

# **Knowledge, Attitudes, and Practices of Livestock Farmers on Antibiotic Use and Resistance in Patiya, Chattogram**



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# **Knowledge, Attitudes, and Practices of Livestock Farmers on Antibiotic Use and Resistance in Patiya, Chattogram**



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## **Statement of Author**

I, Nasrin Akter Tonny, hereby attest that I have satisfactorily completed all of the tasks listed in this report. The information was obtained from all of the books, regional, international, and other sources. Each and every citation has been correctly acknowledged. Therefore, I am fully accountable for gathering, processing, maintaining, and disseminating all of the data gathered for this report.

.....

The Author

## List of Acronyms Symbols Used

<b>Abbreviation</b>	<b>Elaboration</b>
%	Percentage
No	Number
≤	Less or equal
≥	Greater or equal
e.g.	Example
etc.	Et cetera
AMR	Antimicrobial resistance
KAP	Knowledge, Attitude and Practice
UVH	Upazilla Veterinary Hospital
CVASU	Chattogram Veterinary and Animal Sciences University

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## Abstract

Antibiotic resistance is becoming a major global public health concern. Nowadays, antibiotics are the most often recommended medications. Misuse of antibiotics may produce a favorable setting for antimicrobial resistance bacteria in animals, the environment, and the human population while rationale use of antibiotics can prevent the increase of antibiotic resistance. The objective of this study is to determine the knowledge, attitudes, and practices among the farmers in Patiya Upazilla of the Chattogram district of Bangladesh.

This study was designed with a paper-based ascertained questionnaire having two options for each answer. About 85 farmers were interviewed for this study who came to Patiya Upazilla Veterinary Hospital (UVH) for treating their rearing animals. During the 48 working days at UVH, the data were voluntarily obtained from the farmers.

Although 88.82% of farmers confirmed that they heard of “Antibiotics”, still their level of knowledge about antibiotic use and resistance was lower because of their low education. But despite of having poor knowledge, they had comparatively moderate attitude and practice regarding antibiotic use.

Overuse of antibiotics is connected to the knowledge gap of antibiotics. Farmers with higher educational levels are associated with more rational attitudes. Activities promoting education and awareness should definitely be included and training program must be conducted in every sub-district to prevent overuse of antibiotics.

**Keywords:** Antibiotics, Antibiotic resistance, Patiya Upazilla, Livestock, Knowledge, Attitude, Practice.

## Chapter 1: Introduction

Nowadays, the menace of antibiotic resistance has become a worldwide public health concern, with a factual economic and clinical burden. Misuse of antibiotics may lead to the development of antibiotic resistance. It is suggested that by 2050 approximately 10 million people will die annually because of the infection related to antibiotic resistance (Clifford et al., 2018).

Antibiotics are the most frequently prescribed drugs and become more popular in human medicine and even in veterinary medicine also (Wangmoi et al., 2021 ; Ventola, 2015). Antibiotics are specifically used against bacteria. Somehow, all bacteria either Gram negative or Gram positive, have the potential to develop resistance against all antibiotics that is available, which will gradually lead to non-availability of effective antibiotics to treat even common infections (Wangmoi et al., 2021 ; Clifford et al., 2018). Due to inappropriate use of antibiotics in both human and animal population more and more, there occurs increasing resistant strains of bacteria. There is a sufficient evidence that presents a positive correlation between antibiotic misuse and the rapidity of resistant development (Xiong W, Sun Y, 2018 ; Hockenhuil et al., 2017). In veterinary field, not only excessive and inappropriate use but also many factors play a role in the development of resistance. Failure to diagnose the disease correctly, farmer's demand for antibiotics, socio-cultural differences, and knowledge, belief, expectations, and attitudes of farmers toward antibiotics are also responsible for growing spread of antibiotic-resistant microorganisms (Davey et al., 2002 ; Ozturk et al., 2019). Moreover, farmers seemed to make a number of mistakes that lead to the development of antibiotic resistance, including failing to treat animals completely with medicines, skipping medication doses, reusing leftover medication, using the incorrect antibiotics to treat viral infections, and using antibiotics that have not been approved for use, like self-treatment (Nepal & Bhatta, 2018 ; Ozturk et al., 2019).

In Bangladesh, in order to fulfill the demand for animal-origin proteins such as meat, milk, eggs for the growing population, livestock farming is becoming a reliable resource for improving economic growth in rural communities (Hassan et al., 2021). Both farm animal industry and poultry industry play a significant role in the economy of Bangladesh by contributing the country's Gross Domestic Product throughout the years. That's why, a



tendency remains among the farmers to produce more products for the growing population and triggered the unregulated use of growth promoters, probiotics, along antibiotics to meet the high production demands of population (Hassan et al., 2021 ; Hamid et al., 2017; Sarwar et al., 2018). Nevertheless, antibiotics are crucial to protect animal health in livestock production systems, but their misuse creates a favorable environment for antibiotic resistant bacteria in livestock farms, animals, and the environment, which might transmit to humans through contaminated foods or direct contacts causing zoonotic and foodborne disease (Hassan et al., 2019 ; Islam et al., 2016 ; Uddin et al., 2010 ; Roess et al., 2013). Recent research has raised concerns about the increased amount of antibiotics use and resistance in Bangladesh (Uddin et al., 2021 ; Ahmed et al., 2020 ; Hassan et al., 2021).

Moreover, it is necessary to control the use of antibiotics, examine the level of resistance, and acquire new strategies to decrease the antibiotic resistance in animals. For that, firstly, we need to improve knowledge and skills of the farmers along with veterinarians about antibiotic use, and raise awareness on this issue (Ozturk et al., 2019). We again need to determine the current situation in the veterinary field in terms of abolishing and assessing efficient measures toward preventing antibiotic resistance (Ozturk et al., 2019 ; Chapot et al., 2021). This study is therefore designed to evaluate knowledge, attitudes, and practice of the farmers in Patiya Upazilla of Chattogram division on the use of antibiotics and resistance.

## Chapter 2: Materials and Methods

### 2.1. Study Period and Areas

This survey was conducted for a period of around 2 (two) months, commencing from 17<sup>th</sup> February 2022 to 28<sup>th</sup> April 2022 among farmers who were presented with their livestock in UVH (Upazilla Veterinary Hospital) in Patiya Upazilla under Chattogram District. The Upazilla is situated almost at the central part of Chattogram District, consist of 18 Union and 157 Village with a population density of 1094 sq.Km. The total area of the Upazilla is about 264 sq.km including 1 sq.km riverine land.



**Figure 1.** Map of Patiya (Study area)

### 2.2. Study Design and Sample Size

A cross-sectional survey was conducted to collect data. About 85 farmers were interviewed who came to the Upazilla Veterinary Hospital (UVH) for the treatment of their rearing animals. The farmers are categorized into 5 groups based on their rearing livestock: cattle, goat, chicken (both broiler and layer), duck and pigeon. This cross-sectional survey was designed with a paper-based ascertained questionnaire (Appendix) which was firstly conducted based on some similar research in other countries (Dyar et al., 2018 ; Farley et al., 2018) and then finally was supervised by two experts, included 4 sections: (1) Demographic and socio-economic information of farmers (age, income, farming experience, education

etc.); (2) 16 questions on farmers knowledge about antibiotics; (3) 14 questions exploring their attitudes regarding antibiotics; and finally (4) 16 questions investigating practices regarding the use of antibiotics. Questions in all the sections were arranged with the options of 'Yes' that specifies the correct response and 'No' with the incorrect response. Here the questionnaire was first pilot surveyed among a couple of farmers to understand the suitability of the language and based on that result, a slight modification was done in questionnaire. However, the pretested interviews were excluded from the analysis.

### 2.3. Data collection

The data were collected from the farmers willingly, during the 48 working days in UVH. Only those who were interested to participate were being questioned via face to face interview method. The questionnaire was developed in English primarily, but before delivering questions, first translated them into local language, Bengali so that they could understand the questions easily and then again translated back into English. At the end of the survey, data from 85 farmers were collected.

### 2.4. Data analysis

Each and every raw data set was assembled, organized, and loaded into Microsoft Excel 2010 and STATA (statacorporation MP 16.0\_SS\_2019) was used for the statistical analysis. To describe the demographic traits and scores of KAP (Knowledge, Attitude, and Practice), descriptive statistics were used to compute the proportions and frequencies. Each respondent's responses to knowledge, attitude and practice questions received a score. Each accurate response to a question received a score "1" for affirmative responses and "0" for negative responses.

## Chapter 3: Results

### 3.1. Demographic and Socio-economic characteristics of farmers

We studied a total of 85 farmers. The characteristics of the farmers are presented in Table 1. The majority of farmers were in 36-45 age range (27.06%), while most of them had only completed primary school (36.47%). Most of the farmers (47.06%) had below 10 years of farming experience and selected cattle farming (38.82%) out of goat, chicken, duck and pigeon farming as their primary income source. The vast majority of farmers who selected “farm manager” (32.94%) as their primary occupation were from the low-to middle-income category (69.41%).

**Table 1.** Demographic and Socio-economic traits of farmers

<b>Traits</b>	<b>Categories</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Age (Year)</b>	≤25	3	3.53
	26 – 35	10	11.76
	36 – 45	23	27.06
	46 – 55	17	20.00
	56 – 65	20	23.53
	≥66	12	14.12
<b>Education</b>	Under graduation	3	3.53
	Graduation	8	9.41
	Higher secondary	7	8.24
	Secondary	9	10.59
	Primary	31	36.47
	No education	27	31.76
<b>Income (month)</b>	≤1000	2	2.35
	1100 – 10000	59	69.41
	11000 – 20000	13	15.29
	21000 – 30000	5	5.88
	31000 – 40000	4	4.71
	≥41000	2	2.35
<b>Occupation</b>	Farm Manager	28	32.94
	Housewife	17	20
	Businessman	15	17.65
	Employee	25	29.41
<b>Farming Experience (years)</b>	≤ 10	40	47.06
	11-20	19	22.35
	21-30	11	12.94
	31-40	10	11.76
	≥41	5	5.88

<b>Types of Livestock</b>	Cattle	33	38.82
	Chicken	16	18.82
	Duck	4	4.71
	Goat	23	27.06
	Pigeon	9	10.59

### 3.2. Level of Knowledge on antibiotics and antibiotic resistance

About 88.28% of farmers who were questioned about their knowledge of antibiotics responded that they had heard of it, whereas 71.76% farmers confirmed that they had heard of antibiotic resistance. More than half (52.94%) of farmers correctly answered that antibiotics are used mainly for bacterial infection. However, 56.47% of them mentioned that it could be used for both bacterial and viral infection, and 48% farmers had mentioned that antibiotics are only used for viral infection. The majority (85.88%) of farmers have answered that antibiotics must be administered with correct dose and duration for any livestock. There 81.18% mentioned about the fact of excessive use of antibiotics can decrease the specific drug's efficacy and become a cause of antibiotic resistance. About 80% of farmers strongly disagreed that antibiotics can be obtained without any prescription of a veterinarian at pharmacies, while 20.00% of them agreed about the fact that it may be obtainable. Most of the farmers (85.88%) had knowledge that the commercial feed contains an amount of antibiotics and they tried to avoid to use except poultry farmers. More than 60.00% of the farmers are mentioned that all disease can not be treated using antibiotics though about 42.35% individuals stated that antibiotic works as painkillers like Paracetamol. Moreover, the majority (89.41%) of the farmers had clearly stated that antibiotics must be maintained its withdrawal period and more than 96.00% claimed that antibiotics and vaccines are not same. All the inquiries and the level of knowledge of farmers on antibiotic use and resistance are presented in below (Table 2).

**Table 2.** Knowledge on antibiotic use and antibiotic resistance among the farmers

<b>Inquiries</b>	<b>Response</b>	<b>Frequency</b>	<b>Percentage(%)</b>
Have ever heard the term “Antibiotics”	No	10	11.76
	Yes	75	88.24
Knowledge about antibiotic works	No	18	21.18
	Yes	67	78.82
Knowledge about antibiotic resistance	No	24	28.24
	Yes	61	71.76
Antibiotics used for bacterial infection	No	40	47.06
	Yes	45	52.94
Antibiotics used for viral infection	No	37	43.53
	Yes	48	56.47
Antibiotics obtained without prescription at pharmacies	No	68	80.00
	Yes	17	20.00
Antibiotics can be used at any dose and duration	No	73	85.88
	Yes	12	14.12
Excessive use of antibiotics decrease the drug efficacy	No	16	18.82
	Yes	69	81.18
The commercial feed contains antibiotics	No	12	14.12
	Yes	73	85.88
Any disease can be treated using antibiotics	No	53	62.35
	Yes	32	37.65
Antibiotics work as painkillers (Paracetamol)	No	49	57.65
	Yes	36	42.35
Antibiotics and Vaccines are same	No	82	96.47
	Yes	3	3.53
Antibiotics can be used without maintaining withdrawal period	No	76	89.41
	Yes	9	10.59

### 3.3. Farmers attitude towards antibiotic use and antibiotic resistance

Of all the total 85 farmers, the majority had favorable attitudes on antibiotic usage and antibiotic resistance. The attitude of farmers towards antibiotics use is shown in Table 3.

When asked about Antibiotic resistance being a major problem in Bangladesh, 87.06% of all farmers have response positively and 82.35% mentioned that it can affect the health of animals. All the farmers (100%) have mentioned that it is necessary to know the proper use of antibiotics before using them. Likewise, 84.71% of farmers agreed the fact of consulting a veterinarian before using antibiotics is also necessary. More than 90.00% farmers mentioned the necessity of follow the withdrawal period of antibiotics before selling and using them, while 94.12% agreed to complete entire course of antibiotics to prevent antibiotic resistance. However, 45.88% farmers mentioned positively about the requirement to use antibiotics if any disease occurs in nearby farms. The majority (84.71%) of farmers stated that vaccination is better than antibiotic as preventive measure and 91.76% stated to invest more in biosecurity to reduce the widespread use of antibiotics which cause resistance. Most of them (92.94%) claimed to have training on rational use of antibiotics. Moreover, 36.47% of the farmers believed that antibiotics should not be used as growth promoters and 76.47% believed to use antibiotics as it protects both human and animal health.

**Table 3.** Attitude towards antibiotic usage and resistance among farmers

<b>Inquiries</b>	<b>Response</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Antibiotic resistance is a problem in Bangladesh	No	11	12.94
	Yes	74	87.06
No abuse of antibiotics at present	No	62	72.94
	Yes	23	27.06
Antibiotic resistance can affect the health of the animals	No	15	17.65
	Yes	70	82.35
Necessity of knowing proper use of antibiotics before use	No	0	0
	Yes	85	100.00
Not necessary consulting veterinarian before using antibiotics	No	72	84.71
	Yes	13	15.29
Antibiotics are better than vaccination	No	72	84.71
	Yes	13	15.29
Necessity to establish “Rational use of antibiotics” training	No	6	7.06
	Yes	79	92.94
Better to invest more in biosecurity to reduce the widespread use of antibiotics	No	7	8.24
	Yes	78	91.76
Necessity to follow the antibiotic withdrawal period before selling them	No	6	7.06
	Yes	79	92.94
Requirement to use antibiotic until complete disease recovery	No	13	15.29
	Yes	72	84.71
Requirement to use antibiotic when disease occurring in nearby farms	No	46	54.12
	Yes	39	45.88
Importance to use antibiotics as growth promoters in livestock product	No	54	63.53
	Yes	31	36.47
Antibiotics should be used in animal as it protects both human and animal	No	20	23.53
	Yes	65	76.47
Everyone should complete entire course of antibiotics to prevent AMR	No	5	5.88
	Yes	80	94.12

### 3.4. Practices on the use of antibiotics and antibiotic resistance

About 91.76% of all the total farmers, disclaimed not to use antibiotics as soon as animal recovers before completing the course. 84.71% farmers agreed not to use antibiotics without veterinarians instruction, while 24.71% farmers use antibiotics based on prior experience without any instruction. More than 91% farmers claimed that they examined the expiry date



of medicine and also maintained the prescribed dose and duration and 42.35% farmers stated that they threw the expired and unused antibiotics on ground. Moreover, 94.12% farmers mentioned that they vaccinate the animals to reduce the use of antibiotics. About 24.71% farmers have mentioned that they maintained regular antibiotic therapy as preventive measure. There also have found that some (14.12%) used multiple antibiotics for a disease and some (16.47%) used double dose of antibiotics for quick healing. However, 70.59% of total farmers disclaimed about buying antibiotics from any field-level drug representatives. The practices of antibiotics use among farmers are presented in Table 4.

**Table 4.** Practices of farmers regarding antibiotic use

<b>Inquiries</b>	<b>Response</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Stop using antibiotics as soon as animal recovers	No	78	91.76
	Yes	7	8.24
Use antibiotics without veterinarian's instruction	No	72	84.71
	Yes	13	15.29
Use antibiotics on livestock based on prior experience	No	64	75.29
	Yes	21	24.71
Inquiry the veterinarian to prescribe for common diseases	No	36	42.35
	Yes	49	57.65
Check expired date of antibiotics before use	No	5	5.88
	Yes	80	94.12
Use antibiotics as prescribed dose and duration	No	8	9.41
	Yes	77	90.59
Throwing the expired and unused antibiotics on the ground	No	49	57.65
	Yes	36	42.35
Vaccination of animals to reduce the use of antibiotics	No	5	5.88
	Yes	80	94.12
Maintaining regular antibiotic therapy as preventive measure	No	64	75.29
	Yes	21	24.71
Use multiple antibiotics together for a disease	No	73	85.88
	Yes	12	14.12
Use double dose of antibiotics for quick healing	No	71	83.53
	Yes	14	16.47
Use antibiotics in feed products to prevent microbial spoilage	No	74	87.06
	Yes	11	12.94
Buying antibiotics from field-level drug representatives	No	60	70.59
	Yes	25	29.41

## Chapter 4: Discussion

This study was carried out to understand the knowledge, attitudes and practices of farmers in Patiya, Chattogram district about the use of antibiotics and antibiotic resistance. To the best of our knowledge, this is the first investigation into the prevalence of KAP (Knowledge, Attitude, and Practice) among farmers in Patiya Sub-district under Chattogram district.

Antibiotic resistance is significantly influenced by the knowledge, attitudes and practices of livestock farmers regarding the usage of antibiotics in animals. Nevertheless, prior investigations revealed that a significant portion of the farming community lack sufficient knowledge on the use, knowledge, and effects of antibiotics (Ozturk et al., 2019). In accordance with WHO statistics on antibiotic resistance compiled in 12 different countries, more than three out of four farmers in nations including Sudan, Egypt, and India thought that viral diseases in individuals, such as colds and the flu, could be treated with antibiotics. In a recent poll of ruminant farmers (Sadiq et al., 2018) more than 70.00% of farmers said that all sick animals should be administered antibiotic medicines, and some believed that antibiotics had no negative effects on animals. According to the result of the current investigation, the percentage of farmers who indicated the same replies to inquiries of a similar nature were rather low. But on the other side, a few farmers said antibiotics worked well against both internal and external parasites in animals, with some believing antibiotics as analgesics and antipyretics. These results show that the proper application of antibiotics is still largely unknown.

In our study, it was shown that farmers understanding of the rational use of antibiotics was insufficient, in addition to their knowledge about antibiotic use. About half of the farmers claimed that they first utilized antibiotics that were easily accessible when their animals became ill, rather than calling the vet. The majority of farmers (Landfried et al., 2018) on antibiotic use in goat farms said they were knowledgeable enough about animal behavior and able to spot anomalies that might be disease-related. One of the main reasons why farmers take antibiotics without visiting a veterinarian is the cost of veterinary services. In Patiya Sub-district, livestock farmers usually thought about the veterinary service cost over the animal cost, and that's why they called the quacks for any treatment with a little cost rather than vets. These quacks usually use broad-spectrum antibiotics for any bacterial infection or

any disease, and it is worrying most farmers, who agree with the treatment. This could be due to a lack of understanding about antibiotic use and antibiotic resistance. So, we can say that one of the primary causes of antibiotic resistance has been linked to the improper use of antibiotics. Although the majority of farmers in this study claimed antibiotic resistance was a serious issue in Bangladesh, some believed that it was not that much important problem in our country and it could not impact on animal and human health. This could be attributed to a lack of awareness of antibiotic resistance.

However, this study exposed significant gaps in farmer's understanding of antibiotics. Only half of farmers felt that antibiotics could not hasten the recovery from the common disease like cold, and almost a half of farmers were unaware that antibiotics were ineffective against viruses. The high percentages of farmers who knew that antibiotics may be purchased over-the-counter at pharmacies and used for prophylaxis may be an indication of current medical practices and Bangladesh's inadequate regulatory control of drug sales. This demonstrate the necessity of enhancing the veterinary curriculum's educational teaching on antibiotics and antibiotic resistance.

Moreover, in the study, most farmers had only primary school education, with a lack of any medical knowledge. But still, they believed that they needed more education and training on antibiotics use and resistance. Although farmers had low level of knowledge about antibiotics because of their education level, they had well attitudes and practices regarding the antimicrobial use. Overall, our study highlights the need to improve the veterinary curriculum for farmers in our nation as a sound human health depends on them.

## **Strength and Limitation of the study**

Farmers from small, medium, and large-scale farms as well as people of different ages, levels of education, and farming experience participated in this study as farmers such that the results of the study may be taken to reflect the entire population. Once more, face-to-face interviews were conducted for the sample, which aided in response's low error rate.

This study included several other constraints as well. The time allotted for studying was constrained, and the study area was limited to a specific location. As a result, there are fewer farmers than anticipated, and we were unable to reach the entire district.

## **Conclusion**

Our investigation of the knowledge, attitudes, and practices of livestock farmers about antibiotic use and antibiotic resistance provides crucial data for enhancing the use of antibiotics in livestock farms. We discovered that farmer's socio-economic demographics, such as education, age, and financial source, have a significant impact on their antibiotic knowledge, attitudes, and practices. The findings indicated that one of the major causes of increasing antibiotic resistance is overuse of antibiotics connected to the knowledge gap about antibiotics. Farmers with higher educational levels are associated with more positive attitudes. In addition, a greater percentage of farmers engaged in poor practice by forgoing prescription antibiotics from licensed veterinarians. Therefore, it is strongly advised to include educational and awareness activities to improve the understanding of antibiotic use, positive attitudes, and improved practices.

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## **Data Availability Statement**

The author herself used a questionnaire to gather the data, which was then documented in an excel file that was kept on the author's computer. Nobody has access to the information. As a result, the data is entirely secure and impartial.

## **Conflicts of Interest**

The author declares no conflict of Interest.

## Appendix

### Questionnaire

#### Knowledge, Attitudes, and Practices about Antimicrobial Use in Livestock

##### Demographic & socio-economic information of farmers:

Name		Cell no.	
Age		Education	
Village		Occupation	
Farming Experience		Income/month	
Upazila & District		Livestock	Cattle, Goat, Chicken (layer/broiler), Duck, others (.....)

##### Knowledge about Antibiotics

Q No.	Questions	Answers	
		Yes	No
1	Have you ever heard the term "Antibiotics"?		
2	Do you know how antibiotic works?		
3	Do you know about antibiotic resistance?		
4	Any antibiotic can be used in livestock as a preventive measure.		
5	Can antibiotics be used to cure infections caused by bacteria?		
6	Can antibiotics be used to cure infections caused by viruses?		
7	Do you think the use of antibiotics will speed up the recovery of cold, cough, and other diseases caused by the common flu virus?		
8	Antibiotics can be obtained without a prescription at pharmacies.		
9	Antibiotics can be used without maintaining a withdrawal period.		
10	Antibiotics can be used in any dose and duration.		
11	Do you think the excessive use of antibiotics will decrease the drug's efficacy?		
12	The commercial feed contains antibiotics.		
13	Any disease can be treated by using antibiotics.		
14	Do you think antibiotics work as painkillers?		
15	Is "Paracetamol" an antibiotic?		
16	Antibiotics and Vaccines are the same.		

**Attitudes regarding Antibiotics:**

Q No.	Questions	Answers	
		Yes	No
1	Antibiotic resistance is a problem in Bangladesh.		
2	At present, there is no abuse of antibiotics.		
3	Antibiotic resistance can affect the health of your animal.		
4	It is necessary to know information on the proper use of antibiotics before applying them.		
5	It is not necessary to consult a veterinarian before using antibiotics.		
6	Antibiotics are better than vaccination.		
7	It is necessary to establish a "Rational use of antibiotics" training at the UVH for farmers.		
8	It is better to invest more in biosecurity to reduce the widespread use of antibiotics.		
9	It is essential to follow the antibiotic withdrawal period before selling the livestock to ensure safe consumption.		
10	It is required to use an antibiotic until complete disease recovery.		
11	It is required to use an antibiotic when a disease occurs in nearby farms.		
12	It is important to use antibiotics as growth promoters in livestock production.		
13	Antibiotics should be used in the animal because it protects both human and animal.		
14	Everyone should complete the entire course of antibiotics to prevent AMR development.		

**Practice Regarding Antibiotic Use:**

Q No.	Questions	Answers	
		Yes	No
1	Do you stop the use of antibiotics as soon as your animal recovers?		
2	Do you use antibiotics without the veterinarian's instruction?		
3	Do you use antibiotics on livestock based on your prior experience?		
4	Do you ask the veterinarian to prescribe antibiotics for a common disease?		
5	Do you check the expired date of antibiotics before using them?		
6	Do you use antibiotics as the prescribed dose and duration?		
7	Do you throw the expired and unused antibiotics on the ground?		
8	Do you vaccinate your animal to reduce the use of antibiotics?		
9	Do you maintain regular antibiotic therapy as a prevention measure?		
10	Do you use antibiotics other than the prescribed one?		
11	Do you use multiple antibiotics together?		
12	Do you maintain basic hygiene at the farm to prevent diseases?		
13	Do you use a double dose of antibiotics for quick healing?		
14	Do you use antibiotics in feed products to prevent microbial spoilage?		
15	Did you ever use ruminant antibiotics for birds or vice-versa?		
16	Do you buy antibiotics from field-level drug representatives?		

## **Biography**

I am, Nasrin Akter Tonny, DAUGHTER of Abdul Khaleque and Salina Akter. I have completed my Secondary School Certificate examination from CDA Agrabad Girl's School, Chattogram in 2014 followed by Higher Secondary Certificate examination from Hazi Mohammad Mohsin College, Chattogram in 2016. Now, I am an intern veterinarian under the Faculty of Veterinary Medicine in Chattogram Veterinary and Animal Sciences University, Bangladesh.

Bangladesh is a developing country in South Asia where livestock plays an important role in our economy as well as the food chain. I expect to be a future researcher of life science to address the present challenges we have in this field.