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RESEARCH ARTICLE

Student-led educational outreach visits as a strategy to advance pharmacy education: A qualitative analysis of students' perspectives of a Brazilian study

Fernanda Lacerda da Silva Machado[1], Ana Eliza Port Lourenço[2], Danielle Maria de Souza Serio dos Santos[1]

[1] Instituto de Ciências Farmacêuticas, Universidade Federal do Rio de Janeiro, Macaé, Rio de Janeiro, Brazil
[2] Instituto de Alimentação e Nutrição, Universidade Federal do Rio de Janeiro, Macaé, Rio de Janeiro, Brazil

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Correspondence
Fernanda Lacerda da Silva Machado
Instituto de Ciências Farmacêuticas
Centro Multidisciplinar UFRJ-Macaé
Macaé
Rio de Janeiro
Brazil
fernandalsmachado@macae.ufrj.br

Abstract

Background: Pharmacy education in Brazil has recently transformed to better prepare students for public health services, requiring mandatory experiential learning. Essential medicines lists (EML) are vital for improving access to medications, though their distribution is limited. As part of a community outreach initiative, pharmacy students carried out Educational Outreach Visits (EOV) to healthcare professionals and engaged with users of primary healthcare units to promote the EML. This paper discusses the students' perceptions of leading these EOV in a municipality in southeastern Brazil. **Methods:** Eight students involved in EOV participated in a focus group discussion. The session was recorded and transcribed, followed by content analysis. Three thematic categories were established: 1) importance for the training of the future pharmacist, 2) relevance of the initiative, and 3) challenges of the experience. **Results:** The students expressed that their involvement in EOV allowed them to gain insights into the reality of the healthcare system and contributed to improving their understanding of pharmaceutical services. Additionally, the initiative was viewed as a method to advance access to medicines in the public health system. Regarding the challenges, the students were apprehensive about not answering some questions and interacting with physicians. **Conclusion:** In the view of undergraduate pharmacy students, EOV is relevant to training pharmacists to work in Sistema Único de Saúde (SUS) and improving access to medicines in the public system. The lack of confidence to deliver EOV, particularly in communicating with physicians, should be considered when preparing students to participate in similar initiatives.

Introduction

The quality of the pharmacy workforce is indispensable to the achievement of universal access to medicines. According to the International Pharmaceutical Federation, a needs-based approach that links education with the health needs of communities and national policies is key to advance pharmacy education (International Pharmaceutical Federation, 2022). Service-learning practices within healthcare settings have enhanced the training of undergraduate students, equipping them with the necessary skills and knowledge to contribute effectively to public health (Anderson *et al.*, 2009; Abdu-Aguye *et al.*, 2019; Adeola *et al.*, 2021).

In the last decades, pharmacy education in Brazil has shifted from strictly technical-based training to a more comprehensive, humanist, critical, and reflective orientation (Monteguti & Diehl, 2016; Souza & Bonamigo, 2019). The current National Curriculum Guidelines (NCG) emphasise that pharmacy education should be aligned with public policies and incorporate experiential learning in health services provided by the Brazilian public health system, the Sistema Único de

Saúde (SUS) (Brasil, 2017). These reforms in pharmacy higher education were mainly driven by transformations in health systems related to population aging, a higher prevalence of non-communicable diseases, and increased medicines use, which could ultimately affect health budgets. As a result, there is a growing need for professionals with diverse competencies and skills better equipped to address the evolving demands of SUS and contribute to the strengthening of the national medicines policy (Foppa *et al.*, 2021).

Essential medicines lists (EML) are a global health recommendation (World Health Organization, 2001) and an important part of Brazilian efforts to promote access to medicines. Based on the National List of Essential Medicines (RENAME, in Portuguese Relação Nacional de Medicamentos Essenciais), municipalities are responsible for selecting products according to the epidemiology of diseases affecting their citizens, resulting in the Municipal List of Essential Medicines, called REMUME. This list encompasses medicines fully covered by SUS and available at local public pharmacies.

However, despite the importance of information regarding medicines access (World Health Organization, 2001), the dissemination of the EML and incentives for its adoption have not been fully implemented in Brazil (Osorio-de-Castro *et al.*, 2018). It is reported that multifaceted approaches, including educational activities delivered to health professionals, can enhance adherence to EML (Eriksen *et al.*, 2017). Conversely, the lack of trust or knowledge of the list or treatment protocols is associated with a worse quality of healthcare assistance (Magarinos-Torres *et al.*, 2014).

In order to strengthen actions that advance access to medicines, this research group has been conducting a community outreach project known as 'Propagandists of REMUME' (Machado *et al.*, 2021). The strategy, led by pharmacy undergraduate students, involves visiting health professionals to provide information about the EML. The visits follow the principles of academic detailing or educational outreach visits (EOV), defined as a "*personal visit by a trained person to health professionals in their own settings*" to guide best practices (O'Brien *et al.*, 2007; Kunstler *et al.*, 2019). Although EOV typically focuses on evidence-based information related to specific topics, it has been recently applied to enhance knowledge about health policies among federal magistrates involved in health litigation (Soumerai & Avorn, 1990; Reis *et al.*, 2022).

In addition to the benefits of improving access to medicines, the strategy represents an innovative learning experience for undergraduate pharmacy students. By incorporating real-life scenarios into their education, students not only acquire knowledge, but also develop new skills required by pharmacists (Kolb, 2015; International Pharmaceutical Federation, 2020). In this study, the authors presume that pharmacy undergraduate students participating in 'Propagandists of REMUME' are trained not only in pharmaceutical services in SUS but also as health educators and advocates for public health. Thus, this paper aims to describe the students' perception of leading EOV to disseminate the EML in a municipality in the southeast region of Brazil.

Methods

Participants and setting

From 2017-2019, ten pharmacy students of a public university participated in the 'Propagandists of REMUME' project. The initiative was conducted in a municipality in the southeast region of Brazil, with a population of 246,391 inhabitants and an Index of Human Development of 0.764 (AtlasBR, n.d.). The gross domestic product per capita in the municipality is around USD 12,000, which is approximately twice the national value of USD 6,500 (Instituto Brasileiro de Geografia e Estatística, n.d.). In 2018, diseases of the circulatory system, neoplasms, and external causes accounted for 59% of all deaths in the municipality (DATASUS, 2024). Despite the relevance of non-communicable diseases in mortality, infectious and antiparasitic diseases are still a challenge for local health services (Governo do Estado do Rio de Janeiro, 2020).

Intervention

Undergraduate pharmacy students were recruited to conduct EOV. They were responsible for developing printed educational materials to facilitate consultation of REMUME, and delivering EOV at healthcare units (including primary, secondary, and tertiary units). Prior to the intervention, students underwent a two-hour training session that included learning about the organisation of pharmaceutical services in SUS and role-playing exercises to prepare for conversations with health professionals. They were provided with a script to guide their dialogue and scheduled the visits in advance to provide the EOV at an ideal time. During the EOV, which was accompanied by a graduated pharmacist, students discussed with the healthcare team the importance of adhering to REMUME in promoting access to medicines. They also informed prescribers on how to consult printed materials to

check the available pharmaceutical forms. In total, students conducted EOV at 45 health units.

The students also conducted group conversations in primary healthcare services involving health unit users. The discussions focused on the organisation of pharmaceutical services within the public system, particularly emphasising how to obtain medicines from local pharmacies. From October 2018 to June 2019, 11 group conversations were held with the participation of approximately 130 persons. The intervention was fully described in the previous study (Machado *et al.*, 2021).

Focus group

The ten students involved in the intervention were invited to participate in a focus group session. Of these, eight attended—two males and six females—ranging in age from 20 to 26 years, all of whom had completed at least half of the undergraduate pharmacy program. The session was conducted by a researcher with expertise in qualitative interviews and a Professor of public health (A.E.P.L.), who had no previous contact with the students. The session was designed as proposed by Gondim (2002) to allow interaction and knowledge exchange among the participants. The group met in person, in a quiet room at the university, at a round table, so that everybody could see one another.

The focus group was guided by a script that included five questions: i. Could you explain how the community outreach project you participated in works? ii. What motivated you to join the project? iii. Describe your feelings while delivering the educational interventions? iv. How do you evaluate the project? Comment on its benefits and challenges. v. Do you have any suggestions to improve the initiative?

The session was recorded and transcribed. Transcripts were anonymised to remove the names of the students which were replaced by codes (A1 to A8). The authors then conducted content analysis as suggested by Bardin (2011), including three phases: i. pre-analysis, ii. exploration of the material, and iii. treatment of results and interpretation. Two researchers (F.L.S.M. and D.M.S.S.S.) independently read and coded the transcripts. Similar codes were grouped and classified according to three thematic categories: (1) importance for the training of the future pharmacist; (2) relevance of the initiative and (3) challenges of the experience. The researchers had regular meetings to discuss the categories and resolve disagreements until they reached a consensus on data analysis.

This study was approved by the Research Ethics Committee of the Federal University of Rio de Janeiro - Macaé Campus (Protocol number: 4.187.153).

Results

Importance for the training of the future pharmacist

The students expressed that their involvement in EOV allowed them to become familiar with the reality of SUS. According to the participants, this interaction is not typically experienced by other undergraduate students and may be restricted to those who eventually end up working in the public health system:

> *"If we stay only in the classroom, we will not have the perception of the reality outside the university. When we go there, we are impacted." (A3)*

> *"I believe that many colleagues will not have this experience of seeing the reality of SUS." (A7)*

> *"If you won't work in SUS, you won't have this experience." (A3)*

In the students' view, the initiative contributed to improving the comprehension of pharmaceutical services in SUS.

> *"What I know about pharmaceutical services in SUS is thanks to the project." (A6)*

> *"Knowing what the pharmaceutical services are, all the processes that we study, the responsibilities of each government level, these things that if we don't see in the classroom or if we won't work in SUS, we would not ever have this experience." (A3)*

The students emphasised the initiative's potential to bridge the gap between theory and practice. They advocated that pharmacy courses in public universities should provide real-life activities in public health services for all undergraduate students.

> *"We study the Public Health System only in the third year. But it is something mostly theoretical." (A2)*

> *"The university is public, however we learn the theory, when we participate in this project is when we experience the reality." (A5)*

> *"How could we leave the university without comprehending SUS in practice, knowing only the theory that is explained in the classroom?" (A2)*

In addition, students also mentioned that the experience contributed to improving communication with different audiences.

> *"I had this experience and it was good, I gained an ability that I didn't have or I've improved my abilities. It is both the issue of talking with the community and also talking to health professionals." (A8)*

Relevance of the initiative

During the discussions, the social role of the public university and the importance of community outreach activities emerged. The participants recognised the importance of EOV in promoting the sharing of academic knowledge with the community. They also argued that those who attend a public university should provide services to society in return for the funding they receive for education.

> *"We, as citizens, must provide services to society. Because, we don't pay for our education, but we can offer services." (A2)*

> *"Educational outreach activities allow us to go to people and share what we learn in the university." (A3)*

> *"We are at the university, we are gaining knowledge and this knowledge can't be kept only with us. We must share with other people!" (A8)*

From the students' perspective, the initiative offered clear benefits for the community since it had the potential to improve prescribing practices and facilitate adherence to the treatment. During the EOV, they noticed that information about the organisation of pharmaceutical services was not readily accessible to health workers and users of the public system.

> *"You see that if the doctor prescribes what is in the medicine's lists, it helps a lot, it improves adherence." (A7)*

> *"We see that the person won't buy it, if the medicine is not supplied for free, the person won't buy it and won't follow the treatment." (A4)*

> *"People did not know about the People's Pharmacy Program! So you see that there is a huge lack of information." (A4)*

The participants recommended that the initiative should involve other undergraduate health courses, particularly students from Medicine and Nursing schools. In addition, they proposed that the experience should be expanded to other regions of the country.

> *"We could disseminate it, even for other students here in the campus, because they interact with workers in SUS, and they should know about access to medicines." (A7)*

> *"Disseminating it a little bit more in the Medicine course." (A5)*

> *"I hope other universities implement these activities, expanding them not only in the municipality, but also to other places in the state and in the country." (A5)*

> *"We hope that this project reaches all the country!" (A2)*

Challenges

The students revealed they felt apprehensive about not knowing how to answer questions related to topics that were not covered in the script.

> *"People had doubts and we thought: Oh my God! And now?" (A7)*

> *"They started asking questions that were not our main focus. They prescribed medicines that were not listed in REMUME, but are accessible through the specialized care. How could we be better prepared for this?" (A2)*

In addition, participants expressed that the fear of talking with the doctors was a distressing factor associated with the visits. They admitted they were concerned about conducting an educational activity with this professional.

> *"We have this fear, because we are going to talk to a doctor!" (A3)*

> *"We started talking to the doctor carefully, full of worries, full of fear." (A7)*

> *"But the issue of sitting and talking to the doctor. I thought: it will be a little bit harder!" (A2)*

The participants commented that the course workload posed a challenging issue while they were part of the project. The overload of exams, classes and other activities could discourage student participation in the initiative.

> *"I've always wanted to participate in the project, however I did not have a lot of time available." (A1)*

> *"We have an undergraduate program that is time consuming, there are a lot of exams and other things to be resolved." (A7)*

Lastly, the transportation to the health services and the scheduling of the visits were pointed as additional challenges by the students.

> *"That was one of the problems, the agenda of the health workers. and the transportation." (A7)*

Discussion

This study reported the perception of the students participating in an initiative to disseminate the EML in a municipality in the southeast region of Brazil. Despite the challenges faced, participants affirmed that the

experience was promising as a training strategy to work in SUS, since it enhanced the knowledge of the organisation of pharmaceutical services in the country. At the same time, the approach was viewed as a method to advance access to medicines within the public health system.

Service learning approaches in pharmacy training have been associated with promotion of social engagement, improving student communication skills, cultural awareness, critical thinking, and leadership abilities (Gonzales *et al.*, 2020; Koster & Philbert, 2023). In middle-income countries, undergraduate students have participated in health education campaigns (Srinivas *et al.*, 2016; Lee *et al.* 2019), screening programs (Ploylearmsang *et al.*, 2013; Adeola *et al.*, 2021), and clinical activities in hospitals (Mc Carteney & Boschmans, 2018). These experiences prepare students to address the healthcare needs of their local communities, enhancing their sense of social responsibility (Lee *et al.* 2019). In addition, service-learning practices contribute to national policies through the provision of health services in low-resource settings, particularly those facing staff shortages (Bheekie *et al.*, 2007; Adeola *et al.*, 2021).

Student-led EOV has been employed in the education of community pharmacists aimed to promote referrals to a telephone-based service to assist patients in quitting smoking, improve naloxone accessibility, and raise awareness of pneumococcal vaccination (Wahl *et al.*, 2015; Evoy *et al.*, 2020; Appaneal *et al.*, 2023, Linder *et al.*, 2024). While the studies found this approach effective in pharmacists' training, none of the investigations reported the perspective of the students conducting the intervention. In addition, a simulated EOV was applied in an educational program for undergraduate students, focusing on developing skills to promote opioid risk mitigation strategies (Kavanaugh *et al.*, 2021). In Brazil, these results suggest that the implementation of EOV in pharmacy undergraduate courses can be an innovative approach to prepare students to work in SUS, aligned with the recommendations of the NCG, which emphasises students' experience in public health services, particularly in primary care (Brasil, 2017).

Despite its relevance, learning strategies that promote engagement between undergraduate students and health services may be incipient and inadequately implemented (Nicoline & Vieira, 2011; Souza & Bonamigo, 2019). A previous study conducted in universities in the south region of Brazil observed significant differences in disciplines related to public health within the evaluated courses' pedagogical projects, highlighting the need for further improvement in activities connecting students with the reality of SUS (Monteguti & Diehl, 2016).

In addition to the benefits of the initiative to the training of the students, the interaction with health professionals and users of SUS helped sensitise participants about the importance of the information to access to medicines. It is known that medicine information related to availability is underprovided, and the lack of information can hinder medicine use (Mureyi *et al.*, 2022). In line with the students' view, Rover and colleagues reported that problems in information and communication challenges affected access to high-cost medicines in Brazil (Rover *et al.*, 2016). Similarly, the lack of knowledge about the People's Pharmacy Program was identified as a reason for its under-utilisation (Miranda *et al.*, 2016).

It is worth mentioning that the favourable perspective of the participants in this study aligns with previous reports describing that pharmacy students consistently view education initiatives that promote interaction with community services positively (Souza & Bonamigo, 2019; Gonzales *et al.*, 2020; Yap *et al.*, 2022; Koster & Philbert, 2023). From the students' viewpoint, this approach enhances confidence in performing specific tasks, interacting with patients or experiencing civic, cultural, social, or health disparity issues (Gonzales *et al.*, 2020). In the present initiative, students had the opportunity to reflect on the social role of the public university. They recognised that community outreach activities should be strengthened in Brazil. Accordingly, it is argued that partnerships between communities and educational institutions are essential in advancing social accountability (Fang *et al.*, 2022).

Regarding the challenges, in line with these findings, time constraints and academic workload were reported as factors that could restrict involvement in educational outreach projects (Fang *et al.*, 2022). Furthermore, the lack of confidence and/or feeling unprepared to participate were perceived as barriers by students. Likewise, the fear of the reaction of the audience was pointed out as a challenge for participating in community activities (Fang *et al.*, 2022).

Interestingly, in this study, participants declared they felt uncomfortable, specifically when talking to physicians. This perception may be related to the power imbalance between physicians and other health professionals, which can hinder interprofessional practice (Baker *et al.*, 2011; Rawlinson *et al.*, 2021). While it is widely recognised that interprofessional collaboration improves the delivery of patient care and reduces costs, its implementation can be challenging (Löffler *et al.*, 2017; Bollen *et al.*, 2019; Albassam *et al.*, 2020; Zielińska-Tomczak *et al.*, 2021). According to a global study investigating the need for pharmaceutical

education, interprofessional education was identified as an area for improvement in Africa, Eastern Mediterranean, Europe, and Central and South America (Etukakpan *et al.*, 2023).

Despite reports of Brazilian pharmacy students´ positive attitude towards interprofessional practice, the incorporation of collaborative experiences in the curriculum is still limited (De Oliveira *et al.*, 2018; Prado *et al.*, 2018). Previous activities in interprofessional practice or informal collaboration during formative years foster a willingness to collaborate. Therefore, promoting interactions between health professionals and undergraduate students during their training may encourage the future involvement of pharmacists in the healthcare team (Bardet *et al.*, 2015; Bollen *et al.*, 2019; Rawlinson *et al.*, 2021).

Limitations

The study is limited by the small number of participants, who may not be representative of pharmacy students in other Brazilian universities. Although students expressed that the initiative contributed to the learning of pharmaceutical services in SUS, the authors have not investigated whether the experience improved their knowledge about access to medicines within the public health system. Lastly, the authors were unable to evaluate the initiative's effectiveness in improving access to medicines by the users of SUS. Thus, future studies should explore the implementation of EOV in other universities and regions of Brazil to comprehend the students' perceptions in different settings.

Conclusion

The study described the view of undergraduate pharmacy students participating in EOV focused on improving access to information about pharmaceutical services in Brazil. According to these results, EOV is relevant to training pharmacists to work in SUS and improving access to medicines in the public health system. The lack of confidence to deliver EOV, particularly in communicating with physicians, should be taken into account when preparing students to participate in similar initiatives.

Conflict of interest

The authors declare no conflict of interest.

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