Original Article

Pilot Study to Evaluate Patients' Understanding of Key Terms and Aspects of Antimicrobial Use in a Rural Province in South Africa Findings and Implications

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Abstract

Introduction: Antimicrobial resistance (AMR) is a global concern, necessitating the understanding of utilisation patterns and their rationale. Pilot studies have been conducted in a rural province in South Africa to determine the extent of self-purchasing of antibiotics by patients from independent and chain pharmacies. It is imperative to understand the extent of knowledge and concerns of patients regarding the key aspects of antibiotic use and AMR, and potential language barriers, when pharmacists and their assistants are discussing the key aspects with patients. Consequently, the aim was to pre-test a patient questionnaire translated in three native languages building on the findings from the English language pilot. **Materials and Methods:** The English patient questionnaire (Parts 1 and 2) was translated to Sepedi, Tshivenda and Xitsonga. In total 30 patients were interviewed (5/language for Part 1 and Part 2 respectively) when leaving 10 chain and independent pharmacies. This was followed by interviews with patients to evaluate their understanding of questions and key concepts. **Results:** Eleven of 15 patients interviewed for Part 1 received antibiotics, including 8 without a prescription. Only independent pharmacies (8/10) dispensed antibiotics without prescriptions. Interviews revealed concerns about antibiotic knowledge and AMR and that certain terms including 'antibiotic' and 'AMR' posed challenges with patient understanding of the purpose of antibiotics. For instance, one patient self-purchased antibiotics for 'cleansing' of sexually transmitted infections. The questionnaires in the native languages were subsequently revised so that explanations for terms, including 'antibiotic' and 'AMR' will be provided in the main study. **Conclusion:** Similar to the previous pilot studies, self-purchasing of antibiotics was observed among independent pharmacies, although at varying rates, with similar indications. Continued health literacy education for pharmacists and patients, especially with native language communication, are needed to address current challenges and will be explored in the main study.

Keywords: Antibiotics, antimicrobial resistance, language, patients, purchasing antibiotics without prescriptions, South Africa

Introduction

Antimicrobial resistance (AMR) continues to be a considerable global public health threat.[1,2] In 2019 alone, bacterial AMR directly contributed to 1.27 million deaths worldwide and played a key role in 4.95 additional fatalities.[1] As a result, AMR is increasingly seen as the next pandemic unless urgent activities are undertaken to reduce increasing rates.[3,4] AMR is a major issue in low- and middle-income countries (LMICs) as a result of continuing high burden of infectious diseases,[5-8]

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along with continued misuse and overuse of antimicrobials.[7,9] Misuse and overuse of antibiotics in ambulatory care are a key challenge in LMICs, with antibiotic utilisation in this sector accounting for up to 95% of total antibiotic consumption in humans in these countries.[7,9,10] South Africa, similar to other LMICs, continues to grapple with AMR and its consequences.[11-14] There are concerns regarding the extent of inappropriate prescribing of antibiotics in ambulatory care in South Africa.[15] Furthermore, issues and challenges regarding the extent of purchasing of antibiotics without a prescription from community pharmacies in South Africa despite current legislation, with conflicting findings between published studies.[16-18] High rates of purchasing of antibiotics without a prescription exist across LMICs, enhanced by patient pressures, concerns with patients' knowledge regarding antibiotics and AMR as well as economics, which also need to be addressed to reduce AMR going forward.[16,19-22] Two recent pilot studies conducted in a rural province in South Africa also confirmed that there is dispensing of antibiotics without a prescription in the country, which primarily involves independent rather than chain pharmacies.[23,24] The key reasons behind the self-purchasing of antibiotics included convenience, patient pressures and economics,[23,24] which is similar to other LMICs.[19-21] However, issues of health literacy, language, knowledge and misconceptions regarding the terms such as 'antibiotic' and 'AMR' were also identified as key issues. This builds on the findings of previous studies in South Africa and wider.[25-29] Issues of language are enhanced in countries such as South Africa with its diverse linguistic landscape, with currently 11 official languages. There are three main languages spoken in the rural province of South Africa where the English pilot studies were conducted, namely Xitsonga, Tshivenda and Sepedi. Consequently, there was an identified need to repeat the pilot study with patients using questionnaires translated into these three languages. Reducing AMR is particularly important in countries such as South Africa with high rates of patients with both infectious and non-infectious diseases.[30] In addition, patients struggling with understanding concepts such as antibiotics and AMR unless translated into their native language.[29]

The concepts such as these are important since influencing the behaviour of patients in LMICs towards antibiotics is already seen as challenging.[31-33] Hence, the objective of this study was to test the translated questionnaires in a pilot study, with findings and feedback used to update the translated versions of the questionnaire for use in the main study.

Materials and Methods

Study approach and setting

The questionnaires were administered to a total of 30 patients across 10 community pharmacies in this rural province, including both chain stores and independently owned pharmacies. This is similar to the initial pilot study with patients using the English language questionnaire.[24] For each of the three local languages (Sepedi, Tshivenda and Xitsonga), 10 patients were interviewed. Five patients completed Part 1 and 5 patients completed Part 2 of the questionnaire.

Patient questionnaire and translation

The first step of the translation process involved translating the previous English language patient questionnaire into Sepedi, Tshivenda and Xitsonga languages. This step involved linguistic experts fluent in both the source and target languages and very familiar with the terminology. The objectives of the first part of the questionnaire (Part 1) were to (i) determine the extent of purchasing antibiotics without a prescription among both chain and independent pharmacies and (ii) understand the rationale for this activity, including the condition/problem for which antibiotics were purchased. The second part of the questionnaire (Part 2) sought to evaluate patients' knowledge of key aspects of antibiotics and AMR, with no attempt to ascertain the extent of any self-purchasing of antibiotics and the rationale for this action.

Enrolment and data collection

Convenient and purposive sampling was used to identify the participants who spoke one of the three target languages. Patients who came out of the pharmacies, whether independent or chain pharmacies, holding medication bags were approached and invited to participate in the pilot study. Those who indicated willingness to participate were given more information about the study and requested to provide written informed consent before the start of the interview. Potential participants were also informed that participation was completely voluntary and that they could withdraw from the study at any time without providing reasons for their withdrawal. The first step involved initial interviews with patients who were exiting community pharmacies using an interviewer-administered questionnaire, with separate patients for Parts 1 and 2 of the questionnaire. The second step involved evaluating their comprehension of the survey questions and terminology used, as well as seeking their suggestions on potential adaptations to the questionnaire for the main study if pertinent. This approach was deliberate to be able to fully engage with participating patients regarding their understanding of the questions and suggestions after the completion of the pertinent questionnaire so as not be rushed. Important information may have been lost by combining Parts 1 and 2 and subsequently interviewing patients on their understanding of each question in Parts 1 and 2 and suggestions for future improvements. All interviews for Parts 1 and 2 of the questionnaire were conducted by the lead author (TMS) and the research assistant (VM), who were both fluent in all three languages, in a convenient, semi-private area within the vicinity of the pharmacy, with responses recorded manually on the questionnaire.

Follow-up interviews

For each participant upon the completion of the interviewer-administered questionnaire, a follow-up interview was conducted by the lead author (TMS) together with the research assistant (VM). The interview commenced by asking the participant what they thought about the questionnaire in

general. This was followed by going through each question with the participant and asking for possible areas to improve the questionnaire. More in-depth questioning was used where it was observed that patients had difficulty understanding or had misunderstood a particular question. All patient responses were manually noted on an extra sheet of paper.

Data management and analysis

Data from the interviewer-administered questionnaires were entered into a Microsoft Excel® spreadsheet and summarised descriptively using frequencies and percentages.

Ethical approval

Ethical approval for the study was obtained from the Sefako Makgatho University Research Ethics Committee (SMUREC/P/229/2023: PG). The pilot study only commenced after ethical clearance was received. Permission to conduct the study from the National Department of Health was not required, as no public sector facilities were included in this study. All patient responses remained confidential, and data will be stored securely in a password protected computer with access to TMS only. Data will be discarded 5 years after all the study findings have been published, according to institutional policies.

Results

Summary of questionnaire responses from patients

Eleven of the 15 patients who were interviewed using Part 1 of the questionnaire had been dispensed antibiotics. This included 8 patients without a prescription. Only independent pharmacies (8 of the 10 pharmacies surveyed) dispensed antibiotics without a prescription. None of the patients exiting chain pharmacies were dispensed antibiotics without a prescription. Among the participants who received antibiotics without a prescription, 50% were for a sexually transmitted infection [Figure 1].

Reasons for consulting at pharmacies

In this rural province, the majority of patients (11/15; 75%) sought help from pharmacists in community pharmacies for their infections due to their convenience. In addition, an equal number of patients mentioned either the lack of medicines in local clinics, or the considerable distances to these clinics, as reasons for seeking help from community pharmacists.

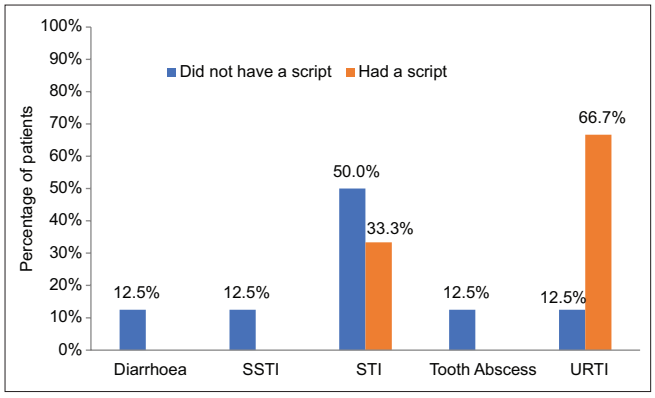

Figure 1: Distribution of common indications for which various antibiotics were dispensed (n = 15). STI: Sexually transmitted infection, SSTI: Skin and soft-tissue infection, URTI: Upper respiratory tract infection.

Understanding of antibiotics and antimicrobial resistance

The majority (12/15; 80%) of patients interviewed for Part 2 of the questionnaire agreed that AMR occurs when their body becomes resistant to antibiotics, and antibiotics no longer work that well. The same number also agreed that taking antibiotics when not needed can lead to antibiotic resistance (ABR). More than 90% of participants also agreed that when people take too many antibiotics, germs become resistant to them.

Encouragingly, most patients mentioned being advised to complete the full antibiotic course and all of them agreed that completing a course of antibiotics is important even when they felt better. However, they were uncertain about the reasons behind this recommendation. All patients agreed that they should not share their antibiotics with others who are ill.

More than 80% of those interviewed agreed that ABR is something the community should be concerned with, with the same number feeling that healthcare personnel are the principal personnel responsible for addressing and preventing ABR. However, they all agreed that everyone should take responsibility for using antibiotics appropriately and that the government and regulatory bodies are also responsible for addressing and preventing ABR. Having said this, while all patients agreed that antibiotics are used for treating bacterial infections, 67% (10/15) of those interviewed believed that antibiotics could treat colds and coughs. The interviews also revealed concerns about the knowledge of antibiotics among participants. In addition, concerns with AMR and that certain terms, including 'antibiotic' and 'AMR', posed challenges regarding their understanding of the purpose of antibiotics. For instance, one patient self-purchased antibiotics for 'cleansing' of sexually transmitted infections.

Recommendations for the questionnaires in the native languages

Interviews conducted after completion of the questionnaire revealed that participants found it challenging to fully comprehend the term 'antibiotic'. The concept of 'AMR' was also difficult to grasp among interviewed patients, exacerbated by no specific term existing for AMR in any of the three native languages.

The first part of the questionnaire proved effective in documenting the extent of purchasing of antibiotics without a prescription, patient demographics and reasons behind any behaviour. Some patients thought antibiotics were meant to 'cleanse' the body of unwanted foreign bodies. Overall, patients interviewed believed the questionnaires should be revised to provide explanations for terms such as 'antibiotic', 'ABR' and 'AMR'. However, the terms need to be written in both English and the native languages as the native language explanations can lose the original meaning due to the lack of existing directly translated terms. Once the patients understood

what the terms meant, they could answer the questions, especially the questions in Part 2 of the questionnaire. For example, the term 'swidlaya-switsongwatsongwana' which means 'antibiotic' in Xitsonga, is hardly used. Consequently, it was explained to pertinent patients that the term was referring to an 'antibiotic'. However, the rest of the sentence was mentioned in everyday language. As a result, participating patients suggested that an explanation of the terms should be provided or explained at the beginning of the questionnaire, i.e. before interviewed patients provide their responses.

Finally, it was evident that an additional question should be included to ascertain whether patients believed colds and influenza are caused by bacteria or viruses. This is because while all participants knew that antibiotics were used to treat bacterial infections, a majority also believed they could treat colds and influenza.

In addition, the interviewed patients also suggested that the question about who are the responsible parties for antibiotic use should have multiple response options, including doctors, nurses and pharmacists. Another question should focus on individual responsibility rather than specifically targeting healthcare personnel. Finally, the last question should address government's responsibility with progressing antibiotic stewardship.

The questionnaires in the native languages were subsequently revised so that explanations for terms, for example, 'antibiotic' and 'AMR' are provided. The revised questionnaires will be used in the main study.

Discussion and Next Steps

As seen in earlier pilot studies with pharmacists, pharmacist assistants and patients, self-purchasing of antibiotics in South Africa was prevalent among independent pharmacies, albeit at varying rates, with similar indications for antibiotic dispensing.[23,24] This practice is particularly concerning given the crucial role pharmacies play in providing accessible health care in the rural settings and where inappropriate antibiotic dispensing can contribute significantly to AMR.[7,9,16]

Part 1 of the questionnaire successfully captured patient demographics and provided valuable data on the extent of antibiotic dispensing without prescriptions, including the underlying reasons. Given its effectiveness in capturing this data, the participating patients suggested that no changes should be made to this section of the questionnaire before the main study.

Part 2 of the questionnaire, addressing knowledge and understanding of antibiotics and AMR, raised awareness among some patients concerning the seriousness of AMR and their role in combating it. However, the translated questionnaires presented challenges regarding the comprehension of some of the terms as there are no direct terms available for 'AMR' and 'antibiotic' in the translated languages. This is similar to the findings in other studies including those in South Africa.[28,29] Interviewed patients made suggestions for the main study to not completely remove the English terms but put these in brackets and mention them in both languages (English and the local language) where pertinent to aid comprehension.

Interviews conducted with the translated questionnaires took more or less the same time as the interviews with the English language questionnaire. Consequently, as before, Parts 1 and 2 will now be combined into one questionnaire for the main study to reach a larger sample of patients, whilst ensuring that the responses are not compromised by the time taken to complete the questionnaire. In the main study, in this rural South African province, participating patients will also first be asked to choose their preferred language from the four available options. The interview will subsequently be conducted in their selected language, ensuring better comprehension and more accurate responses.

Conclusion

Similar to the first pilot studies with pharmacists, pharmacist assistants and patients, self-purchasing of antibiotics was observed among independent pharmacies in South Africa for treating similar conditions; however, at varying rates. Since rural pharmacies play a vital role in accessible health care in South Africa and beyond, especially when clinics are distant, the high percentage of patients receiving antibiotics without prescriptions raises concerns. The findings of this pilot study underscore the urgent need to address concerns with inappropriate antibiotic dispensing practices in South Africa, especially for self-limiting conditions such as upper respiratory tract infections. The questionnaire also needs to be revised to reflect differences in languages spoken in the area and understanding of key terms.

Overall, continued education for pharmacists and patients with native language communication is crucial going forward to reduce AMR in South Africa and will be explored in the main study, which is currently under way.

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Conflicts of interest

There are no conflicts of interest.

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