

Antimicrobial stewardship in community pharmacies: a mixed-methods study

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ABSTRACT

Although international recommendations support the crucial role that pharmacists play in antimicrobial stewardship (AMS) programs, the degree to which pharmacists participate in AMS programs varies by nation. to investigate the roles that pharmacists play in AMS programs in various income levels and to create interventions tailored to the particular context in order to improve the function of clinical pharmacists in AMS in Kerala, India. There is variance in the degree to which pharmacists participate in the program, which is mostly determined by the AMS training they receive and the backing of hospital administration, even if pharmacist-led or driven AMS treatments are improving patient outcomes. Their involvement in the program can be facilitated by a contextually prepared, standardized, and easily accessible AMS training program, pharmacy curricula that are modified to incorporate AMS, and the acknowledgement of pharmacists' role in AMS. This will help to dismantle long-standing hierarchies and professional boundaries. This would be especially helpful in nations where AMS is severely hampered by a lack of doctors with expertise in infectious diseases.

Keywords: Pharmacy, medicine, healthcare delivery systems.

1. INTRODUCTION

Since they made the deadly bacterial diseases treatable, antibiotics have been referred to as the "wonder drugs" of the 20th century. There were 80 antibiotics in various stages of clinical development and 258 antibiotics in use as of 2021[1]. Bacteria that are resistant to the effects of antibiotics have become more prevalent throughout time.[2]. Antimicrobial opposition (AMR) is the consequence of microscopic organisms, growths, infections, and parasites changing over the long haul and losing their capacity to answer meds. This makes contaminations more challenging to fix and raises the gamble of sickness transmission, difficult disease, and passing, as indicated by the World Wellbeing Association (WHO). The WHO has expressed that AMR represents a danger to worldwide wellbeing and improvement. [15] Jim O'Neil's Audit on AMR subtleties the expected number of passings from AMR by 2050 and exhibits the wide local difference in AMR pervasiveness around the world.[11]. In 2019 alone, 4.95 million passings were credited to bacterial AMR, with Australasia having the least all-age death rates and sub-Saharan Africa having the most noteworthy. [14] Low- and middle-income countries are disproportionately affected by AMR and resource availability problems. India, a lower-middle-income country, will have the world's largest population in 2024. [4],[3] The public and private sectors make up India's health infrastructure. Primary health centres, sub-centres, community and district hospitals, and medical facilities are all part of the public sector; private hospitals, general practitioners, assisted living facilities, and clinics are all part of the private sector. Ayurveda, Homoeopathy, Siddha, and Unani are among the traditional medical systems practiced in India. All information is secured confidentially. The majority of patient care is provided in private hospitals, where patients usually pay out of pocket, due to accessibility concerns and public hospitals' inadequate budget. In many regions of the nation, access to sanitary facilities and clean water remains a problem. These elements play a part in India's high rate of infectious disease. AMR is on the rise as a result of improper prescribing practices and uncontrolled population access to antibiotics. India has made various endeavours to address AMR. Kerala's better framework and access than medical care when contrasted with the remainder of India makes it a remarkable state [12]. It is likewise the country's most memorable state to take on a state activity plan for the regulation of antimicrobial obstruction (KARSAP). The Kerala Public-Private association was laid out through the collaboration of all medical care disciplines and their expert social orders.[5]. This organization executed various drives, like the improvement of extensive clinical rules for anti-microbials, the update of undergrad and post-graduate clinical educational plans, and a preparation program for all broad specialists in the state to address antimicrobial obstruction. The goals

- To comprehend the function of AMS pharmacists in various healthcare economies.
- To investigate the cause or causes of the differences in the role of pharmacists in AMS across nations.
- To comprehend the current function of clinical pharmacists in Kerala, India's AMS.
- To look into how pharmacy students in Kerala, India are now taught, trained, and used AMS.

PHARMACISTS' ROLE IN AMS IN INDIA

A successful AMS program requires the contribution of ID doctors, clinical drug specialists, and contamination control medical caretakers, as per strategy records on AMS rehearses in India made by the Indian Committee of Clinical Exploration (ICMR).[6] By the by, the absence of ID doctors and clinical drug specialists is a significant deterrent to AMS execution in India, as per a review led by the ICMR in various public and business foundations to decide AMS rehearses in the country. [18] post-graduate diplomas in clinical pharmacy were introduced in 1996, followed by post-graduate programs in pharmacy practice in 1997 and doctor of pharmacy (Pharm D) in 2008, marking the beginning of clinical pharmacy instruction in India. [16] The goal of the Pharm D program is to give students more clinical experience so they may become more competent in collaborating with the medical team to improve patient care. The Pharm D program was introduced in the nation more than ten years ago, but the prospects for clinical pharmacists to work in hospital settings are continually changing.[8]. Although there are still few chances for them at public institutions, they are gradually being recruited to private tertiary hospitals around the nation.[7]. [13] Clinical pharmacists' duties in hospitals include medication reconciliation, monitoring and reporting adverse drug responses, examining drug-drug interactions, and assisting doctors and surgeons with ward rounds. Alternative opportunities available to Pharm D graduates in India include medical coding, medical writing, pharmacovigilance, and medical science liaison.[9]. Medical coding, medical writing, pharmacovigilance, and medical science liaison are other options accessible to Pharm D graduates in India. [10] ICMR assisted 20 tertiary hospitals in implementing AMS between 2018 and 2021. They reported that the inclusion of clinical pharmacists in the program led to 60% of hospitals implementing formulary restrictions (pre intervention -10%) and 80% of hospitals practicing audit and feedback (pre intervention -30%). Currently, around 10 universities in Kerala provide the Pharm D program, and each one graduates between thirty and forty students a year. However, few of these graduates find work in a hospital setting. These graduates also work in pharmacy schools and the pharmaceutical industry, or they relocate overseas for employment or education. According to a survey by Unnumbered et al., a sizable portion of pharmacists in Kerala had a strong desire to immigrate overseas because of poorer pay, less possibilities, and a generally unfavourable opinion of the pharmacy profession. (38)

METHODOLOGY

In the chosen nations, interviews with physicians and pharmacists who are essential to AMS were carried out from November 2019 to March 2022. To get their opinions on the level of pharmacist involvement in AMS, several professional groups were emailed. To learn more about the level of pharmacist involvement and any issues that have been documented or may arise, only individuals who were employed by AMS programs that currently involved pharmacists were included. Pharmacists from both nations concurred that their pharmacy courses lacked adequate AMS instruction. The majority of them received their AMS training via self-motivated learning, which also emphasized the crucial role mentors—who were senior physicians or pharmacists on the AMS team—played in their education.

1.1 Study Design

Data on the role of pharmacists in AMS was gathered through semi-structured qualitative interviews with clinical pharmacists and physicians who are important players in the organization. In-depth data collecting was made possible by this process, which may not have been achievable using quantitative approaches.[17]. The interview subjects were chosen through the use of purposive sampling.

1.2 Data collection

Following this, the in-person interviews had to be halted due to the COVID-19 pandemic. Although it was originally intended to conduct the interviews in-person from the UK as well, travel limitations brought on by the COVID-19 outbreak forced them to be conducted virtually. A few more in-person interviews in Kerala were attempted during this time, but were unable to take place because of COVID-19 restrictions. February 2021 saw the ninth interview from Kerala, and October 2021 saw the tenth. The COVID-19 epidemic necessitated doing these interviews virtually. When these limitations loosened in 2022, the eleventh interview took place face-to-face. As a result, the Keralan interviews lasted for three years.

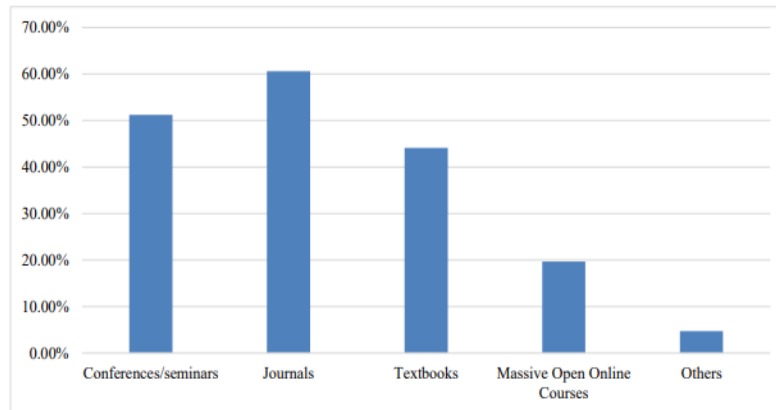


Figure 1: Resources used by survey respondents for updating knowledge regarding antimicrobials

Albeit most of respondents (89.8%, 141/157) expressed that they found out about antimicrobial obstruction (AMR) as a feature of their drug store courses (Figure 1), 84.7% (133 respondents) felt they had close to zero insight into AMR for various reasons (Figure 2).

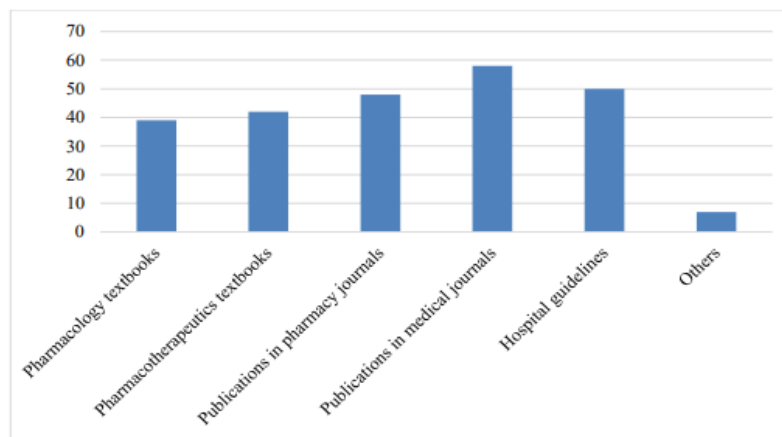
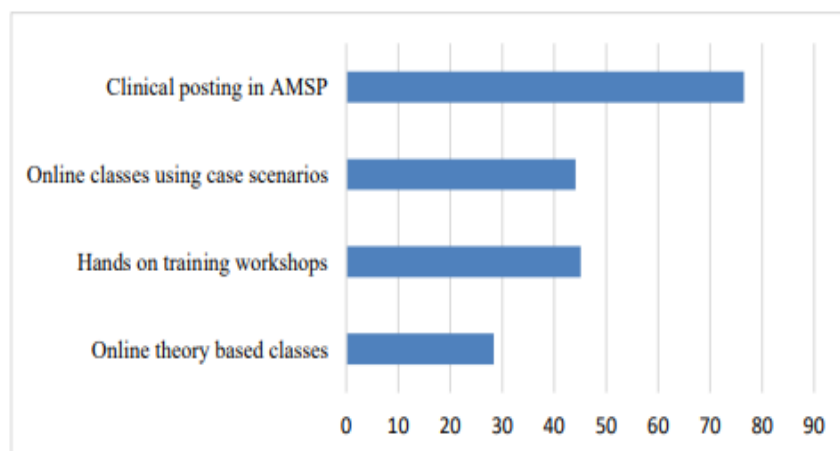
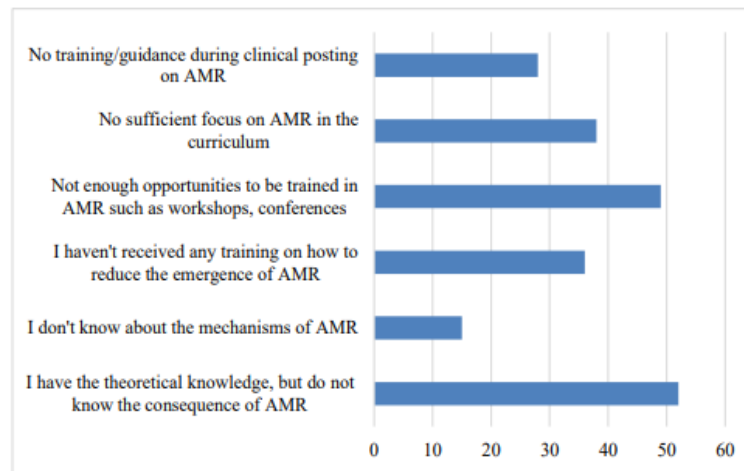


Figure 2: Evidence used by survey respondents when providing recommendations to prescribers

Regardless of this, most of respondents realize that AMR is a worldwide issue, an issue in India, and an issue in their establishments (Table 1).



(a)



(b)

Figure 3: Reasons for lack of sufficient knowledge on AMR among survey respondents

While 29.3% (46/157) of the respondents expressed that they have utilized anti-toxins without a solution, especially for fever and hack, and 78.3% (123/157) of the respondents concurred that they wouldn't take anti-toxins without a remedy from here on out, 67.5% of the respondents (106/157) unequivocally concurred that the accessibility of anti-infection agents without a solution is adding to AMR. Drug store understudies' ongoing AMS rehearses and the AMS schooling they get. Hence, the overview results were introduced utilizing exclusively clear insights. In spite of the way that AMR is shown in the state's drug store courses, most of respondents accepted they had hardly any familiarity with it. Hardly any respondents recognized that they had recently taken anti-toxins without a remedy, essentially for fever and hack, albeit most of respondents knew that doing a contributing component to AMR is as well.

2. CONCLUSION

Kerala is gradually reporting evidence of AMS lead or pushed by clinical pharmacists. (39–41) By studying the experiences of other nations where AMS and the function of pharmacists have further developed and are more clearly defined, the current study aims to investigate if there is room for clinical pharmacists to be further incorporated in AMS in Kerala. The study's suggestions might be helpful in extending the function of clinical pharmacists in Kerala's AMS. In the long run, this would lead to better patient care by supporting the growth of AMS activities in the state and possibly giving them additional work possibilities in hospitals. In nations like India, where the lack of ID physicians poses a significant obstacle to the implementation and sustainability of AMS programs, strengthening the role of clinical pharmacists in AMS in Kerala can be beneficial in bringing about long-lasting reforms.

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