TPM Vol. 32, No. S1, 2025
ISSN: 1972-6325
https://www.tpmap.org/

AN ASSESSMENT OF PHARMACISTS' UNDERSTANDING AND ATTITUDES REGARDING PHARMACEUTICAL CARE IMPLEMENTATION IN SAUDI ARABIA

NORAH THALLAB ALSHRAFI[1], WED ABDULRAHMAN ALKHARRAS[2], REEMA ESSA ALHAMOUD[3], ALYAH MOHAMMAD ALGARNI[4], REHAM AHMAD ALHARBI[5], REEM BIJAD ALHARBI[6], AREEJ NASSER BIN NAMSHAN[7], ABDULAZIZ ABDULLAH AL-DAMEGH[8], MAQBUL AALI ALGHAMDI[9], FAHAD ALENIZY[10]

[1]PHARMACIST, KING ABDULAZIZ UNIVERSITY HOSPITAL, SAUDI ARABIA
[2] PHARMACIST, KING SAUD UNIVERSITY MEDICAL CITY, SAUDI ARABIA
[3] PHARMACIST, KING KHALED UNIVERSITY HOSPITAL, SAUDI ARABIA, EMAIL: reema.alhamoudd@gmail.com
[4] PHYSICAL THERAPY TECHNICIAN, KING KHALID UNIVERSITY HOSPITAL, SAUDI ARABIA
[5] PHYSICAL THERAPIST, KING KHALID UNIVERSITY HOSPITAL, SAUDI ARABIA
[6] SENIOR SPECIALIST, NURSING ADMINISTRATION AND EDUCATION, KING SAUD UNIVERSITY, SAUDI ARABIA
[7] GENERAL NURSING, KING SAUD UNIVERSITY, SAUDI ARABIA
[8] PHARMACY TECHNICIAN, MAJMAAH UNIVERSITY, SAUDI ARABIA, EMAIL: azoozk190@hotmial.com
[9] PHARMACY TECHNICIAN, KING SALMAN SPECIALIZED HOSPITAL, TAIF, SAUDI ARABIA, EMAIL: alghamdima4@mngha.med.sa
[10]PHARMACY TECHNICIAN, KING ABDULAZIZ MEDICAL CITY, RIYADH, SAUDI ARABIA, EMAIL: enizyfa@ngha.med.sa

Accepted: 15-03-2025 Published: 12-05-2025

Abstract

This study examines pharmacists' understanding, attitudes, and perceived barriers regarding pharmaceutical care implementation in Saudi Arabia. Drawing on recent research and comparative analyses with other countries, the study reveals that Saudi pharmacists generally demonstrate positive attitudes toward pharmaceutical care despite varying levels of understanding based on educational background, practice setting, and professional experience. While most recognize the value of pharmaceutical care in improving patient outcomes, implementation is hindered by significant barriers including workforce shortages, lack of compensation mechanisms, inadequate training, limited patient awareness, and insufficient integration within healthcare systems. The analysis identifies educational interventions, policy reforms, practice environment improvements, and interprofessional collaboration as key strategies for advancing pharmaceutical care in the Kingdom. As Saudi Arabia continues its healthcare transformation, addressing these challenges systematically will be crucial for establishing pharmaceutical care as an integral component of patient-centered healthcare delivery. This review provides insights for pharmacists, healthcare administrators, educators, and policymakers working to enhance pharmaceutical care services throughout Saudi Arabia in alignment with national healthcare development goals.

INTRODUCTION

Healthcare systems worldwide have undergone significant transformation in recent decades, with pharmaceutical care emerging as a critical component of patient-centered healthcare delivery. Pharmaceutical care, as defined by Hepler and Strand (1990), represents a patient-centered practice where pharmacists take responsibility for patients' drug-related needs and are accountable for this commitment. This concept has evolved from the traditional product-focused role of pharmacists to a more patient-oriented service model that emphasizes clinical outcomes and quality of life.

In Saudi Arabia, the healthcare system has experienced substantial development as part of the country's Vision 2030 initiative, which aims to improve healthcare quality and accessibility. Despite these advancements, the implementation of pharmaceutical care services faces various challenges. Understanding pharmacists' perceptions, knowledge, and attitudes toward pharmaceutical care is essential for effective implementation and development of these services in the Saudi healthcare system. This study examines the current state of pharmacists' understanding and attitudes regarding pharmaceutical care implementation in Saudi Arabia, drawing on recent research findings and comparative analyses with other countries. By identifying barriers, opportunities, and potential strategies for improvement, this assessment aims to contribute to the advancement of pharmaceutical care practices in the Kingdom.

Background of Pharmaceutical Care in Saudi Arabia

The concept of pharmaceutical care in Saudi Arabia has gradually gained recognition over the past two decades. The Saudi healthcare system, primarily operated by the Ministry of Health, has been undergoing significant reforms to enhance the quality and efficiency of healthcare services. Within this context, the role of pharmacists has been evolving from traditional dispensing functions to more clinical and patient-centered responsibilities.

Recent studies have highlighted the growing importance of pharmaceutical care in Saudi Arabia's healthcare landscape. Al-arifi et al. (2015) conducted a survey on pharmacist opinions about pharmaceutical care in Saudi Arabia, revealing increasing awareness and interest in adopting this practice model. Similarly, Al-Aqeel and Abanmy (2008) surveyed pharmacists working in primary healthcare centers in Riyadh, finding varying levels of pharmaceutical care implementation and understanding among practitioners.

The Saudi Pharmaceutical Society and the Saudi Commission for Health Specialties have been instrumental in promoting pharmaceutical care through continuing education programs, guidelines, and accreditation standards. However, the transition from traditional pharmacy practice to comprehensive pharmaceutical care services has been gradual and faces numerous challenges.

Understanding of Pharmaceutical Care Among Saudi Pharmacists

Research by Alromaih et al. (2023) provides valuable insights into Saudi pharmacists' understanding of pharmaceutical care concepts. Their study revealed that while most pharmacists demonstrated a basic understanding of pharmaceutical care principles, there were notable variations in comprehension levels depending on educational background, practice setting, and years of experience.

Most Saudi pharmacists recognize pharmaceutical care as involving direct patient interaction, medication management, and monitoring therapeutic outcomes. However, some misconceptions persist regarding the scope and implementation of these services. For instance, some pharmacists still view pharmaceutical care primarily as medication dispensing rather than a comprehensive patient care approach.

Compared to other countries, Saudi pharmacists' understanding of pharmaceutical care shows similarities and differences. Ngorsuraches and Li (2006) found that Thai pharmacists demonstrated varying levels of understanding of pharmaceutical care concepts, similar to findings in Saudi Arabia. In Poland, Kopciuch et al. (2021) reported that pharmacists possessed good theoretical knowledge but faced challenges in practical implementation, a pattern also observed among Saudi practitioners.

Educational background significantly influences pharmacists' understanding of pharmaceutical care. Those with advanced clinical training or specialized certifications typically demonstrate a more comprehensive understanding of pharmaceutical care principles compared to those with basic pharmacy education. This highlights the importance of educational interventions in enhancing pharmacists' knowledge and competence in delivering pharmaceutical care services.

Attitudes of Saudi Pharmacists Toward Pharmaceutical Care

The attitudes of pharmacists toward pharmaceutical care significantly impact their willingness to implement these services. Research by Ahmed and Al-wahibi (2016) examined knowledge, attitudes, and practices toward pharmaceutical care in community pharmacies in Saudi Arabia. Their findings revealed generally positive attitudes among pharmacists, with most recognizing the value of pharmaceutical care in improving patient outcomes.

According to Alromaih et al. (2023), Saudi pharmacists demonstrate favorable attitudes toward implementing pharmaceutical care services, with many expressing enthusiasm about expanding their professional roles beyond traditional dispensing functions. This positive disposition aligns with findings from other countries, such as Kuwait, where Katoue et al. (2014) reported that hospital pharmacists held positive attitudes toward pharmaceutical care despite implementation challenges.

Several factors influence pharmacists' attitudes toward pharmaceutical care in Saudi Arabia:

1. **Professional satisfaction:** Many pharmacists view pharmaceutical care as an opportunity to enhance their professional satisfaction by engaging more meaningfully with patients and healthcare teams.
2. **Professional development:** Pharmacists recognize pharmaceutical care as a pathway for professional growth and development of clinical skills.

3. **Patient benefits:** The potential to improve patient outcomes and safety through pharmaceutical care services positively influences pharmacists' attitudes.
4. **Professional recognition:** The desire for greater recognition of pharmacists' contributions to healthcare also shapes positive attitudes toward pharmaceutical care.

Comparative studies suggest that Saudi pharmacists' attitudes are similar to those observed in other Middle Eastern countries. El Hajj et al. (2014) found that pharmacy students in Qatar held positive attitudes toward pharmaceutical care, indicating a regional trend of receptiveness to this practice model. Similarly, Farha et al. (2021) reported favorable attitudes among pharmacy students in Jordan regarding pharmaceutical care implementation.

However, attitudinal differences exist based on practice settings. Hospital pharmacists in Saudi Arabia generally demonstrate more positive attitudes toward pharmaceutical care compared to community pharmacists, possibly due to better infrastructure, team-based environments, and institutional support in hospital settings (Al-arifi et al., 2015).

Barriers to Pharmaceutical Care Implementation in Saudi Arabia

Despite positive attitudes, Saudi pharmacists face numerous barriers to implementing pharmaceutical care services effectively. These barriers can be categorized into system-related, patient-related, and pharmacist-related factors.

System-Related Barriers

1. **Workforce shortages:** Inadequate staffing in pharmacies limits the time available for pharmaceutical care activities. Many pharmacists report being overwhelmed with dispensing responsibilities, leaving little time for patient counseling and clinical interventions.
2. **Lack of compensation mechanisms:** The absence of clear reimbursement policies for pharmaceutical care services discourages pharmacists from investing time and resources in these activities. Without financial incentives, many pharmacies prioritize dispensing functions over clinical services.
3. **Limited space and privacy:** Many pharmacy settings, particularly community pharmacies, lack appropriate consultation areas for private patient interactions, hindering effective pharmaceutical care delivery.
4. **Inadequate integration within healthcare systems:** Limited collaboration between pharmacists and other healthcare providers impedes comprehensive pharmaceutical care. The lack of integrated health information systems further complicates this coordination.
5. **Regulatory challenges:** Ambiguous regulations regarding the scope of pharmacy practice create uncertainty about pharmacists' authority to provide certain pharmaceutical care services.

These system-related barriers align with findings from other countries. Uema et al. (2008) identified similar organizational and structural barriers to pharmaceutical care in Argentina, while Fakeye et al. (2017) reported comparable systems-level challenges in Nigeria.

Patient-Related Barriers

1. **Limited awareness:** Many patients in Saudi Arabia lack awareness about the expanded role of pharmacists beyond medication dispensing, leading to underutilization of pharmaceutical care services.
2. **Cultural factors:** Traditional perceptions of pharmacists as medication providers rather than healthcare professionals influence patient expectations and engagement with pharmaceutical care services.
3. **Language and communication barriers:** In a diverse society like Saudi Arabia, language differences between pharmacists and patients can hinder effective communication, a cornerstone of pharmaceutical care.

Nau et al. (1997) similarly highlighted the importance of patient perceptions in the successful implementation of pharmaceutical care, noting that patients' understanding of pharmacists' value directly impacts their willingness to engage with these services.

Pharmacist-Related Barriers

1. **Knowledge and skill gaps:** Some pharmacists lack the clinical knowledge and skills necessary for providing comprehensive pharmaceutical care, particularly those who graduated before pharmaceutical care concepts were integrated into pharmacy curricula.
2. **Confidence issues:** Even pharmacists with adequate knowledge may lack confidence in their ability to provide pharmaceutical care services, especially when faced with complex cases or when interacting with physicians.
3. **Resistance to change:** Traditional practice patterns and comfort with dispensing roles create resistance among some pharmacists to adopt new practice models.
4. **Time management challenges:** Efficiently balancing dispensing responsibilities with pharmaceutical care activities presents a significant challenge for many pharmacists.

Oparah and Eferakeya (2005) identified similar pharmacist-related barriers in Nigeria, emphasizing the need for continuous professional development to enhance pharmacists' capabilities and confidence in providing pharmaceutical care.

Impact of Education and Training on Pharmaceutical Care Implementation

Education and training play pivotal roles in shaping pharmacists' abilities to implement pharmaceutical care effectively. In Saudi Arabia, pharmacy education has evolved significantly, with increasing emphasis on clinical pharmacy and pharmaceutical care concepts in curricula.

Alromaih et al. (2023) found that pharmacists with advanced clinical training demonstrated greater understanding and more positive attitudes toward pharmaceutical care compared to those with basic qualifications. This finding underscores the importance of comprehensive education in preparing pharmacists for patient-centered care roles.

The transition in pharmacy education from product-focused to patient-centered approaches has had a positive impact on new graduates' readiness to implement pharmaceutical care. Balkhi et al. (2020) observed that recent pharmacy graduates in Saudi Arabia showed greater interest in clinical roles and pharmaceutical care compared to their predecessors, reflecting the influence of updated educational approaches.

Continuing education programs and professional development opportunities further enhance pharmacists' capabilities in pharmaceutical care. These educational interventions address knowledge gaps, build clinical skills, and boost confidence among practicing pharmacists. However, access to quality continuing education varies across different regions and practice settings in Saudi Arabia, creating disparities in pharmaceutical care implementation.

International comparisons reveal similar patterns regarding the impact of education on pharmaceutical care practice. Oi et al. (2016) reported that pharmacists' educational background significantly influenced their understanding and implementation of pharmaceutical care in Macao, echoing findings from Saudi Arabia.

Strategies for Enhancing Pharmaceutical Care in Saudi Arabia

Based on the assessment of current understanding, attitudes, and barriers, several strategies can be proposed to enhance pharmaceutical care implementation in Saudi Arabia:

Educational and Training Initiatives

1. **Curriculum enhancement:** Further integrating pharmaceutical care concepts, clinical skills, and interprofessional education into pharmacy curricula at universities across Saudi Arabia.
2. **Specialized certification programs:** Developing and promoting specialized certification programs in pharmaceutical care to enhance pharmacists' clinical competencies and credentials.
3. **Experiential learning opportunities:** Expanding practical training experiences that focus on pharmaceutical care delivery in various healthcare settings.
4. **Continuous professional development:** Establishing structured continuing education programs specifically focused on pharmaceutical care skills and knowledge updates.

Policy and Regulatory Changes

1. **Clear scope of practice:** Developing and implementing clear regulations defining pharmacists' authority and responsibilities in providing pharmaceutical care services.
2. **Reimbursement mechanisms:** Establishing payment models and insurance coverage for pharmaceutical care services to create financial incentives for implementation.
3. **Staffing standards:** Implementing pharmacy staffing standards that allocate sufficient personnel for both dispensing and pharmaceutical care functions.
4. **Quality metrics:** Developing quality indicators and performance measures related to pharmaceutical care to evaluate and improve service delivery.

Practice Environment Improvements

1. **Pharmacy redesign:** Modifying pharmacy layouts to include private consultation areas conducive to patient-pharmacist interactions.
2. **Technology integration:** Implementing pharmacy information systems that support documentation, monitoring, and evaluation of pharmaceutical care interventions.
3. **Workflow optimization:** Restructuring pharmacy workflows to allocate dedicated time for pharmaceutical care activities alongside dispensing functions.
4. **Support staff utilization:** Training and utilizing pharmacy technicians and assistants effectively to free pharmacists' time for clinical activities.

Professional Collaboration and Awareness

1. **Interprofessional collaboration:** Fostering collaborative relationships between pharmacists and other healthcare providers through joint initiatives, shared care protocols, and communication channels.
2. **Public awareness campaigns:** Educating patients and the public about the expanded role of pharmacists and the benefits of pharmaceutical care services.
3. **Professional advocacy:** Strengthening professional pharmacy organizations' advocacy for pharmaceutical care recognition and implementation.
4. **Success stories documentation:** Documenting and disseminating successful pharmaceutical care initiatives to demonstrate value and inspire wider implementation.

These strategies align with successful approaches identified in international research. Neto et al. (2011) demonstrated the positive impact of structured pharmaceutical care programs on patient outcomes, supporting the case for systematic implementation approaches.

Evidence of Pharmaceutical Care Benefits in Saudi Context

While barriers to implementation exist, evidence of pharmaceutical care benefits in the Saudi context provides compelling support for continued efforts to overcome these challenges.

Several studies have documented positive outcomes associated with pharmaceutical care services in Saudi healthcare settings:

1. **Improved medication management:** Pharmaceutical care interventions have been shown to reduce medication errors, inappropriate prescribing, and adverse drug events in Saudi hospitals and primary care settings.
2. **Enhanced therapeutic outcomes:** Patients receiving pharmaceutical care, particularly those with chronic conditions like diabetes and hypertension, demonstrate better disease control and adherence to treatment regimens.
3. **Economic benefits:** Preliminary analyses suggest cost savings associated with pharmaceutical care through reduced medication waste, prevented hospitalizations, and optimized therapy.
4. **Patient satisfaction:** Patients who experience pharmaceutical care services report higher satisfaction with pharmacy services and greater confidence in medication management.

These benefits mirror those observed internationally, where pharmaceutical care has demonstrated significant positive impacts on clinical outcomes, quality of life, and healthcare resource utilization. The evidence supports the value proposition of pharmaceutical care in the Saudi healthcare system and underscores the importance of addressing implementation barriers.

Future Directions for Pharmaceutical Care in Saudi Arabia

Looking ahead, several key directions emerge for the advancement of pharmaceutical care in Saudi Arabia:

Integration with Digital Health Initiatives

As Saudi Arabia invests in digital health infrastructure, opportunities exist to integrate pharmaceutical care services into telehealth platforms, mobile health applications, and electronic health records. These technologies can extend the reach of pharmaceutical care beyond traditional settings and enhance continuity of care.

Specialized Pharmaceutical Care Programs

Developing specialized pharmaceutical care programs for priority health conditions, such as diabetes, cardiovascular diseases, and infectious diseases, represents a strategic approach to implementation. These focused programs can demonstrate value and build experience for broader implementation.

Research and Evidence Generation

Expanding research on pharmaceutical care implementation, outcomes, and cost-effectiveness in the Saudi context is essential for informing policy decisions and practice improvements. This research should include both quantitative and qualitative approaches to comprehensively understand implementation dynamics.

Workforce Development and Specialization

Creating career pathways and specialization tracks for pharmacists interested in pharmaceutical care can help build a dedicated workforce with advanced capabilities. This includes developing clinical pharmacy residencies, fellowships, and specialized practice roles.

Policy and Regulatory Evolution

Continued advocacy for policy changes that support pharmaceutical care, including recognition of pharmacists as healthcare providers, reimbursement mechanisms, and scope of practice expansions, will be critical for long-term sustainability.

CONCLUSION

This assessment of pharmacists' understanding and attitudes regarding pharmaceutical care implementation in Saudi Arabia reveals a complex landscape characterized by generally positive attitudes and growing understanding, yet constrained by significant systemic, patient-related, and practitioner-related barriers.

Saudi pharmacists demonstrate encouraging receptiveness to pharmaceutical care concepts and recognize their value in improving patient outcomes. However, variations in understanding and implementation capabilities exist based on educational background, practice setting, and professional experience. The transition from traditional dispensing roles to comprehensive pharmaceutical care practice requires continued effort across multiple domains.

Addressing the identified barriers requires a multifaceted approach involving educational enhancements, policy reforms, practice environment improvements, and increased professional collaboration. The evidence of pharmaceutical care benefits in the Saudi context provides a compelling rationale for these investments.

As Saudi Arabia continues its healthcare transformation journey, pharmaceutical care has the potential to significantly contribute to healthcare quality, safety, and efficiency. By building on existing strengths and systematically addressing challenges, the pharmaceutical profession in Saudi Arabia can advance toward full implementation of pharmaceutical care services, ultimately benefiting patients and the healthcare system as a whole.

The future of pharmaceutical care in Saudi Arabia appears promising, particularly as it aligns with national healthcare transformation goals. With continued commitment from pharmacists, healthcare leaders, educators, and policymakers, pharmaceutical care can become an integral component of patient-centered healthcare delivery throughout the Kingdom.

REFERENCES

1. Ahmed, N. O., & Al-wahibi, N. S. (2016). Knowledge attitude and practice towards pharmaceutical care in community pharmacy in Saudi Arabia. British Journal of Medicine and Medical Research, 15, 1-9.
2. Al-Aqeel, S. A., & Abanmy, N. O. (2008). A survey on pharmacists working in primary healthcare centers in Riyadh, Saudi Arabia. Saudi Pharmaceutical Journal, 16, 245-51.
3. Al-arifi, M. N., Dhawailie, A. A., Aldohyan, M., et al. (2015). A survey on pharmacist opinion about pharmaceutical care in Saudi Arabia. Asian Journal of Pharmaceutics, 9, 277-82.
4. Alromaih, H. S., Alanzi, W. A., Alqasoumi, A., & Mirza, A. H. (2023). Pharmacists' Understanding and Attitudes Toward Pharmaceutical Care in Saudi Arabia. Cureus, 15(12), e51255. https://doi.org/10.7759/cureus.51255
5. Balkhi, B., Alghamdi, A., Alhossan, A., Alhamami, A., & Asiri, Y. A. (2020). Pharmacy students attitude and perception toward working in community pharmacy in Saudi Arabia. Saudi Pharmaceutical Journal, 28, 397-402. https://doi.org/10.1016/j.jsps.2020.01.021
6. El Hajj, M. S., Hammad, A. S., & Afifi, H. M. (2014). Pharmacy students' attitudes toward pharmaceutical care in Qatar. Therapeutics and Clinical Risk Management, 10, 121-9. https://doi.org/10.2147/TCRM.S56982
7. Fakeye, T. O., Adisa, R., Olukotun, R. T., & Morawo, P. K. (2017). Hospital and community pharmacists' perception of the scope, barriers and challenges of pharmacy practice-based research in Nigeria. Pharmacy Practice, 15, 881. https://doi.org/10.18549/PharmPract.2017.01.881
8. Farha, R. A., Saadeh, M., Mukattash, T. L., et al. (2021). Pharmacy students' knowledge and perception about the implementation of pharmaceutical care services in Jordan. Jordan Journal of Pharmaceutical Sciences, 14, 103-12.
9. Hepler, C. D., & Strand, L. M. (1990). Opportunities and responsibilities in pharmaceutical care. American Journal of Hospital Pharmacy, 47, 533-43.
10. Katoue, M. G., Awad, A. I., Schwinghammer, T. L., & Kombian, S. B. (2014). Pharmaceutical care in Kuwait: hospital pharmacists' perspectives. International Journal of Clinical Pharmacy, 36, 1170-8. https://doi.org/10.1007/s11096-014-0013-z
11. Kopciuch, D., Paczkowska, A., Zaprutko, T., Ratajczak, P., Nowakowska, E., & Kus, K. (2021). A survey of pharmacists' knowledge, attitudes and barriers in pharmaceutical care concept in Poland. BMC Medical Education, 21, 458. https://doi.org/10.1186/s12909-021-02891-6
12. Martin, Bradley C., & Marie A. C. (1999). Cross-validation of an instrument measuring students attitudes towards pharmaceutical care. American Journal of Pharmaceutical Education, 63, 46-51.
13. Nau, D. P., Ried, L. D., & Lipowski, E. (1997). What makes patients think that their pharmacists' services are of value? Journal of the American Pharmaceutical Association, NS37, 91-8. https://doi.org/10.1016/s1086-5802(16)30188-7

14. Neto, P. R., Marusic, S., de Lyra Júnior, D. P., Pilger, D., Cruciol-Souza, J. M., Gaeti, W. P., & Cuman, R. K. (2011). Effect of a 36-month pharmaceutical care program on the coronary heart disease risk in elderly diabetic and hypertensive patients. Journal of Pharmacy & Pharmaceutical Sciences, 14, 249-63. https://doi.org/10.18433/j3259q
15. Ngorsuraches, S., & Li, S. C. (2006). Thai pharmacists' understanding, attitudes, and perceived barriers related to providing pharmaceutical care. American Journal of Health-System Pharmacy, 63, 2144-50. https://doi.org/10.2146/ajhp060054
16. Nwaozuzu, E. E., Okonta, J. M., & Nze, C. (2013). Attitude of hospital pharmacists in Nigeria towards pharmaceutical care. International Journal of Development and Sustainability, 2, 1377-85.
17. Oi, C., Ung, L., Chao, C. K., et al. (2016). Community pharmacists' understanding, attitudes, practice and perceived barriers related to providing pharmaceutical care: a questionnaire-based survey in Macao. Tropical Journal of Pharmaceutical Research, 15, 847-54. https://doi.org/10.4314/tjpr.v15i4.26
18. Oparah, A. C., & Eferakeya, A. E. (2005). Attitudes of Nigerian pharmacists towards pharmaceutical care. Pharmacy World & Science, 27, 208-14. https://doi.org/10.1007/s11096-004-2268-2
19. Uema, S. A., Vega, E. M., Armando, P. D., & Fontana, D. (2008). Barriers to pharmaceutical care in Argentina. Pharmacy World & Science, 30, 211-5. https://doi.org/10.1007/s11096-007-9167-2