

# Recent Physician's Perception on Self-Medication and Antibiotic Abuse in Bangladesh

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## ABSTRACT

Herein a recent physician's perception on the abuse of drugs, such as steroids, sedatives, and antibiotics ascribe to self-medication and inadequate dosage in Bangladesh has been investigated. The impact of medication abuse on both individual and community health is examined in this study from the perspective of medical experts. Seven stakeholders from various medical specialties were interviewed in-depth using qualitative methodologies at hospitals in Barishal and Khulna, two divisional districts of Bangladesh. According to the data, self-prescription, uncontrolled pharmacy practices, and insufficient treatment regimens are the main causes of the widespread incidence of antibiotic resistance. In future, it may turn into a serious public health issue or a biological hazard. Stakeholders highlight the harmful long-term implications of careless steroid usage, the abuse of powerful medications without adequate monitoring, and the misuse of antibiotics for viral diseases. In addition to raising personal health risks, this circumstance exacerbates social problems including the growth of microorganisms resistant to antibiotics and rising medical expenses. Strict enforcement of the sale of prescription-only medications, public education initiatives on the risks of self-medication, and increased availability of reasonably priced healthcare services are among the recommendations. Drug abuse and its wider effects on public health can be decreased by the healthcare system by tackling these systemic problems.

**Keywords:** Medicine, Antibiotic, Bangladesh, Resistance, Self-medication

## INTRODUCTION

Considering antibiotics have been instrumental in saving the lives of millions of people worldwide, their discovery is regarded as one of the greatest accomplishments of the twentieth century (Hammour et al., 2018). Medicines are crucial for preserving, repairing, and safeguarding health (Ragam et al., 2017). Drugs are without a doubt the most important tool available to humans in the fight to prevent and treat illness (YASLI & TURHAN, 2023). For patients and the community at large to receive improved health and medical treatment, medications must be used appropriately (Siam et al., 2021). Antibiotic usage and the emergence of resistance are strongly correlated (Rousounides et al., 2011). Medicines known as antibiotics either eradicate or stop the development and spread of germs. They can be administered orally, topically, or by injections, among other methods. Since their effects diminish with each usage, they might be seen as a non-renewable resource for the body. Resistance is more likely to develop in patients who do not complete the whole course of antibiotics (Sachdev et al., 2022). Many important parties are involved in the misuse of antibiotics, including individuals or consumers, communities, and different cadres of healthcare professionals including prescribers and dispensers (Bbosa et al., 2014). Antibiotic resistance results from antibiotic misuse. It is a constant struggle for the medical staff. One of the major causes of antibiotic resistance and abuse in underdeveloped nations is the sale of antibiotics as over-the-counter medications. Antibiotics are the most often recommended medications for children worldwide, particularly for diarrhea and severe respiratory conditions (Khan et al., 2013). Antibiotic self-medication raises the possibility of improper usage and the selection of resistant

microorganisms (Abasaeed et al., 2009). Since antibiotics are frequently available without a prescription in underdeveloped nations, antimicrobial resistance is a contemporary issue on a global scale (Awad et al., 2005). Self-medication and non-doctor-prescribed medications are frequent in poor nations (Shankar et al., 2002). Antibiotic resistance is typically more common in underdeveloped nations because antibiotics are easily accessible and unregulated (Ajibola et al., 2018). Antibiotics may be bought online in several nations, which is a new way for people to take drugs carelessly (Al-Azzam et al., 2007). Self-medication is the use of medications, such as antibiotics, by people based on their own knowledge and experience without seeking a prescription or diagnosis from a physician (Sachdev et al., 2022). Self-medication behaviors include sharing medications with friends, family, or close friends, getting medications without a prescription, or recycling existing prescriptions to buy medications (Ajibola et al., 2018) (Abasaeed et al., 2009). Antibiotics, ranitidine, paracetamol, analgesics, and oral rehydration solution are the medications most frequently used for self-medication (Paudel & Aryal, 2020). According to a number of lines of evidence, patient and clinician education initiatives can raise patients' awareness and knowledge while lowering the number of times doctors give improper antibiotic prescriptions (Vanden Eng et al., 2003). It was discovered that sociodemographic traits like age and gender, as well as some sociocultural elements including the consumers' social ties, stress levels, and views toward life and health, all had an impact on drug usage (Alam et al., 2015). Antibiotic abuse and overuse can lead to a number of issues, such as the emergence of bacterial resistance, increased medical expenses, and adverse drug reactions (Napolitano et al., 2013). Consequently, a complex strategy involving informed and involved consumers, pharmacists, health authorities, and healthcare professionals is needed to restrict the use of antibiotics (Napolitano et al., 2013). Due to the increasing prevalence of resistant bacteria in community-acquired diseases, antimicrobial resistance is no longer just a hospital issue. The cost of treating bacterial infections is rising due to increased resistance, which raises health care facilities' expenses. However, primary healthcare is where the majority of antibiotics are used (Berzanskyte et al., 2006). Antibiotic self-medication has a variety of negative effects on health, especially in developing nations where it is associated with poverty, lack of access, a shortage of medical professionals, subpar healthcare facilities, uncontrolled medication distribution, and patient misperceptions of doctors. This resistance can lead to longer hospital stays, more doctor visits, longer illnesses, the need for more costly drugs, and even death (Nepal & Bhatta, 2018). Over half of all medications are prescribed, distributed, or marketed improperly worldwide, and half of patients do not take them as directed (Bbosa et al., 2014). Approximately 20 to 50 percent of all antibiotic usage is deemed inappropriate (Rousounides et al., 2011) (Khan et al., 2013). Southern and Eastern European nations that likewise report significant levels of antibiotic resistance have a high rate of self-medication with antibiotics (Grigoryan et al., 2010). The majority of patients getting antibiotics and seeking therapy are children and older individuals. Children ages 0 to 15 received antibiotic prescriptions the most frequently in Bangladesh (35%), followed by those over 60 (23%) (Rousham et al., 2019). About sixty-two percent of Bangladeshis reside in rural regions. According to a 2007 assessment, among Bangladesh's healthcare professionals, there are more untrained rural medical practitioners (8.5%) than qualified doctors (3.7%) with MBBS or above (Bepari et al., 2023). Bangladesh continues to be at high risk of antimicrobial resistance (AMR) transmission due to a poorly regulated health system and a general lack of data (Siam et al., 2021). Adverse medication responses affecting one or more organ systems are a common manifestation of antimicrobial side effects. Given their widespread usage, the majority of antibiotics are safe, but some can have potentially fatal adverse effects (Burke A. Cunha, 2013). Antibiotic overuse is especially concerning because antibiotics can cause a variety of adverse drug events (ADEs), such as allergic reactions, end-organ toxic effects, subsequent infection with organisms resistant to antibiotics, and *Clostridium difficile* infections (CDIs) (Tamma et al., 2017). All of the evaluated antibiotics have the potential to produce gastrointestinal side effects, frequently due to disruption of gut flora, including nausea, vomiting, diarrhea, stomach discomfort, lack of appetite, and bloating. Additionally, secondary *Candida* species overgrowth is likely to be caused by broad-spectrum antibiotics, particularly in individuals with diabetes. Amoxicillin or ampicillin, clindamycin, third-generation cephalosporins (such as cefotaxime and ceftazidime), and fluoroquinolones are more likely to induce *Clostridium difficile* infections (Mohsen et al., 2020). It has been demonstrated that 20% of hospitalized patients experience an adverse response linked to antibiotic therapy (Ahmed et al., 2020). This article addresses the hazards of taking medications without a prescription, the current regulations governing the acquisition of antibiotics, the abuse of medications and antibiotics in Bangladesh, and their advantages and disadvantages.

## METHODS

Qualitative methods and tools for the proposed study were used. This study was conducted on a combination of primary and secondary data. First, we reviewed the literature on traditional medicines and healthcare services (previously identified), as well as their specific contexts. Primary information was gathered from a literature review and in-depth interviews (IDI). Based on purposive sampling approaches, we will target several stakeholders who have worked directly in this healthcare sector, from local clinics and hospitals. Researchers interviewed **07** stakeholders with work experience in medicine and healthcare. To explore stakeholder perceptions of medicine and to discover what hinders, semi-structured, in depth interviews were conducted. This explorative method allowed participants to express their opinions freely and on their own terms. Information for our analysis was obtained from participant conversations. This semi-structured interview started with a general open question and focused on experiences, beliefs, and perceived effectiveness of treatments. Responses were analyzed thematically to identify recurring patterns and unique insights.

### List of stakeholders:

Stakeholder Name	Field	Organization
Zahirul Haque	Duty Doctor	Khulna Life Care Hospital
Anik Shil	Duty Doctor	Rashida Memorial, Khulna
Subol Krisno Kundo	Medical Officer (Child OPD)	Sher-E-Bangla Medical College
Sayed Mahabube Kibria	Assistant Professor (Dept. of Psychiatry)	Sher-E-Bangla Medical College
Munjiba Shirin	Clinical Pathologist	Sher-E-Bangla Medical College
F R Khan	Assistant Professor (Medicine)	Sher-E-Bangla Medical College
Sadia Afrin Sorna	Medical Officer	Barishal City Corporation (BCC)

## RESULTS AND DISCUSSION

Because of their lifestyle choices, living things in the modern world suffer from a wide range of ailments. Nowadays, the primary line of treatment for all illnesses is medication. From the prehistoric era to the present, medicine has been used. The idea of advancement in the medical field is not new (More, 2016). No one doesn't like to suffer for a longer time. They use medicine to relieve disease pain temporarily or recover early.

“The increasing tendency of people to buy medicines without prescription is harming them. People buy and consume conventional medicines after seeing the initial symptoms of any disease, which temporarily relieves the disease, but sometimes, it becomes complicated due to a lack of proper treatment.”

Dr. Zahirul Haque

Duty Doctor, Khulna Life Care Hospital, Khulna, Bangladesh

Medicines have revolutionized healthcare by effectively treating illnesses and enhancing people's quality of life globally. Antibiotics and medications are essential for treating infectious and non-communicable illnesses in Bangladesh, as they are in many underdeveloped nations.

“Due to the widespread use of medicine, antibiotic resistance is occurring. Money is being wasted unnecessarily. Side effects are occurring in the patient's body.”

Dr. FR Khan

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Assistant Professor, Sher-E-Bangla Medical College, Barishal, Bangladesh

A practitioner with a pharmacy degree from a university is called a pharmacist. They might work as a hospital pharmacist in a hospital or in a pharmacy in the developed countries. But in Bangladesh, these types of practice are not prominent yet. Usually, medicine sellers at a pharmacy need to earn a training certificate from Bangladesh pharmacy council. The minimum qualification of them is the Secondary School Certificate (SSC) degree. However, people without any official pharmaceutical training, particularly in rural or semi-urban regions, run many pharmacies. Many people of Bangladesh buy medicine from their experience, by the suggestion of pharmacists, by the suggestion of pharmacy shopkeepers, and by knowing it from websites or social media without consulting with doctors. It is called self-medication. It may be regarded as the most popular type of health-related self-care (Loyola Filho et al., 2004). A significant number of people do not complete the dose of medicine.

“The Bangladeshi people do not care about any disease at the primary level, and at one time, a major disease appeared in their body that threatened their life. Besides that not completing the dose of medicine is a common problem. When they feel a little better, they give up the medicine because, at some point, no other medicine works, and they think of going to India or another country for treatment. In fact, they don't want to understand that the complications of their disease are increasing due to their ignorance.”

Dr. Anik Shil

Duty Doctor, Rashida Memorial, Khulna, Bangladesh

“This is one of the biggest dangers of using any medicine without knowing. If anyone takes medicines without knowing drug interaction, contraindication and side effects, he/she may not be infected into cancer. On the other hand, if antibiotics do not work due to resistance, then he/she cannot think of any other medicine to work. Waiting for death is the only option left.”

Sayed Mahabube Kibria

Assistant Professor, Sher-E-Bangla Medical College, Barishal, Bangladesh

Drug prescriptions from non-doctors and self-medication are prevalent in underdeveloped nations (Shankar et al., 2002). Without the proper understanding, people frequently use antibiotics incorrectly for certain conditions.

“Village doctors routinely prescribe antiviral and antifungal medications, which are readily available from the pharmacy. Only a licensed medical doctor should prescribe antibiotics.”

Subol Krisno Kundo

Medical officer, Sher-E-Bangla Medical College, Barishal, Bangladesh

Antibiotics are essential for treating illnesses including tuberculosis (TB), typhoid, and pneumonia in Bangladesh, which are common because of the tropical environment and uneven sanitary standards of the nation.

“The prevalence of dengue is an antiviral that doesn't require antibiotics. In certain situations, if there is a secondary bacterial infection in addition to dengue, an antibiotic is required. However, based on our personal experience or the village doctor's recommendation, we utilize antibiotics when a fever strikes. In this situation, 90 out of 100 people may recover, but the remaining 10 sustain irreversible harm.”

Subol Krisno Kundo

Medical officer, Sher-E-Bangla Medical College, Barishal, Bangladesh

Millions have benefited from other medications, including those for diabetes, heart disease, and mental health issues. The appropriate usage of these drugs under medical supervision is necessary for these advantages to materialize, though. Despite the advantages, when taken improperly, medications like antibiotics can have serious side effects.

“Due to irregular intake of blood pressure medicine, there is a possibility of stroke, diabetes, heart attack, kidney failure, eye diseases, and other diseases. Especially those who are asthmatic or have pain, it has a greater impact on them if they apply the medicine without knowing it.”

Dr. FR Khan

Assistant Professor, Sher-E-Bangla Medical College, Barishal, Bangladesh

Antibiotic resistance is one of the many adverse effects that might pose a concern to both the individual and the community (Shah et al., 2014).

“Just because one person is becoming antibiotic-resistant does not mean that only he or she is being harmed. That person or that number of people is putting society at risk. They are making the entire society antibiotic-resistant. If the dose is not completed, antibiotic resistance usually occurs. When we are sick, we naturally want to eliminate that illness. For this reason, of course, if anyone has a slight fever or cough, he/ she can take medicine from the pharmacy, but in the case of antibiotics, he/ she should consult a registered doctor. Because the wrong medicine puts not only that person at risk but also the entire society at risk.”

Dr. FR Khan

Assistant Professor, Sher-E-Bangla Medical College, Barishal, Bangladesh

Antibiotic-resistant bacteria can be spread in a community or country through various sources, such as coughing, sneezing, touching, etc.

“The same bacteria might spread to other people's bodies by coughing or sneezing. Even so, such bacteria still can become resistant to antibiotics.”

Sayed Mahabube Kibria

Assistant Professor, Sher-E-Bangla Medical College, Barishal, Bangladesh

Many patients want antibiotics for viral diseases like the flu or the common cold, even if these medications are useless, because they want to heal quickly or have been misinformed. Antibiotics become ineffective over time due to bacterial resistance brought on by improper usage, which also raises death rates, prolongs diseases, and increases healthcare expenses.

“Fever should also be observed for two to three days, as some fevers do not require antibiotics. Antibiotics can be used if any symptoms are associated with fever, like cough, body ache, nausea, etc. The dose of antibiotics must be completed. Because we think we don't need medicine when we are healthy, but if the dose of medicine is not complete, the germ is not destroyed. The same germs later come back stronger. The bacteria develop resistance to the antibiotic, as a result of which the same drug no longer works against germs.”

Dr. Munjiba Shirin

Clinical Pathologist, Sher-E-Bangla Medical College, Barishal, Bangladesh

Likewise, abusing other medications, including sedatives and opioids, can result in addiction, organ damage, and mental health problems, making the nation's already dire healthcare situation worse.

“We think sleeping pills are more harmful, but even more harmful are nap pills, which can lead to death from overdose. It also affects the liver. We give medicine depending on the weight of the children, but in

pharmacies, they give medicine without understanding. If you are suffering from kidney pain, taking pain medicine will not reduce the pain, but there is a risk of death. Pharmacies usually give a one-day fever antibiotic that is very potent. Later it is seen that the patient also does not complete the dose regularly. What happens as a result? As a result of unknowingly using antibiotic drugs, the resistance to many other diseases is lost. And nowadays the people of pharmaceutical companies actually bring any new medicine in the market to the pharmacy, which the owner or employee of the pharmacy advises the patient to take. Neither the seller nor the buyer knows what is actually tested. No one is aware of its side effects. Sometimes we give steroids at the very end because they have so many side effects. But it is easy to buy at the pharmacy. Later it can be seen that the risk of many other diseases increases due to all these side effects.”

Dr. Sadia Afrin Sorna

Medical Officer, PHCC-01, UPHCSDP-PA1 Barishal City Corporation, Barishal, Bangladesh

“Taking steroid medicine for a long time continuously may make you feel better temporarily. After two or three years, a huge number of harmful side effects can be seen, such as diabetes, stomach ulcers, weight gain, loss of heart, and spinal cord fractures.”

Dr. FR Khan

Assistant Professor, Sher-E-Bangla Medical College, Barishal, Bangladesh

Misuse of medications has an effect on the healthcare system and public health in addition to personal health. The increase in antibiotic-resistant diseases in Bangladesh puts further strain on medical institutions, which sometimes lack the resources necessary to handle these cases.

“At present, different types of germs enter the bodies of children with resistance. As a result, antibiotics do not work in the bodies of children. Such Pyrexia of Unknown Origin (PUO) is the name of a fever. If the antibiotic dose is not completed in the case of bacteria or viruses, then the bacteria recognize the antibiotic, which makes them resistant to that antibiotic. Later, that germ enters the body of others with resistance. As a result, the antibiotic no longer works in the body.”

Dr. Munjiba Shirin

Clinical Pathologist, Sher-E-Bangla Medical College, Barishal, Bangladesh

Treatments for resistant infections must be more costly and involved, placing a financial burden on individuals as well as the healthcare system. A public health issue that is challenging to resolve without systemic reforms is also created by usage, which feeds a cycle of reliance on illegal drugs.

A diversified strategy is needed to combat medication and antibiotic abuse in Bangladesh. Campaigns to raise public awareness of the risks of self-medication and the need to heed medical advice are crucial. The dangers of improper doses, uncontrolled medication usage, and incomplete antibiotic courses should be emphasized in these ads. A culture of safe medication use can be promoted by integrating health education into community initiatives and school curricula. Healthcare providers also need to be trained and have the resources necessary to interact with patients in an effective manner, making sure they comprehend the significance of following treatment plans and prescriptions.

“Every pharmacy should follow the law in terms of selling antibiotics to the patients.”

Dr. FR Khan

Assistant Professor, Sher-E-Bangla Medical College, Barishal, Bangladesh

In this endeavor, pharmacies play a particularly important role. Enforcing laws requiring prescriptions for the sale of antibiotics and other potentially dangerous medications can considerably decrease self-medication. In

order to establish a system where medications are distributed responsibly, pharmacists must get training and be held responsible for following these rules. Increasing access to reasonably priced healthcare services should be a priority for policies in order to prevent people from feeling pressured to self-medicate because of their limited financial resources.

“There are concerns among policymakers, these issues are addressed seriously regardless of how many issues exist in other nations. Without a prescription from a physician, antibiotics cannot be bought from a drugstore.”

Sayed Mahabube Kibria

Assistant Professor, Sher-E-Bangla Medical College, Barishal, Bangladesh

Expanded healthcare coverage and reduced consultation costs can persuade more people to contact a doctor instead of turning to over-the-counter remedies.

“People always want to go where there is less hassle. With long lines at government hospitals and extra costs at private hospitals, people think that pharmacies are more accessible to them. So everyone goes to pharmacies. In this case, there is also a lack of knowledge or awareness. Everyone should first see a good doctor in the hospitals in their upazila. If the specialist doctor thinks he needs better treatment, he can send him to the city. This will reduce the pressure on everyone.”

Dr. FR Khan

Assistant Professor, Sher-E-Bangla Medical College, Barishal, Bangladesh

## CONCLUSION

In Bangladesh, the abuse of drugs, especially antibiotics, is a serious problem that leads to antibiotic resistance, poor health outcomes, and higher healthcare costs. The results show that poor prescribing practices, self-medication, and incomplete antibiotic courses are common and are caused by a lack of access to healthcare, false information, and poor pharmacy monitoring. It is essential to implement systemic changes to solve this hazard. Increased non-medical population awareness and understanding of allopathic pharmaceuticals, especially with regard to the usage of antibiotics, can improve the fight against global microbial resistance issues (Rather et al., 2017).

## RECOMMENDATION

- It is essential that strict laws governing the sale of prescription drugs and pharmacist responsibility be enforced.
- To lessen reliance on over-the-counter medications, policymakers must guarantee accessible and reasonably priced healthcare services.
- In rural areas, having access to qualified medical personnel is crucial (Bepari et al., 2023).
- Adherence to appropriate treatment procedures may be further improved by fortifying the healthcare system, educating staff, and enhancing communication between doctors and patients.

Therefore in order to regulate responsible self-medication and specific drug use, the government should take the necessary steps. Otherwise, drug abuse and antibiotic resistance would have been turning a biological hazard in Bangladesh for upcoming days apprehended by the physicians.

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## Conflicts of Interest

The authors affirm that there are no conflicts of interest

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