



**Letter to the Editor**

## Impact of COVID-19 on Pharmacy Education

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### Abstract

Morocco, home to nearly 36 million inhabitants has undergone demographic and epidemiological transitions over the past 50 years. Alongside this transition is the prevalence of Non-Communicable Diseases (NCDs) which has also risen substantially and has contributed remarkably to the rise in the population's need for healthcare services. In order to respond to the increasing healthcare needs of the Moroccan population, it is necessary to ensure that healthcare providers are readily accessible and sufficient. As one of the most accessible healthcare providers, pharmacists are well positioned to address these demands. It is therefore essential to build a competent pharmaceutical workforce in Morocco with a specialized focus on pharmacy education and training. However, the education and training of pharmacy students in the country has been grossly disrupted by the present COVID-19 pandemic. In this paper, we examine the impact of the COVID-19 pandemic on pharmacy education in Morocco. The net impact of this unprecedented pandemic on pharmacy education in Morocco has become well pronounced with a lot of accompanying challenges. If not addressed, the results in the long-run may be devastating.

**Keywords:** COVID-19; Pharmacy; Pharmacists; Education; Workforce; Pandemic; Coronavirus; Morocco; Africa.

Situated in the North-West African region, Morocco is home to nearly 36 million inhabitants. The country has undergone demographic and epidemiological transitions over the past 50 years [1]. The prevalence of Non-Communicable Diseases (NCDs) has also risen substantially and has contributed remarkably to the rise in the population's need for healthcare services. To meet the health needs of the Moroccan population, healthcare delivery is primarily through the public and private sectors respectively [2]. In spite of this, 20% of the total population in Morocco is still faced with the problem of walking a distance of over 10 kilometers before accessing a healthcare facility or provider. An explanation for this anomaly is the inequality in the geographical distribution of healthcare services [3]. This inequality in access to healthcare in the country still remains an issue of public health importance and has invariably resulted in a remarkable shortage of human resources [1]. To tackle this shortfall in workforce capacity in Morocco, it is necessary to ensure the development of an adequately prepared health workforce that is readily accessible to respond to the growing health needs of the population. As one of the healthcare providers that are most readily accessible [4], pharmacists play a key role in responding to and addressing the population's evolving health needs. It is therefore essential to build a competent pharmaceutical workforce in Morocco with a specialized focus on pharmacy education and training. However, the training and education of pharmacy students in the country

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has been grossly disrupted by the present COVID-19 pandemic. The net impact of this unprecedented pandemic on pharmacy education in Morocco has become well pronounced and evident. If not addressed, the results in the long-run may be devastating.

Following reports of the outbreak of the COVID-19 pandemic caused by the novel coronavirus (SARS-CoV-2) in Wuhan, China in December, 2019, the virus had crossed into the Moroccan territory as of February, 2020. As a means of curtailing community transmission, the Moroccan government announced a total lockdown on March 20, 2020. Although this appeared to be a proactive approach towards minimizing the transmission of the virus, it had a ripple effect on the quality of life and health of the citizens. The restriction on movement affected all social settings in the country including religious places of worship, mosques, parks, airports and academic institutions. This measure has had serious implications on higher education in the country as it resulted in the disruption of the educational sector and discontinuity of all educational levels. Faculties of pharmacy in the country were not an exception, with a suspension of both presential courses alongside clinical rotations to minimize the incidence of pharmacy students' exposition to COVID-19 transmission [5].

During the early phase of the COVID-19 pandemic, pharmacy students in Morocco had undergone a period of uncertainty regarding the possible date of resumption coupled with the anxiety attributed to the release of exam dates. Since the ministerial orders were yet to be released, academic staff and faculties were uncertain about the next possible line of action; this further placed serious consequences on the academic lives of pharmacy students in the country. Presently, another cause for concern has been the fate of interns whose internships were halted abruptly due to the COVID-19 pandemic. The reality in this context is that the motivation of pharmacy students in Morocco has experienced a dramatic drop. Consequently, the gravity of damages has become more evident on the mental health of a wide majority [6]. Psychologically stable individuals may suffer from detrimental effects on their mental well-being but it worsens for individuals with pre-existing unstable conditions. The Moroccan educational system could have seen better days during the COVID-19 crisis should there have been a strong long-term strategy already put in place that is flexible enough to strive in the face of any unprecedented event.

In a bid to minimize the disastrous effect of the COVID-19 pandemic on pharmacy students as well as ensure the continuity of pharmacy education in Morocco, it is important for the country to have the ambition to serve its students by meeting up with the present demands such that we will not only be receptive to the demands of this new generation, but also fight the passive learning model that is a direct consequence of traditional education. Since there are only two faculties - excluding the private ones - in Morocco, offering the pharmaceutical curriculum, with a low number of students comparing to other majors, the interest and commitment to leveling up creative educational means to this minority is to be questioned. This goes alongside the stereotypes that the general Moroccan population has on this profession as its students are seen no more than "drug marketers" which is implicitly affecting their professional performance, hindering a collaborative approach from and with every side, and of the strive of the pharmacy specialty. Although these factors highlighted above have been a barrier to the continuity of pharmacy education in Morocco, innovative strategies such as e-learning have been validated as a tool that can bridge the gap and ensure the continuity of pharmacy education in pharmacy schools in Africa [7] and Morocco should not be an exception. However, this does not come without presenting challenges.

As earlier emphasized, the lockdown led to the nation-wide cancellation of presential courses of all educational levels leaving the Moroccan educational sector under the necessity to look for a tenable alternative. E-learning being viewed as the best approach to virtually pursue education while applying social distancing, have been on the other hand, a "non-prepared to" measure that failed to guarantee a healthier switch. As a matter of fact, a wide skill gap has been attributed to the unfamiliarity with technological devices and frameworks amongst academic staff. This invariably resulted in superfluous delays of course delivery to students, and a breach in communication between students and course facilitators. Moreover, pharmacy is a practical course and requires the delivery of experiential content; the feasibility of e-learning in this area is generally uncertain [7]. Also, faculties of medicine and pharmacy in Morocco are made public to maintain a sustainable inclusion of students from different backgrounds with different financial capabilities going from high to low. A clear-cut implication of this is that the capability of every student to afford internet data required to meet up with the demands of E-learning is uncertain. These go on to be not only a challenge faced by the Moroccan educational system but of Nigeria [8] and Africa as well [7].

The impact of the COVID-19 crisis on pharmacy education could be more detrimental than envisaged. The pharmacy profession has been largely overlooked in the past years, which is an unfortunate common situation in different parts of the world [9]. Indeed, the COVID-19 pandemic has revealed the indispensable roles that pharmacists being one of the most accessible healthcare workers have to play. Moreover, more light is to be shed on the lessons learnt due to the changes in the Moroccan educational system. As never witnessed before, pharmacy students in higher academic levels were giving a hand to the younger ones by sharing their previous notes on the same courses, handing an archive of past exams to better exercise, and providing general advice on each year's modules. This local level collaborative approach has been a success since it tightened relationships, built a family spirit and fostered peer

support while still adhering to social distancing measures. On a bigger picture, the joint effort of pharmacists of the American Association of Colleges of Pharmacy (AACP) on creating four specific policy recommendations led to a valuable achievement since they were noticed by numerous credible institutions such as the Center for Disease Control and Prevention (CDC) [10]. We can view these small wins as the path towards the progressive withdrawal of the stereotypes held against the pharmacy profession. Since the pandemic is not predicted to end any time soon, this is the best opportunity to optimize the virtual learning in pharmacy education through sustainable methods that would require the adoption of a "Reduce-Reuse-Recycle-Renew" mindset [11] and the prompt incorporation of emerging technology and novel solutions [12]. It may have crucial positive changes if we become open to new possibilities of teaching techniques which may be acquired through an exchange of expertise nationally but more importantly, internationally. The previous emphasis on the collaborative approach can grow even bigger to have a general outcome on revolutionizing education as a whole to meet up the spirit of millennials.

## 1. Conclusion

Although the impact of the COVID-19 pandemic has become much more pronounced, it is very much necessary for the government and relevant stakeholders in the Moroccan educational sector to scale up responses and more proactive efforts that would ensure the continuity of pharmacy education in Morocco. This is critical to ensuring that the development of a competent pharmaceutical workforce in Morocco is not interrupted. The pandemic is also a chance to re-analyze the strategy the ministry of education has been implementing in the past years, and to encourage universities and faculties to be open to other pharmacy universities abroad in order to provide numerous opportunities. On one hand, the academic staff will be able to brainstorm and implement a suitable plan for remote education with advanced techniques and practices, as well as exchange failures and successes around the latter. On the other hand, students will be able to network and solidify their learning process with foreigners. Post-COVID times will likely witness the emergence of new standards of living and learning with the overnight altered methods and strategies the Moroccan educational system has been relying on many years ago. Even if the pharmacy profession goes unseen in Morocco, pharmacists' role is vital in academic institutions, laboratories, clinics, public hospitals and many more, and of which require the attention and investment in this specific field.

## 2. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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