The Role of Patients with Addressing Inappropriate Dispensing of Antibiotics without a Prescription Especially in Developing Countries

Antimicrobial resistance (AMR) is a growing global concern, significantly impacting on morbidity, mortality and healthcare costs, especially in low- and middle-income countries (LMICs).[1-4]

Consequently, rapidly becoming the next pandemic if key drivers are not addressed.[5] A recognised major driver of AMR in LMICs is the excessive use of antibiotics in ambulatory care where antibiotic consumption can account for up to 95% of total antibiotic use in humans.[6,7]

A critical issue to address in LMICs is the widespread sale of antibiotics without a prescription.[8-14]

This is often for self-limiting conditions such as upper respiratory tract infections (URTIs), with dispensing without a prescription occurring in up to 100% of pharmacies in some LMICs.[8,9,11,14-16]

Along with this, the appreciable dispensing of antibiotics from the World Health Organization (WHO) 'Watch' list of antibiotics, with their greater resistance potential.[17-20] We are already seeing increased utilisation of antibiotics from the WHO 'Watch' list generally amongst LMICs, and this needs to be urgently reversed to reduce AMR.[21,22]

Patients in LMICs typically visit community pharmacies and drug stores for their ailments, especially ailments such as URTIs, as there can be high copayments to see a healthcare professional (HCP) in primary care clinics, alongside travel costs and often considerable waiting times to see an HCP, in addition to the cost of medicines.[8,11,23] We are already seeing that pharmacists are playing an increasing role across countries providing patients with treatment advice for their conditions, especially self-limiting conditions, exacerbated in LMICs by the scarcity of physicians and nurses.[24-26]

This role will continue with pharmacists' roles enhanced by their convenience versus the challenges of seeing HCPs in public healthcare clinics in LMICs.[23,27] However, there can be concerns with inappropriate recommendations for antibiotics by pharmacists in LMICs to treat conditions such as acute diarrhoea and URTIs.[28] Variable knowledge regarding antibiotics and AMR amongst community pharmacists and their assistants in LMICs further exacerbates the situation.[17,29-31] Alongside this, patient requests can exacerbate the dispensing of antibiotics without a prescription with their beliefs regarding the curative power of antibiotics, enhanced by previous experiences; however, there can be considerable issues concerning their knowledge of antibiotics and AMR.[15,32-38]

There is currently conflicting evidence regarding the extent of dispensing of antibiotics without a prescription in South Africa. Anstey Watkins *et al.* and Do *et al*. found little or no evidence of purchasing of antibiotics without a prescription.[39,40] However, Mokwele *et al*. ascertained that antibiotics were being dispensed without a prescription in some privately owned pharmacies in South Africa.[41] This was not the case in corporate (franchised) pharmacies in the country.[41] Similarly, Sono *et al.*(2024) in their pilot study in a rural province in South Africa found that 10 of the 21 pharmacists, or their assistants, taking part in the study admitted to dispensing antibiotics without a prescription. All were from independent pharmacies.[42] In addition, antibiotics were being offered before over-the-counter (OTC) medicines where OTC medicines should have been dispensed, enhanced by patient demand.[42] There were also concerns with pharmacist assistants regarding their knowledge of antibiotics and AMR.[42]

In view of the influence of patients and concerns that pharmacists may under report the extent of selling antibiotics without a prescription,[14,23,43] a follow-on pilot study was undertaken by Sono *et al.*[44] The principal objective of this pilot was to assess patient behaviour regarding antibiotics and their knowledge concerning antibiotics, their use and AMR.[44] Twenty-one patients were approached, with 16 completing the structured questionnaire. Notably, 3 out of 5 patients who were dispensed antibiotics received them without a prescription, all again from independent pharmacies.[44] Key reasons for self-purchasing included costs and convenience, similar to other studies in LMICs.[8,9,11,44]

Knowledge about antibiotics and AMR varied amongst participating patients, with some demonstrating a satisfactory understanding of these concepts while others struggled with certain concepts.[44]

However, there were concerns that patients may not fully understand complex healthcare terms such as antibiotics and AMR when they discuss their infectious disease with pharmacists or their assistants unless these issues are conveyed in a language they can understand, including the local language, similar to other studies.[39,45-47] Consequently, a follow-up pilot study was undertaken to translate the English language questionnaire into the three common languages spoken in this rural province. Subsequently, to assess the outcome to guide future activities to reduce inappropriate use of antibiotics in rural settings.[48]

This second study involved 15 patients, with 11 receiving antibiotics, including 8 without a prescription. Again, only independent pharmacies were the source of non-prescription antibiotics.[48] Similar to the initial pilot with patients, there were significant gaps in their knowledge regarding antibiotics and AMR, with terms such as 'antibiotic' and 'AMR' posing comprehension challenges. For example, one patient self-purchased antibiotics for 'cleansing' sexually transmitted infections (STIs). This was after engaging in unprotected sexual activity, with patients believing they needed cleansing to prevent getting an STI.[48]

Both these pilot studies with patients highlighted issues with the prevalence of antibiotic self- purchasing in rural South Africa, particularly amongst independent pharmacies, building on the previous pilot studies with pharmacists and their assistants.[42,44] The findings also underscore the need for improved patient and dispenser education on antibiotics, AMR and antimicrobial stewardship (AMS), similar to other studies involving LMICs.[8,13,15,49,50] However, we are aware that targeted educational programmes can be challenging amongst patients across countries, including LMICs, given concerns with the language surrounding AMR.[39,51,52] In addition, the need to address any misinformation, which was very prevalent during the recent COVID-19 pandemic.[53-55] There also needs to be consistent and reliable reporting on AMR and its consequences orchestrated by health authorities.[56]

Key issues, especially regarding the need to convey messages that antibiotics are not effective in treating viral infections such as URTIs, and ways to reduce AMR, will be explored further in the main study involving patients in this rural province in South Africa. As a result, help with formulating pertinent policies amongst all key stakeholders in South Africa and beyond to enhance appropriate dispensing of antibiotics for patients with infectious diseases. Some self-purchasing of antibiotics is inevitable in LMICs given concerns and costs with accessing HCPs in primary healthcare clinics.[8,23,27]

However, the goal should be to ensure their appropriate use, especially following the publication of the AWaRe book giving guidance on the management of common infectious diseases, including when not to prescribe antibiotics.[57,58] This includes reducing antibiotic use for self-limiting conditions such as URTIs with the help of increased knowledge amongst patients across LMICs given their considerable influence with directing treatments.[8,23,46] Alongside this, improved knowledge of pharmacists and their assistants regarding antibiotics, AMR and AMS through training courses and guideline provision.[29,50,59,60] Current government antibiotic lists in LMICs must also align with suggested antibiotics in the AWaRe book, which is not always the case.[61]

Overall, the findings from our pilot studies and other published papers underscore the need for targeted interventions to address inappropriate dispensing of antibiotics across LMICs. This includes enhancing patient education on antibiotics and AMR as well as improving the knowledge of community pharmacists and their assistants regarding these key issues. Alongside this, implementing strategies to reduce inappropriate dispensing of antibiotics generally, which could include quality targets and improved monitoring of dispensing habits through mobile and other technologies.

Addressing these issues is crucial to mitigating the threat of AMR, especially in LMICs thereby ensuring the effectiveness of current antibiotics for future generations. We will continue to monitor the situation.

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