (1.60/3.38), which represents a less important but urgent challenge, is a task to be delegated and it requires immediate attention.

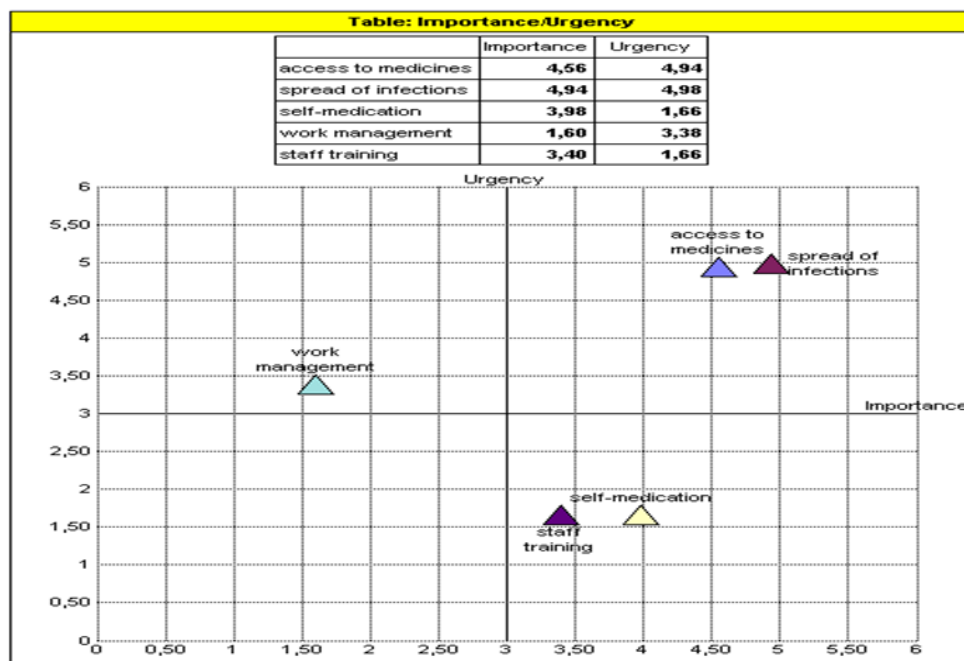


Fig.2. Importance / Urgency Matrix – Pharmacists.

- For customers

We have seen through Figure 3 that the positioning of the five challenges on the part of customers in the Eisenhower matrix is like the positioning achieved in the matrix of pharmacies. In other words, there is compatibility between the two matrices. Indeed, in terms of importance and urgency- quadrant (A): the challenge of spreading infections as well as the challenge of access to medicine are respectively important and urgent with the following rates (5/5) and (3.97 /4.57). While the self-medication challenge with a degree (3.88/1.54) and the staff training challenge with a degree (3.46/1.37) represent important but not urgent challenges. Whereas, the work management challenge positioned in quadrant C with a degree of importance and urgency of (1.57/3.39), is a less important but urgent challenge.

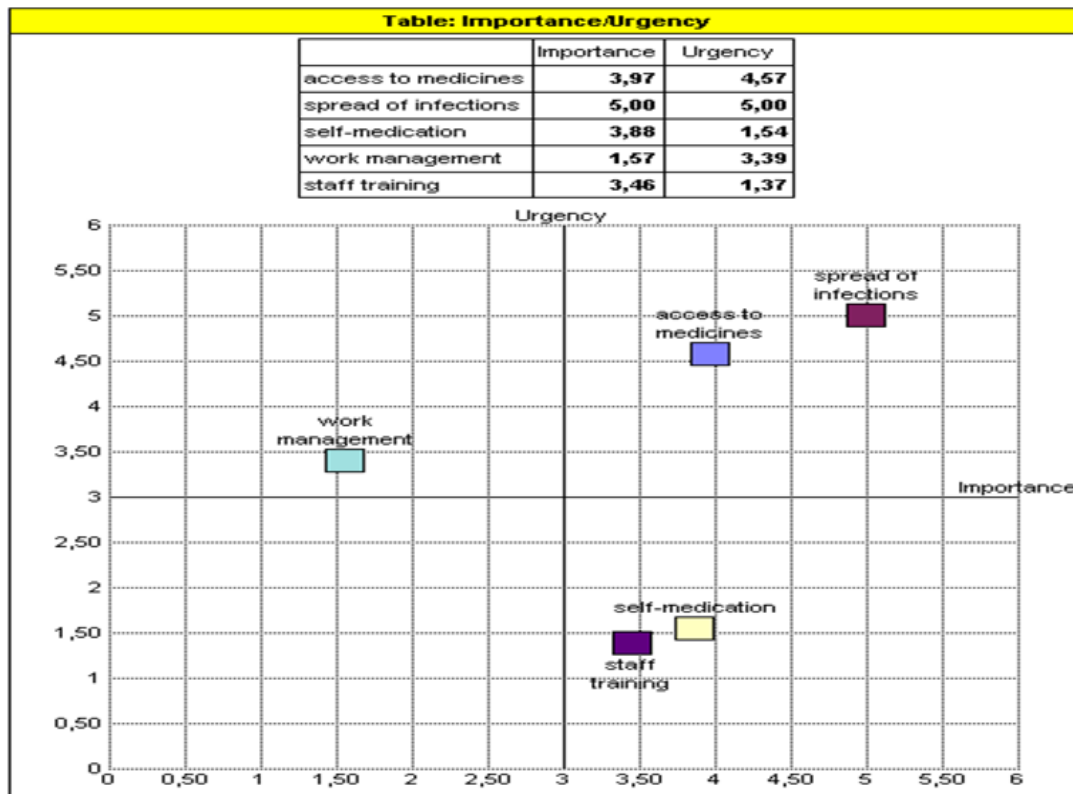


Fig. 3. Importance/Urgency matrix – customers.

Pharmaceutical adaptation: a trend for development of innovation in pharmaceutical management

We discuss this concept of “pharmaceutical adaptation” as a contribution to innovation develop in pharmaceutical management. A comparison of the two matrices - that of the pharmacies (fig. 2) and that of the customers (fig. 3) - reveals a high degree of compatibility and similarity in the positioning of the five issues mentioned above. This indicates that pharmacies and their customers share the same point of view on these issues. Pharmacy customers accept certain measures adopted by pharmacies. In terms of the spread of infections, these pharmacists' ability to adapt to pharmaceutical needs was demonstrated during this period, on the one hand by making their customers aware of the need to regularly use cleaning tools such as (masks, hydro-alcoholic gel, bibs, gloves, etc.), and on the other, by adapting their premises in an attempt to achieve "social distancing" by installing Plexiglas barriers or door cubicles, while limiting the number of patients accessing them. And secondly, by adapting their premises in an attempt to achieve "social distancing" by installing Plexiglas barriers or door cubicles, while limiting the number of patients accessing the pharmacy interior (Morawska & Cao, 2020). In the same vein, covid-19 created another challenge for all citizens to get to pharmacists, and it also prevented suppliers from delivering medicines to pharmacies (Jou & Datoussaid, 2023). In addition, this pandemic-like matrix has once again revealed the inequalities that exist in terms of access to healthcare and medicines (Hamadi et al, 2022; Djeflat, 2022). Access to safe and effective medicines and healthcare services is a fundamental human right and a central pillar of any healthcare system (Al-Haqan et al, 2022; Hamadi & Datoussaid, 2019). Pharmaceutical adaptation to concerns about access to medicines has shown that both pharmacists and customers agree on the importance of this challenge, which still represents a real public health issue in Algeria (Hamadi et al, 2017; Hamadi et al, 2022). Stimulating local pharmaceutical production of medicines has therefore become an essential step that could contribute to the country's GDP, while exploiting certain plant-based remedies locally (Datoussaid et al, 2021).

What's more, the pandemic has triggered widespread containment across much of the world, leaving the feeling that the only resource available to patients is self-care (Matias & Dominski, 2020). As a result, self-medication has led to the circulation of certain types of drugs that appear to be used to treat the symptoms of covid-19, such as paracetamols, antibiotics, vitamin C and anti-inflammatories, but most of which, have been shown not to be beneficial in preventing the disease in this case covid-19 (WHO, 2021).

The pharmaceutical response to the challenge of self-medication in this situation was to provide advice on how to limit self-medication, highlighting the health risks involved (Chi et al, 2021). And in return, customers should trust their pharmacist. Ultimately, a relationship of trust should develop between pharmacist and customer. In this sense, the WHO recognizes that "successful" (i.e. beneficial) self-medication can only be achieved in many countries by improving people's knowledge and level of education, so as to avoid the potential harm of this practice (WHO, 2023). Following the same idea, according to Kala'lembang (2021), the digitization of managerial practices in relation to traditional practices will contribute strongly to managerial organizational and cultural change for both pharmacies and their customers (Nazanin et al, 2021). In this respect, pharmacy training (Widya Adharyanty Rahayu & Adriani Kala'lembang, 2023) and the integration of digital platforms, which represent new management structures, will enable better knowledge sharing according to (Nadia et al. 2021) and more sustained innovation (Akande-Sholabi & Adebisi, 2020). For example, the introduction of specific technologies to care for and support the elderly (Djellal & Gallouj, 2006); virtual and telephone consultations should be adopted for vulnerable patients such as diabetics, hypertensives, and asthmatics.

In other words, if pharmacies can meet these challenges, while considering their degree of importance and urgency, customers will readily accept the changes. This suggests that there are opportunities for innovation. In this new context, the adaptation we are talking about is quite simply pharmaceutical adaptation, as a new notion that links the pharmaceutical services of pharmacies and their customers to needs dictated more specifically by the health crisis.

CONCLUSION

Although the covid-19 health crisis has caused considerable difficulties for many dispensing pharmacists in Algeria, it has opened interesting prospects for the development of research into pharmaceutical management. It is within this framework that the work we have been able to accomplish is intended to be original not only in terms of the various challenges discussed above (the spread of infections, access to medicines, successful and beneficial self-medication, innovative work management and staff training) but also in relation to the dimension of pharmaceutical adaptation of pharmacies and their clientele, which is an essential trend for development of innovation in pharmaceutical management.

We must conclude that our research could help in the decision-making process regarding the restructuring of existing pharmaceutical services in response to public health crises such as Covid-19. In this respect, it is essential to consider customers as consumer customers; their behaviors play a vital role in terms of successful innovation and community pharmacies as a production function whose cognitive relationship of its human resources, as new brain capacities allowing interaction with the environment, is a new intangible factor that plays an essential role in terms of pharmaceutical adaptation between community pharmacists and their customers. These are all avenues we are opening up for future research.

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**ФАРМАЦЕВТИЧНА АДАПТАЦІЯ ДО НОВИХ ВИКЛИКІВ У СФЕРІ
ОХОРОНИ ЗДОРОВ'Я, СПРИЧИНЕНИХ COVID 19 В АЛЖИРІ: ТЕНДЕНЦІЯ
РОЗВИТКУ ФАРМАЦЕВТИЧНОГО МЕНЕДЖМЕНТУ**

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Мета статті - визначити, якою мірою фармацевти адаптуються до зростаючих потреб клієнтів в епоху covid-19. І фармацевти, і їхні клієнти стикаються з п'ятьма викликами: поширенням інфекцій, доступом до ліків, самолікуванням, управлінням роботою та навчанням персоналу. Для цього у вересні-листопаді 2023 року в регіоні, розташованому на крайньому заході Алжиру, було проведено тематичне онлайн дослідження з використанням напівструктурованого інтерв'ю щодо основних викликів, з якими зіткнулися 50 аптек у період covid-19, щоб описати роль аптек та обговорити їхні майбутні функції. Потім, щоб виміряти ступінь нагальності та важливості викликів, з якими ми зіткнулися, ми застосували матрицю Ейзенхауера, використовуючи шкалу Лайкерта (з 05 варіантів відповідей) за допомогою програмного забезпечення Sphinx plus. Потім ми застосували той самий інструмент аналізу до вибірки з 138 клієнтів, щоб виявити ступінь їхньої фармацевтичної адаптації. Це дослідження виявило високий ступінь адаптації (важливості/нагальності) аптек по відношенню до своїх клієнтів для п'яти згаданих вище викликів: (4,94-4,98) / (5/5) для поширення інфекцій; (4,56-4,94) / (3,97-4,57) для доступу до лікарських засобів; (3,98/1,66) проти (3,88-1,54) для самолікування. (1,60-3,38) проти (1,57-3,39) для управління роботою та (3,40-1,66) проти (3,46-1,37) для навчання. Ці результати збігаються з концепцією фармацевтичної адаптації, яка є тенденцією розвитку інновацій у фармацевтичному менеджменті.

Ключові слова: Covid-19; фармацевтичний менеджмент; розвиток; фармацевтична адаптація; фармацевти; виклики.