

A pill for every ill? Unpacking antibiotic misuse among Bangladeshi university students

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ABSTRACT

Background: The misuse of antibiotics and the resulting emergence of antibiotic resistance in bacterial strains are both important global health issues worldwide, especially for developing countries including Bangladesh.

Objective: The study investigated the antibiotic-seeking behaviour of Bangladeshi university students and the views of medical and public health experts on the harmful effects of antibiotic overuse on students.

Method: Forty in-depth students' interviews and 10 key informant interviews with medical and public health professionals were used to collect data using a qualitative study design and descriptive phenomenology research approach. Thematic analysis technique was conducted to analyse the collected data.

Results: The study found university students frequently seek, ask for and consume antibiotics from pharmacies to recover quickly and reduce the time-cost-visit of treatment. In certain instances, medical practitioners recommend antibiotics as a general treatment approach to enhance their popularity among patients and expedite their recovery from illness. However, they are being led into protracted illness due to poor knowledge and excessive usage of antibiotics.

Conclusion: Students risk serious health issues by taking unnecessary antibiotics to recuperate quickly, which increases the nation's health burden. The study stresses the need for stricter restrictions and limiting antibiotic availability and intervention in educational, community and policy settings.

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1. Introduction

Antibiotics are one of the most commonly prescribed medicines in the world and their widespread use frequently leads to misuse including over prescription, self-medication and non-compliance with the guidelines (Azevedo et al., 2009; Elango, 2021). Antibiotic-resistant bacterial strains have proliferated in part because of the misuse of antibiotics, which has contributed to their evolution and spread (Popoola et al., 2024). This issue has far-reaching effects on healthcare costs and quality of life (Maragakis et al., 2008). The adverse clinical outcomes due to the spread of antibiotic-resistant bacterial populations are not properly communicated to the patients (Hersh et al., 2013). The easy accessibility in the market as well as ignorance of general people on antibiotics contribute to its mass consumption in developing countries like Bangladesh (World Health Organization, 2015).

Despite mounting evidence of doctors prescribing and administering antibiotics too liberally, having free and easy access to medical care for all is crucial in developing nations (Biswas et al., 2014; Mohiuddin

et al., 2015; World Health Organization, 2015). In these countries, a significant portion of the population, especially the impoverished, relies on retail pharmacies and private physicians to meet their medical needs (Ahmed & Islam, 2012; Bloom et al., 2015; Dillip et al., 2015; SIAPS, 2015). Antibiotics and other prescription drugs are sold at an estimated 100,000 authorized pharmacies in Bangladesh, with another 100,000 nonregistered pharmacies (SIAPS, 2015). Most antibiotics sold at these retail pharmacies do not require a doctor's prescription (Matin et al., 2020; Sultana et al., 2024). Appropriate use of antibiotics by patients, doctors and pharmacies contributes to their clinical efficacy. Self-medication, sharing medication with others, not taking the complete course of therapy and retaining part of the course for the future occasion are all patient factors related to inappropriate antibiotic usage (Effah et al., 2020; Loosli et al., 2024; Rather et al., 2017; Yeika et al., 2021).

Bangladesh is just getting started with its National Action Plan on Anti-Microbial Resistance (AMR), but it has already conducted a scenario analysis on AMR

containment and created a Model Pharmacy programme in response to worldwide efforts to reduce AMR (Ministry of Health & Family Welfare: Disease Control Unit, 2017). Recent events on a national scale have highlighted the need to learn more about individual behaviour that might either help or hurt efforts to reduce antibiotic misuse (Kalam et al., 2022). Exploring people's varied behaviours, thoughts and cultural backgrounds is needed before developing a comprehensive Anti-Microbial Stewardship (AMS) in the community (King et al., 2020). Some research has been done on this area, but specifically no study has been conducted on university students in Bangladesh. Each year, approximately 1.24 million students enrol at over 150 private and public universities in Bangladesh (Abdullah & Shovon, 2021). A considerable number of students, who are experiencing independent living for the first time, may have limited experience in managing their health. Consequently, they are beginning to make autonomous decisions regarding their health based on their personal knowledge of medicine, peer recommendations and the growing influence of online sources (Aslan et al., 2023). Some of them might not characterize their disease in terms of labels but rather in terms of the constraints it places on their regular routines. Because of their hectic schedules, students often want or need a "quick fix," which often takes the form of drugs (Primeau et al., 2023). This study was conducted to assess the level of antibiotic-seeking behaviour among university students in Bangladesh. For this purpose, researchers investigated the relationships among antibiotic awareness, the expectation of antibiotic therapy, satisfaction with the doctor visit and antibiotic prescription of Bangladeshi University students.

2. Method

The study followed descriptive phenomenology which prioritizes youths' lived experiences and avoids external interpretations to explain antibiotic misuse. Phenomenology allows researchers to study young people's antibiotic use and misuse, revealing subjective meanings like self-medication, peer influence and ignorance. It is very helpful for generating empirical evidence on complex scenarios that are very personal, ambiguous and value laden (Smith & Osborn, 2015).

The location for this research was Dhaka, the capital of Bangladesh, where nine public and eighty-five private universities are located (UGC, 2022a, 2022b). Data was collected from University of Dhaka, Jagannath University, Bangabandhu Sheikh Mujib Medical University, Daffodil University, BRAC University, Stamford University and their adjacent areas. These six public and private universities were

chosen using purposive sampling techniques to get a holistic picture of both private and public university students' perception regarding the study topic.

Both primary and secondary sources were used to collect the data. The primary data was collected using In-depth Interviews (IDI) and Key Informant Interviews (KII). We had limited the selection of study participants to a specific subgroup with similar characteristics to control the potential confounder. Eleven trained and experienced data collectors had built rapport with the respondents before starting to the main questions and provided assurance of their personal data safety. IDIs were taken from 40 university students who had taken antibiotic medicine within the last 6 months. Generally, a descriptive phenomenological study requires 20–25 interviews but due to the complexities of misuse behaviours, including self-medication, influence from peers and misinformation, necessitate a larger sample for an in-depth examination of these elements (Creswell & Poth, 2018). As we are focusing solely on the antibiotic use or misuse behaviour of the university students, that is why those who did not consume antibiotics during the mentioned period were not on our sample population. Participants of in-depth interviews were chosen using convenient sampling techniques from the registered pharmacies nearby university areas while they came to purchase medicines. After getting the permission of the respondents, interviews were conducted mainly at their convenience so that they felt comfortable talking with the interviewer.

Still, a total of around 65 individuals were approached to get the required IDIs and the non-response rate was around 38%. A total of 10 Key Informant Interviews with physicians and public health experts were conducted to obtain insights regarding antibiotic usage among young population in Bangladesh. The researchers used purposive sampling to select KII respondents. Medical practitioners who are working near the university area and had experience for at least 10 years in their respective field were chosen as key informants. The reason behind choosing them was that they possessed a clear idea of the student's medication practice as well and they knew the general physician's perspective on prescribing antibiotics. Both IDIs and KIIs were conducted using a semi-structured questionnaire. In healthcare research, semi-structured questionnaires are the most used qualitative data source (DeJonckheere & Vaughn, 2019; Palinkas et al., 2015). It also enables the researcher to obtain open-ended data, dive deeply into personal and often sensitive themes and explore participant thoughts, feelings and opinions about a specific topic. Interview questions were designed after conducting an extensive literature review on this topic.

Face and content validity tests were conducted before finalizing the questionnaire for the interview.

The IDI questionnaire was focused on the student's medication patterns whereas KII questionnaire focused on the effect of antibiotics on the human body, trends in using antibiotics among the youth, and policy regulation of antibiotics in Bangladesh. The interviews were taken from 20 September to 20 December 2023. Before starting the interview, the questionnaire was displayed to the interviewee, and their responses were noted accordingly by a professional data transcriber. Roughly each interview lasted between 30 and 40 min.

Secondary data was collected from available published books, journal articles found in Google Scholar, PubMed and Scopus database related to antibiotic usage among youth and university students. In order to generate a composite description of the studied issue, primary data (e.g., interviews) are subjected to bracketing, transcription, meaning unit identification and theme development. Along with secondary data (e.g., current literature on antibiotic misuse globally) are analysed to ensure that they are consistent with lived experiences. The authors analysed all the gathered data manually.

2.1. Ethical consideration

Ethical approval (PADBRUR-RAC-071/23) was taken from the research approval committee of Department of Public Administration, Begum Rokeya University, Rangpur to ensure the standard of the research protocol. The committee reviewed and approved all the required tools, including checklist, interview guidelines and protocols. The objective and nature of the study were shared with the participants and after getting their written consent, interviews were taken from them for the study.

3. Findings

Table 1 presents the demographic profile of study participants, categorizing them into two distinct groups: in-depth interviewees, mainly consisting of university students and key informants with specialized professional backgrounds. The student population shows a relatively equal representation of genders, with a little male predominance (55%), and a fair distribution between students studying at public and private universities. The mean age of the respondents was 21 (± 1.41) years. The academic progression is well-represented across various stages, with a notable concentration in the 12,500–21000 family income range, ensuring a middle-income group predominance in the context of Bangladesh. Most key informant respondents are male (70%) and mostly consist of doctors representing 40%. This assembly of key informants from varied sectors, including non-governmental organizations and policymaking, provides a multifaceted perspective crucial for the depth of the study. The mean year of practice of the key informant interviewees in their relevant field were 15 (± 3.4). Collected data has been classified into different themes and sub-themes presented in Table 2.

3.1. Theme 1: Knowledge of antibiotics

3.1.1. Name of antibiotics

Most of the participants indicated a lack of familiarity with the names of antibiotics. They depend on the expertise of medical professionals such as doctors and pharmacists. They believe that medications with great potency and high cost are antibiotics. They purchase antibiotics from pharmacies by requesting high-power and expensive medicine.

Table 1. Demographic information of the respondents.

		Response	Frequency	Percentage
In-depth interview respondents	Gender	Male	22	55%
		Female	18	45%
	University	Public	20	50%
		Private	20	50%
	Academic year	Undergraduate 1 st year	9	23%
		Undergraduate 2 nd year	8	20%
		Undergraduate 3 rd year	9	23%
		Undergraduate 4 th year	7	18%
		Master's	7	18%
		<12,500	8	20%
Key informant interview respondents	Family income	12500–21000	19	48%
		>21,000	13	33%
	Gender	Male	7	70%
		Female	3	30%
	Profession	Doctor	4	40%
		Public health expert	2	20%
		NGO worker	1	10%
		Pharmacist	1	10%
		Policy expert	2	20%

Data collected by the author.

Table 2. Theme derived from interviews.

Theme	Sub themes	(f)	Illustrative Quotations
Theme 1: Knowledge of antibiotics	Name of antibiotics	27	I don't know the exact names, but I usually go to the nearest pharmacy and ask for high-powered tablets to help me recover quickly from my disease, and my pharmacist recommends them based on my needs.
	Awareness regarding proper medication	13	I am very concerned about the misuse of antibiotics. However, there is a lot of confusion among us about which ones are antibiotics and which are not.
	Adverse effects of antibiotics	17	I once became extremely ill after not finishing the entire course of antibiotics and was admitted to the hospital for over two weeks.
Theme 2: Self-medication	Academic pressure and a busy lifestyle	36	Because of my busy schedule with back-to-back classes on weekdays and written assignments on weekends, I rarely have the opportunity to visit government hospitals. Our class schedule and consulting hours for physicians at public hospitals are the same.
	Quick healing	29	Because of the considerable adversity I am facing, it is difficult for me to access the private chambers of physicians. Mostly, I prefer taking medications recommended by trusted relatives or pharmacist.
	Unavailability of doctors and high medical expense	21	Since I am actively involved in both academic and extracurricular endeavors, a prolonged illness would hinder my possibility to achieve our social, professional and academic goals.
Theme 3: Availability of antibiotics	Available in Pharmacy/shops	38	I can buy antibiotics from my hall departmental stores. It also available at all shops and pharmacies near our campus.
	Selling medicine without a prescription	31	Without some prominent pharmacies in town, we do not need to show a prescription before purchasing medicines here. Even due to customer demand, general stores often sell common antibiotics.
Theme 4: Public health crisis due to antibiotics misuse	Antibiotic resistance	12	We are now culturing blood of the patients for antibiotics profiling before prescribing drugs as most of the primary level antibiotics are already resistant in patients' body.
	Global health crisis	11	In the future, I worry that antibiotic resistance will become a major problem, leading people to die from minor illnesses for which no treatment will be available.
Theme 5: Government initiatives	Policy implementation	9	The government is increasingly concerned about anti-microbial resistance. The dysfunctional coordination among health-related professional bodies and drug regulatory agencies hampered the government's policy efforts. In Bangladesh, thousands of illegal, unlicensed pharmacies sell antibiotics without proper certification or qualified pharmacists.
	Educational interventions and awareness-building programs	18	Since the younger generation spends a lot of time on the internet and social media platforms, the government can use these platforms as a viable tool to educate them about the harmful effects of antibiotics.

Note: Data collected by the author.

I buy high-power medicine from a trusted local pharmacy. If the illness remains still critical, only then I visit the hospital to see the doctors. (IDI 8, personal communication, October 15, 2023)

reasons and could hardly follow the proper guidelines. (IDI 22, personal communication, October 22, 2023)

3.1.2. Awareness regarding proper medication

Few of the respondents were aware of the right usage of antibiotics, including the appropriate waiting period before starting treatment and the proper dosage of antibiotics. Usually, they initiate and finish their antibiotic treatment based on their own volition.

I generally take high power medicine within 2 days of my illness and stop using this after recovering from the illness. (IDI 18, personal communication, October 21, 2023)

3.1.3. Adverse effects of antibiotics

When respondents were asked about their medication practices and understanding of antibiotics, most shared similar views with the researchers. They are not very concerned about it, but they seldom hear about its adverse health effects from various sources. Their knowledge of medicine is vastly different from how they feel about and use it.

I know misuse of antibiotics may harm me physically but most of the time we have to take this for different

3.2. Theme 2: Self-medication

3.2.1. Academic pressure and a busy lifestyle

Respondents, being university students, expressed dealing with hectic schedules and busy lifestyles in their day-to-day lives. Consequently, whenever they feel ill or physically unsound, they find self-medication as the only viable and hassle-free way to get rid of it, contending that the traditional way of convalescence, i.e., consulting with a doctor, managing prescribed drugs is quite a lengthy process, which can adversely impact their jam-packed schedules, resulting in an absence in attending classes or exams at worst.

... It is not easy for me to visit outdoor doctors in public medical hospitals from 9 am to 2 pm because I have my classes and exams during that time. Visiting a private clinic for illness is too expensive for me. (IDI 6, personal communication, October 10, 2023)

3.2.2. Quick healing

The tendency to take antibiotics among respondents frequently due to sickness led to quick healing justification. Moreover, they usually sought medication

from nearby pharmacies without any prescription or consulting any doctor or specialist. Hence, for quick recovery they opted for taking antibiotics on self-medication or yielding to the advice from the shopkeepers working in those pharmacies as there is no obligation maintained to show a prescription. In many cases, they also ask doctors to prescribe antibiotics for quick recovery.

If we get bedridden for 2–3 weeks, then our whole semester's work gets into a big mess. That is why we take antibiotics from the local pharmacy and if visit doctors ask them to prescribe medicine for quick recovery. (IDI 4, personal communication, October 10, 2023)

3.2.3. Unavailability of doctors and high medical expense

As a developing country, most of the students in the university level of Bangladesh are from middle and lower middle-income families. They generally depend on government hospitals and university medical centres where they claimed that they need to wait long time to see doctors. In private hospitals, they may get early treatment but need to spend huge amounts of money. That is why for reducing time, visit and cost they depend on self-medication, other's advice and pharmacies to get medicines especially antibiotics.

The unavailability of doctors in our university medical center pushes me to take medicines (antibiotics) from the medicine shops near my residence. It saves me time, cost, and visits for the treatment as well. (IDI 1, personal communication, October 05, 2023)

3.3. Theme 3: Availability of antibiotics

3.3.1. Available in pharmacy/shops

Availability of antibiotics is provoking the students to misuse it. According to the respondents, they could easily get the antibiotics from pharmacies even from the departmental shops of their residential halls. Public health experts are very concerned about this situation.

... In our departmental shops we could easily get all types of medicines ... (IDI 17, personal communication, October 12, 2023).

3.3.2. Selling medicine without a prescription

With the availability of antibiotics in pharmacies and departmental shops, there is a major concern of selling those antibiotics without prescriptions. Most of the respondents stated that they seldom need to show prescription to buy medicines from their departmental shops and pharmacies.

... If my situation becomes worse, I generally ask my roommates or friends to bring medicines for me and they bring them from the shop by describing my situation. (IDI 7, personal communication, October 5, 2023)

3.4. Theme 4: Public health crisis due to antibiotics misuse

3.4.1. Antibiotic resistance

University students are the future of any country and misusing of antibiotics may create antibiotic resistance to this future generation of Bangladesh. Public health experts warned that this situation will create a major health issue among the young generation leading to an increased mortality rate.

Anti-microbial resistance is a natural consequence of taking excessive and unnecessary use of antibiotics. Here bacteria develop resistance to anti-microbials and render our conventional therapies ineffective. As a result, morbidity and mortality rates will rise (KII 2, personal communication, November 01, 2023).

3.4.2. Global health crisis

The misuse of antibiotics is not a local problem rather it is a universal problem specifically acute in developing countries which will create a global health crisis. As a result, global political will and action are required now to prevent this humanitarian crisis.

... As it's a global issue, without a global initiative, no single country can fully control antibiotic resistance. However, we must strengthen our national actions alongside global initiatives. (KII 5, personal communication, November 01, 2023)

3.5. Theme 5: Government initiatives

3.5.1. Policy implementation

Government of Bangladesh is implementing multiple measures to address antibiotic resistance. An important aspect of the National Drug Policy 2016 is the implementation of "model pharmacy", "model pharmacy shop", community pharmacy and hospital pharmacy which strictly prohibits the selling of antibiotics without a valid prescription from a doctor. The policy mandates that only pharmacists (Grades A, B and C) licenced by the Pharmacy Council of Bangladesh are allowed to sell and purchase pharmaceuticals in pharmacies. But the actual market scenario is totally different. Different registered and unregistered vendors even the glossary shops sell antibiotics in Bangladesh due to weak implementation of the previously mentioned law. Our key informants believe that the implementation of the aforesaid policies in a strict manner will greatly reduce antibiotic resistance.

... We are very good at perfect policy documentation. You could easily find many policy initiatives have already been taken by the government, but the matter of regret is the lack of proper implementation of these policies. A reason behind such inactivity of the government is policy makers lethargy, manpower and other resources constraint for vigilance of shops at all

level and unawareness of mass people regarding the detrimental effect of antibiotics misuse. (KII 7, personal communication, November 05, 2023)

3.5.2. Educational interventions and awareness-building programmes

To refrain the young generation from misusing antibiotics, educational intervention and awareness-building programmes should be introduced. To assure rational use of antibiotics, The National Drug Policy 2016 mandates that all hospitals with 100 or more beds, both public and private, must establish their own “Antibiotic User Guidelines,” which should be regularly updated and adhered to in the provision of healthcare services. Subsequently, “Antibiotic User Guidelines” will be developed and enforced for all hospitals. Antibiotic resistance issues should be included in the curriculum from secondary to university level. Both physical and online programmes for awareness building about antibiotic use could greatly contribute to reduce its misuse.

As the young generation is very much exposed to electronic media and social media platforms, massive media outreach on the adverse effects of antibiotics on the human body is required through advertisements, films, promotional dramas, and other promotional activities that will convey a strong message to them. (KII 10, personal communication, November 15, 2023)

4. Discussion

The findings from this study reveal that most of the undergraduate students in Bangladesh lack of knowledge regarding antibiotic use and its misuse. This situation is also similar to those from a study done on Portuguese students (Azevedo et al., 2009). Globally, some studies have identified a prevailing pattern indicating that students lack awareness regarding the medications they are consuming (S. M. Ahmed et al., 2022; Alam et al., 2015; Azevedo et al., 2009; Buke et al., 2005; Haque et al., 2019; Huang et al., 2013; Marzan et al., 2021; Mukharjee et al., 2017; Sakr et al., 2020). The study also found that students lacking knowledge about their own physical and mental health puts them at increased risk for developing critical illnesses and other serious health issues in the future. Results from research done in Ukraine are consistent with these findings (Korzh et al., 2022). It is also evident from students’ lifestyles that they are now terribly busy with their academic and skill development programmes to prepare themselves for the challenges of the modern world. However, neglecting their health issues can set them behind and cause damage to their bodies in the long run (Huang et al., 2013). The students understand it to

some extent, but they complain about the unavailability of doctors in public hospitals. Even most students do not want to bear so many expenses for their treatment because of their financial condition, personal laziness and ignorance.

The unavailability of qualified physicians and the cost of the treatment are significant issues in ensuring Universal Health Coverage in Bangladesh (Khanom et al., 2022). This situation allows local pharmacists and shopkeepers to sell medicine to the general masses. Antibiotics’ names are not familiar to most students, and they mostly buy them from local pharmacies by referring to them as “high-powered medicine” or “costly medicine” for a particular disease. All these things contribute to increased availability and indiscriminate usage of antibiotics among students. Similar findings are found in other studies conducted in Bangladesh (Siam et al., 2021; Wahab et al., 2023). Moreover, study on university and college students in Turkey and Saudi Arabia found indistinguishable situations where irrational use of antibiotics among the students (Buke et al., 2005; Malli et al., 2023). Students have little knowledge of its adverse effects and mostly take them from their previous medication experience for a similar condition (Aranha et al., 2022; Siam et al., 2021).

The study also reveals that the massive workload and tension for the grades in private universities motivate the students to take high-power medicines as there is no time to get bedridden. It has been observed that renowned doctors are the highest-earning professionals in the country, their fame comes from the perceived effectiveness of their treatment. Quick recovery of the patient’s illness through antibiotics gives them quick fame. Multiple studies have similar findings that physicians are influenced by the patients and prescribe antibiotics to mollify and maintain good relationships with their patients (Holroyd et al., 2012; Wang et al., 2023). Generally, students do not want to pay a visit to the doctor 2–3 times for the same medical issue because of the long waiting time and cost of treatment; rather, they self-prescribe previously suggested antibiotics. The results of a study conducted on university students in Malaysia showed that those who had been prescribed antibiotics in the previous 12 months were more than twice as likely to self-prescribe antibiotics as those who had not been (Haque et al., 2019).

The practice of friends and families and their advice influences young students’ behaviour towards antibiotic use. A study finds that individual’s types of networks, where advice on taking medicine for illness is sought, influence their attitude and behaviours regarding antibiotic use, indicating that seeking advice from diverse networks and friends and family-based networks may lead to unnecessary and harmful practice of antibiotic

use, while restricted network with doctors and health practitioners is the most appropriate network when it comes to antibiotic use (Ellis et al., 2019).

This arbitrary use of antibiotics is dragging our young generation towards an anti-microbial resistance society. The worrying state of antibiotic resistance was also highlighted in a previous study conducted in Bangladesh (I. Ahmed et al., 2019). When researchers visited the medical practitioners and public health experts to discuss the impact of the arbitrary use of antibiotics by the young generation, the anti-microbial resistance and the future of public health in Bangladesh, they shared their fear and described the issue's importance. In their study, Marzan also drew attention to this issue and emphasized the importance of raising public awareness in order to tackle the problem before it becomes beyond our control (Marzan et al., 2021).

The massive spread of anti-microbial resistance will create a new public health crisis in the country. Similarly, another study conducted in Bangladesh demonstrated that the public health crisis caused by anti-microbial resistance is exacerbated by the broad availability of antibiotics (Hoque et al., 2020). Therefore, the government has devised a national action plan to curb the unnecessary use of antibiotics in Bangladesh by 2025 (S. M. Ahmed et al., 2022). As effective implementation of these plans remains a governance challenge worldwide (Jeleff et al., 2023), taking the policy is not enough. Massive implementation is deemed necessary along with creating mass awareness (Bhuiyan, 2017).

Public health experts believe this alarming issue can only be solved when we are united against them. Antibiotics selling without prescription in Bangladesh is one of the issues which should be dealt with accordingly. Relying on healthcare professionals' prescriptions is essential as it opens the window for doctors to promote rational needed antibiotic use. Qatar applied a legal ban on selling antibiotics without a prescription, reducing the percentage of buying antibiotics without a prescription. However, people could buy antibiotics without prescriptions as some sneaky medicine stores can ignore the legal restrictions (Aljayyousi et al., 2019). Pharmacists face the dilemma of obligation to customers versus defying regulations and provide antibiotics without prescription (Khazen & Guttman, 2022). Implementing educational interventions and awareness-building programmes can serve as a potential strategy to address the issue of inappropriate antibiotic usage among university students consuming enormous quantities of antibiotics for silly health issues without considering the probability of critical health issues in the future. The findings from a Lebanon-based study among students indicates that education programmes focused on knowledge acquisition,

particularly in non-medical or non-health related fields, as well as awareness-building initiatives such as seminars, workshops and social media promotions, may serve to mitigate the irrational use of antibiotics among university students (Saadeh et al., 2024; Sakr et al., 2020). The government of Bangladesh has already stepped forward to fight this issue by developing a national action plan to control anti-microbial resistance. The high court division also passed an order to regulate illegal antibiotics sold in the local pharmacies. It is our turn to make it more effective by abiding by the government directives and saving our future generation from a new medical crisis in the upcoming years.

Future investigations should address this study's limitations, such as the limited number of participants for in-depth interviews and the potential for selection bias among the key informants. In addition, if a larger geographical area can be covered, the sample will be more representative, and it will be simpler to conclude the study. Although Dhaka is the capital of Bangladesh and a metropolitan city, individuals from diverse walks and backgrounds commute and reside there to attend the finest educational institutions in Bangladesh.

5. Conclusion

The students' practice of self-medication stands out as the most concerning finding unveiled by this research. The student's situation is being exacerbated by pharmacies that recommend and sell antibiotics without the appropriate authorization to do so, which increases the risk of antibiotic misuse and promotes the development of antibiotic resistance in the body. Although students claimed their academic pressure, higher (Time-Cost-Visit) TCV for getting medical facilities, and higher price of medical treatment compelled them to do so, the nature of quick healing from diseases by antibiotics also fascinates them to buy and consume them regularly. Certain students also insist on medical practitioners regarding the recommendation of antibiotics. Regrettably, some practitioners, especially young ones, also suggest unwarranted antibiotic prescriptions for the sake of quick healing and prominence.

The current generation specially the undergraduate students must be made fully aware of the severity of the antibiotic misuse crisis as they are to become the leaders, policymakers and intellectuals of tomorrow. It has been recommended by key informants that the health ministry should be stricter on selling antibiotics without prescriptions in medical stores and take other measures to curb the irrational use of these drugs. Antibiotic seeking and adherence are influenced by a wide range of sociocultural and environmental factors, and findings depict that AMS intervention can

improve outcomes by addressing these factors. This research emphasizes the need for stricter legislation and enforcement of rules restricting access to antibiotics and intervention in educational and community healthcare settings, as well as at the policy level.

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