

EDITORIAL

ANTI-MICROBIAL RESISTANCE IN PAKISTAN: A PUBLIC HEALTH ISSUE

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Anti-microbial or antibiotic resistance is a global public health problem, more dominant in the developing countries. Illiteracy and lack of awareness among the general population is a leading cause, compounded by lack of concern by the physicians and the pharmacists selling drugs over the counter. Another side of the phenomenon is attributed to profit making goals of pharmaceutical companies and weak regulation of the market. Nevertheless, misuse and overuse of antimicrobials accelerates this process. Besides, health issues, anti-microbial resistance also has economic implications on the health care system, where the simpler treatments are becoming difficult, day by day. Enforcement of standard treatment guidelines for the health providers and behavior changes at the patients' end are likely to bring about a change in the situation.

Keywords: Antibiotics; Anti-microbial Resistance; Public health; Pakistan

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Antibiotics function by attacking bacteria on various levels in the human body. These medicines play a critical role in treating as well as preventing bacterial infections. The usefulness of antibiotics against bacterial infections cannot be denied. However, an overuse of antimicrobial drugs, paucity of new drugs and the prevailing poor hygiene and infection control mechanisms (especially in developing countries) are leading to the development of antimicrobial resistance.¹ Most of the time antibiotics are not optimally prescribed, often done so when not needed, incorrect dosing or duration. The World Health Organization defines antimicrobial resistance as the "resistance of a microorganism to an antimicrobial medicine to which it was previously sensitive". Antimicrobial resistance (AMR) is the ability of a microorganism (like bacteria, viruses, and some parasites) to stop an antimicrobial (such as antibiotics, antivirals and anti-malarials) from working against it. As a result, standard treatments become ineffective, infections persist and may spread to others.² AMR threatens this progress and presents significant risks to human health. Besides the obvious detrimental health effects, this escalating problem is being seen as a global environmental and economic risk. The link between bacterial resistance and misuse of antibiotics has been well documented, and is considered to be a serious public health problem.^{3,4}

Between the years 2000 and 2010, a significant global increase in the use of antibiotics was observed, two thirds of which was attributable to BRICS countries, i.e., Brazil, Russia, India, China and South Africa. Population increase, better access to drugs, and the improved socioeconomic status in these countries were considered to be the primary causative factors.⁵

The misuse of antibiotics could be attributed to all the factors at various levels of the health system including enforcement and policy, regulation, consumers and healthcare providers.⁶ In developing countries, besides dearth of governance in health system, behavioral and socio-economic conditions are found to be important factors triggering the misuse of antibiotics, and on part of the consumer, the level of education and socio-economic are directly proportional in determining behavior pertaining to misuse.⁷ Antibiotic misuse also includes an underuse of prescribed antibiotics. A lack of awareness and knowledge surrounding antibiotic use leading to hoarding, sharing with friends and family and using antibiotics for infections other than the bacterial is common. Restricting prescriptions has been suggested as a good precautionary measure, however, over the counter sales of antibiotics is a major contributing factor to the misuse as well as abuse, thus making the issue a tri-faceted one, involving the healthcare provider, the pharmacist/drug seller and the patient.⁸

In Pakistan, pharmacology is taught at an undergraduate level, but negligible efforts are made for in-service training in clinical therapeutics at the postgraduate level or for the general practitioners including doctors, nurses, paramedics, chemists and dispensers.^{9,10} So why do medical practitioners continue to prescribe antibiotics, especially when not required for viral infections or misdiagnose symptoms at the risk of increasing drug-resistant bacteria? This is attributed to the monetary inducements offered by the pharmaceutical companies.¹¹ Moreover, a general lack of knowledge on part of the patient regarding the misuse of antibiotics has also been linked to the problem, and

self-medication with antibiotics is prevalent. Furthermore, antimicrobial resistance has been attributed mostly to patient behaviors while overlooking the behavior of doctors.¹²

Women and children under 5 years of age have been found to be the most vulnerable segments subject to inappropriate healthcare seeking and utilization. Health seeking behaviors and health care seeking patterns including self-care has always been a challenge for health policy makers, and therefore, there is always a need for fresh evidence on the subject to re-design and re-orient community based health interventions including: health education, health promotion, and developing information, education, communication (IEC) material etc.¹³

In Pakistan, there is a dearth of information especially the scientific literature with regard to the interaction and dynamics of the three stakeholders involved in antibiotic misuse, abuse and underuse. Moreover, very little evidence was found in terms of misuse as over and under use of antibiotics. There is a definite need of generating the information to understand the influence of cultural, social, economic and behavioral drivers vis-à-vis the patterns of misuse of antimicrobials in Pakistan, not only among the consumers but also among the doctors and pharmacists. Only strong public health interventions will reduce the menace of AMR.¹⁴ Nevertheless, it is encouraging to note that the government of Pakistan has already embarked upon a national action plan for addressing the issue of anti-microbial resistance, in order to sensitize all the stakeholders- the producers, the retailers, the prescribers, and most importantly the end users. Strong regulation on part of the government, a code of conduct for prescribing the antibiotics, responsible marketing and abiding by prescription ethics can help in curtailing the problem to a large extent.

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