

Public Awareness of Hearing Health at Rangamati District in Bangladesh

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ABSTRACT: *Hearing disorders are a more common phenomenon in Bangladesh. The objective of this study was to examine public awareness of hearing health in the Rangamati District as well as to know elementary knowledge about the audiology profession. The study used a cross-sectional and mixed research approach. Data were collected from the native people of the Rangamati district. Currently, the total population of Rangamati is five hundred ninety-five thousand nine hundred seventy-nine (595979). The researchers used Yamane's (1967) formula to determine the sample size. The study showed that most of the native people are ignorant about hearing health as well as audiology discipline.*

Keywords: *Audiology, Hearing Health, Hearing Loss, Ear Infections, Ear Hygiene.*

1. INTRODUCTION

Audiologists are medical professionals who evaluate, diagnose, and treat hearing and balance issues [1]. Aside from the clinical aspect of audiology, the prevention of hearing impairment and promotion of hearing health are also important and are thus included in the realm of audiology [2]. Even though the audiology profession has been since the 1940s, hearing loss is still a major public health concern. The World Health Organization (WHO)

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recently emphasized the significance of stepping up efforts to prevent deafness and hearing loss, citing the fact that around 360 million people worldwide suffer from disabling hearing loss [3]. Adults and children in Rangamati, Bangladesh has the highest prevalence of debilitating hearing loss. The majority of the research on the prevalence and causes of hearing impairment (through the lifespan) has been conducted in urban areas and/or within the private healthcare sector. However, data are scarce on the frequency and causes of hearing loss in the rustic area. Rangamati regions are described as isolated locations with poor infrastructure, inadequate basic utility service provision, low literacy, high unemployment, restricted access to health and education facilities, and a high incidence of hearing diseases. The most common causes of hearing loss in rural locations have been documented to be impacted cerumen, middle ear pathology, exposure to overly loud music, and the use of ototoxic drugs [4-5]. The majority of these causal variables, on the other hand, can be averted, at least in part, by improving primary hearing impairment prevention [6].

Olusanya et al. (2014) have suggested strategies for the primary prevention of hearing impairment over the lifespan. For audiologists and other healthcare workers, the guidelines on health education regarding ototoxicity, middle ear pathology, excessive and/or prolonged noise exposure, the necessity of immunization, and the promotion of proper personal cleanliness provide a valuable starting point. The use of these measures, as well as early detection and treatment of hearing loss, can help to limit the catastrophic effects that hearing loss can have on communication, psychosocial well-being, financial independence, and overall quality of life [6]. There is no previous literature on the current research topic in Bangladesh. Thus, the researcher elects the current study topic to minimize the research gap from a Bangladeshi perspective. This study will aid to assess the Public awareness of audiology, hearing, and hearing health in Rangamati, Bangladesh. Moreover, the researchers collected data through structured questionnaires and focus group discussions (FGD) to obtain field data.

2. HEARING HEALTH AWARENESS: BANGLADESH AND GLOBAL PERSPECTIVES

Hearing disorders are very common in everyday life, especially in Bangladesh. The necessity for immediate treatment to prevent ear and hearing disorders is critical, especially because permanent hearing loss can often be avoided. There are a limited number of hearing health experts and audiological resources in Bangladesh. The general public's awareness of hearing and hearing health may be harmed by the lack of hearing health

services. There is no preceding study on the contemporary topic, especially from a Bangladeshi perspective. In addition, researchers choose the existing topic to uncover the perception of hearing health among native people in Rangamati, Bangladesh, and augment hearing health awareness among them. Whereas, some studies found the current topic cross-cultural angle. Some theorists found that there is little data on the public's understanding of audiologists and the services they provide in South Africa, particularly in underprivileged rural areas [5]. Cleaning one's ears with a cotton bud is a popular technique, and the risks associated with it are well known. In 2015, Gabriel and his research team unveiled that, the majority of the participants used cotton buds to clean their ears. The most common reason for using cotton buds is to relieve ear irritation. Their understanding, attitude, and awareness of the use of cotton buds are quite low, with the incorrect belief that it is beneficial. It is necessary to raise awareness through public education and health education, as well as to build school health programs in our various schools [7].

Another study proposed that college students were polled to find out how much they knew about the consequences of noise on hearing health and where they got their information, as well as how much they tried to protect their hearing. Inadequate education in this area may explain the inaccuracies in college students' awareness of the effects of noise on the ear, as well as the failure of the majority of students to utilize hearing protection. Early and regular hearing health and conservation education is required, particularly at the primary school level. Although nearly all of the participants (96%) were aware that loud noise can cause hearing loss, the majority were unclear of the type of damage it might cause to the anatomical structures of the ear (86%) or the possible influence it can have on communication and other developmental variables (57 %) [8].

3. OBJECTIVES OF THE RESEARCH

The main objective of the research is to find out the public awareness of hearing health at Rangamati district in Bangladesh. The specific objectives of the present research are:

- a. To explore the elementary knowledge about the audiology profession among the local people.
- b. To uncover the level of hearing health awareness among the native people.
- c. To know the access to health care for hearing in Rangamati district.

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- d. To discuss the challenges of seeking hearing health care in the study area.

4. RESEARCH QUESTIONS

The following research questions lead to the present study concerning its aim and objectives:

- a. What is the perception regarding the audiology profession among the native people?
- e. What is the level of hearing health awareness among the native people?
- f. What is the access to health care for hearing in the Rangamati district?
- g. What are the key challenges of seeking hearing health care in the study area?

5. METHOD

The researcher has adopted a mixed research approach for this particular study. Data were collected from the participants through questionnaires and focus group discussions. All the participants were recruited from different regions of Rangamati district. Thus, the overall processes of data collection fall into the following broad categories:

- a. Survey Questionnaire
- b. Focus Group Discussion (FGD)

6. PARTICIPANTS

In the current study, all the participants are known populations and the number of populations in the Rangamati district is five hundred ninety-five thousand nine hundred seventy-nine (595979). So, researchers used Yamane's (1967) formula for sample size estimation for a known population. Yamane's (1967) formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N is the population size, and e is the level of precision.

$$n = \frac{N}{1 + N(e)^2} = \frac{595979}{1 + 595979(.05)^2} = 400 \text{ Participants}$$

Samples (subjects) assigned from Rangamati Sadar Upazila, Belaichhari

Upazila, Bagaichhari Upazila, Barkal Upazila, Juraichhari Upazila, Rajasthali Upazila, Kaptai Upazila, Langadu Upazila, Naniarchar Upazila, Kaukhali Upazila. Demographic information of the study subject is shown below:

Table 01: Demographic information of study subject.

Mean Age	45 Y		
Male: female	60: 40		
Home language	Bengali: 90%	Others: 10%	
Occupation	Shopkeeper: 50%	Students: 10%	Others: 40%

Table 02: Educational information on the study subject.

Primary	SSC	HSC	Higher education
45%	30%	20%	5%

7. SAMPLING TECHNIQUE

A simple random sampling method was used to select the study subject. Initially, the investigator considered collecting data from Rangamati to conduct this study. The whole procedure was done by the researcher along with some students of the Dept. of Audiology and Speech-Language Pathology to make it more reliable and transparent. By using this method, the investigator was able to save time and cost. In addition, the investigators went to the population who were easy to engage with and likely to be a study subjects.

8. DATA COLLECTION TOOLS

The questionnaire and FGD was the data collection tool for this study. The checklist was developed following the literature. The researcher collected information on the characteristics of the study population from this literature. The data collection checklist is given in the appendix section (see appendix-1). Other supportive materials like pens, pencils, erasers, white paper, and clipboards were also used as data collection tools.

9. DATA COLLECTION PROCEDURE

Data was collected using a mixed type of research questionnaire (Appendix 1) and Focus Group Discussion (FGD). The survey had six sections with a total of 23 open-ended and closed-ended questions except for demographic information. Knowledge of the profession, Knowledge or awareness of hearing and hearing loss, Hearing, Ear infections, Ear hygiene, and Noise

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versus Hearing was the six sections of the questionnaire. Before data collection, pilot research was done. One researcher, six research assistants, and two audiologists made up the research team. Each research assistant was expected to administer the questionnaire to five people in the community who met the same inclusion criteria as the main study's participants. Almost all the participants who took part in this study lived in the unlike towns. The goal of the preliminary study was to confirm that the questionnaire was face and content valid participant replies. However, the researcher also did ten (10) Focus Group discussions (FGD). Eight (08) participants were present in each discussion group. The researchers coded all the field data in a manual record sheet as well as a virtual format. The research team also used a digital camera and audio recorder for further and authentic analysis of field data.

10. DATA ANALYSIS AND RESULTS

Researcher breakdown the data analysis and result section into two parts, such as (1) questionnaire analysis and (2) FGD analysis. However, questionnaire analysis is also breakdown into seven (07) parts (except demographic information), like- (a) Knowledge of the profession, (b) Knowledge or awareness of hearing and hearing loss, (c) Hearing, (d) Ear infections, (e) Ear hygiene, and (f) Noise versus Hearing, and (g) Leading Research Question Justification, etc.

11. QUESTIONNAIRE ANALYSIS

11.1 Knowledge of the Profession

Question no. 1: What does an audiologist do?

Overall, in response to question no. 1, the researcher found that the bulk of the participants (75%) had never heard the term audiology. About 25% of participants had few concepts about the audiology profession.

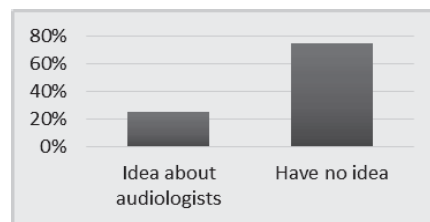


Figure 1: Knowledge of the profession.

Question no. 2: Where is your closest audiologist?

During analyzing this question, it was seen that about 85% of participants had

no idea about the nearest audiologist. Whereas only 15% had had little idea about it.

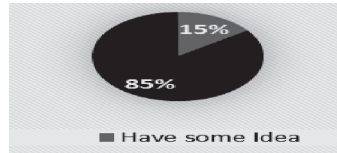


Figure 2: Knowledge about the closest audiologist's location.

Question no. 3: Have you ever visited an audiologist? No, or Yes If yes, why?

Hearing can be tested by other health professionals, according to a large number of respondents. 90% of participants never visited an audiologist. Surprisingly, the rest of the 10% had previously seen an audiologist for a hearing test.



Figure 3: Frequency of visiting audiologists.

Question no. 4: From which source did you find out about an audiologist?

In response to this question, almost 20% of contestants came to know by Word-of-mouth, 18% from Health workers, 40% from TV, 12% from radio & 10% from their relatives about audiologists.

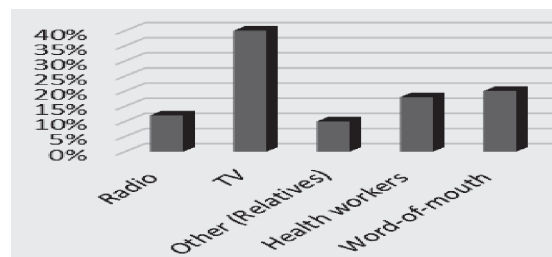


Figure 4: Source of audiology knowledge.

11.2 Knowledge or Awareness of Hearing and Hearing Loss

Question no. 5: How important is it to have your hearing tested?

Despite their lack of knowledge of the audiology profession, many of the participants (60%) thought that having their hearing tested was “Not

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important at all." Only 40% of individuals said it was "important/ somewhat important."

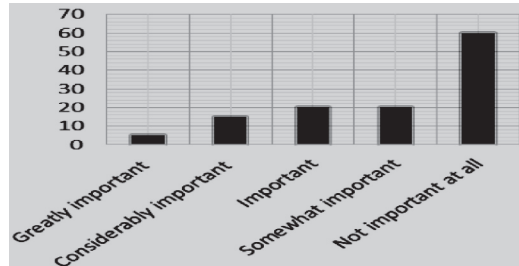


Figure 5: Importance of hearing tests.

Question no. 6: *Whose hearing can be tested?*

Everyone's hearing can be examined, regardless of age, according to 5% of participants. The bulk of participants (60%) had no idea about hearing testing. 5% of participants thought that hearing can be tested only in babies, children, and young adults. Only 20% population said that only adults can be tested for hearing.

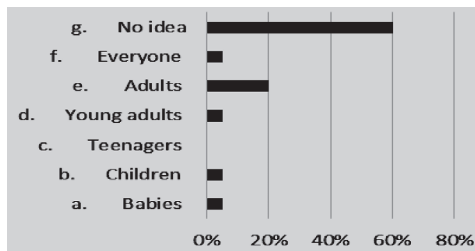


Figure 6: Candidates for hearing tests.

Question no. 7: *Who can test your hearing?*

Only 30 percent of the participants knew that audiologists are the health specialists in charge of hearing tests and ear issues. The rest 70% had no idea about hearing testing.

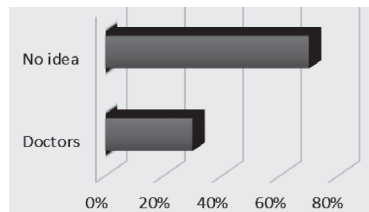


Figure 7: Who can perform hearing tests.

11.3 Hearing

Question no. 8: *What do you think is the cause of hearing difficulties?*

In response to this question, 20% of the population had no idea about the cause of hearing difficulty. About 34% of participants thought ear infections, noise, medications, genetic factors, and earwax may cause hearing difficulties & 7% population claimed that all the causes can affect hearing together. 40% population stated that other causes can affect hearing.

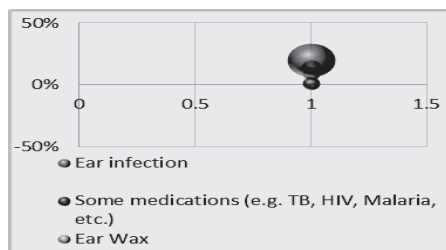


Figure 8: Causes of hearing difficulties.

Question no. 9: *How would you know if you have a hearing loss?*

In this question, only 15% of members respond that they had some idea about hearing loss & the rest 85% population had no idea about it.

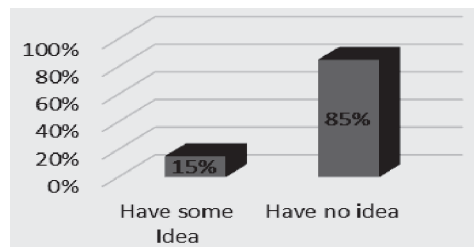


Figure 9: What to do if someone has hearing loss!.

Question no. 10: *Where do you go for help when you have a hearing problem?*

A huge number of the population (30%) said they will go to a traditional healer if they have any hearing problems. 15% said they will go to a clinic & Mosque/ Temple / Church, 10% will go to doctors, 5% will not visit anyone & 25% will visit others (Sweet oil, cooking oil, fish oil, chicken fat, or oil, glycerin, and castor oil).

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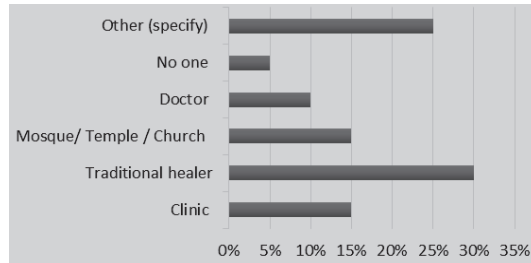


Figure 10: Places to go if having hearing problems

Question no. 11: Where can your hearing be tested?

The majority of the population (56%) said they will visit clinics for hearing tests. 16% will visit the hospital, 15% will visit private doctors & only 13% have no idea what to do.

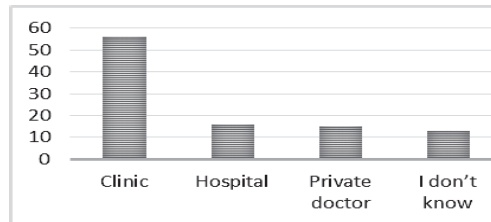


Figure 11: Places to test hearing.

Question no. 12: What can be done if you have a hearing problem?

In this question majority of the population replied that they have no idea what should do if anyone has hearing problems. 40% said they will go to a traditional healer.

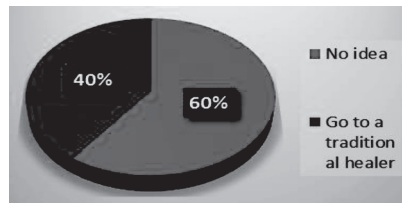


Figure 12: Things to do when someone has hearing problems.

11.4 Ear Infections

Question no. 13: Can an ear infection cause hearing loss?

When asked whether an ear infection can cause hearing loss, the majority of participants (43%) said don't know. 30% of participants said yes. 10% said

maybe, & 17% claimed no.



Figure 13: Causes of hearing loss.

Question no. 14: How often do you have ear infections?

While analyzing question no. 14, it is found that a large group of the population (40%) said they had ear infections "never," while only 20% said they have them "hardly ever," 10% said occasionally, and 25% said they have them "frequently."

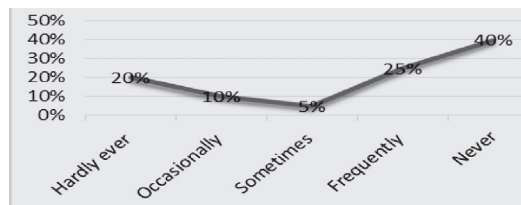


Figure 14: Frequency of ear infections.

Question no. 15: What do you do when your ears are painful?

In this question, the researcher found that 70% population will visit traditional healers if their ears are painful. The rest 30% will visit a clinic or others.

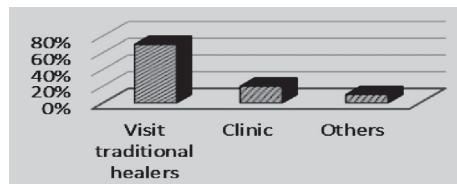


Figure 15: Things to do if have ear pain/ infection.

Question no. 16: What do you do if you have an ear infection?

In response to this question, 30% respond that they consulted a doctor if they had any ear infections. Only 22% of people got treatment. About 15% population went to the clinic for a consult about their problems. 10% of people didn't have any idea what to do. 5% visited audiologists and 7% got

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their hearing aids. The rest population might go to a specialist, have surgery, go to hospitals, or do something else.

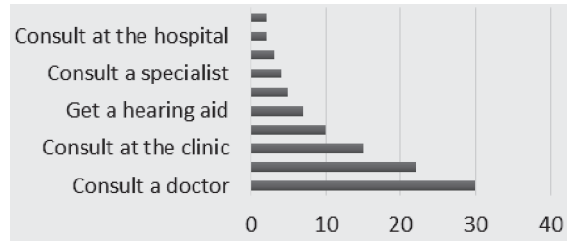


Figure 16: Things to do if have an ear infection.

11.5 Ear Hygiene

Question no. 17: How often do you clean your ears?

The majority of the population (40%) said they cleaned their ears "never," while only 20% said they clean their ears "hardly ever," 10% said occasionally, and 25% said they clean them "frequently."

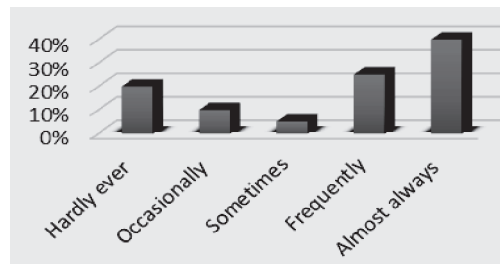


Figure 17: Frequency of ear cleaning.

Question no. 18: What do you use to clean your ears?

40% population used cotton buds, 35% used matchsticks, 15% used other things, other 10% used either pens/ pencils or wet cloths as an ear-cleaning tools.

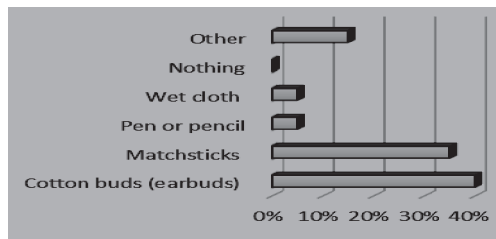


Figure 18: Tools used for ear cleaning.

Question no. 19: *What do you use when your ears are itchy?*

The majority of (40%) population used cotton buds, 35% used matchsticks, 15% used other things, and the other 10% used either pens/ pencils or wet cloths as ears are itchy.

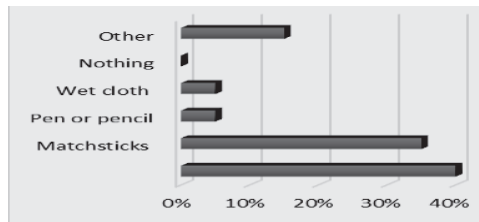


Figure 19: Tools used for itchy ear.

11.6 Noise Versus Hearing

Question no. 20: *Do you think music or noise can damage your hearing?*

In this question, the researcher found that 30% have a positive response, 17% have a negative response, and 10% said maybe. The majority (43%) of the population said they have no idea.

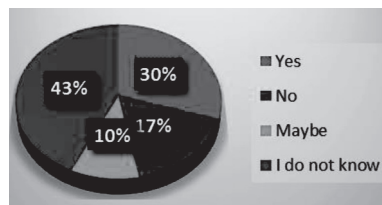


Figure 20: Perception of hearing damage due to noise and music.

Question no. 21: *Do you think excessive loud noise can damage your hearings?*

In this question, the researcher found that 30% have a positive response, 17% have a negative response, and 10% said maybe. The majority (43%) of the population said they have no idea.

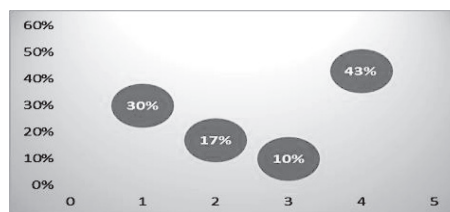


Figure 21: Perception of hearing damage due to excessive noise.

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Question no. 22: Which of the following do you think can damage your hearings?

The effects of excessive noise exposure were also investigated. Excessively loud noise can harm hearing, according to an overwhelming majority (89 percent) of respondents. Participants claimed that loud music in a taxi or on an MP3 player has been observed to do the most damage.

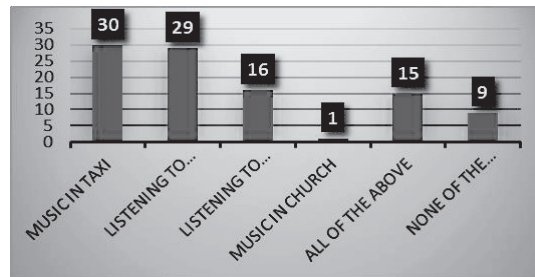


Figure 22: Types of excessive noise that can damage hearing.

Question no. 23: How would you protect your hearing from being damaged by excessively loud noise?

Excessively loud noise can harm hearing, according to an overwhelming majority (89 percent) of respondents. A large population about 38% suggested avoiding loud music or sounds.

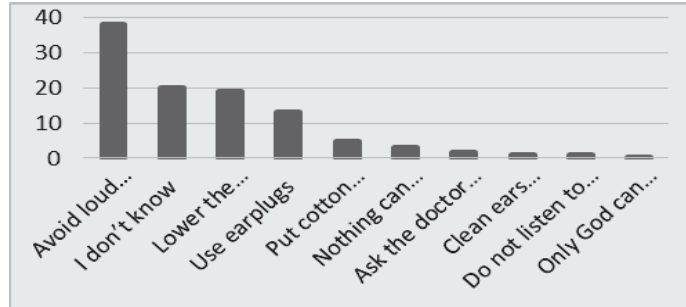


Figure 23: Ways to protect hearing from excessive noise.

11.7 Leading Research Question Justification

Question no. 24: What is the perception regarding the audiology profession among the native people?

Table 3: Feedback on Question 25.

Perception	about	Familiar	Unfamiliar
audiology		12%	88%

In the analysis of question 24 researchers found that the bulk (88%) of participants were unfamiliar with the audiology profession. Only 12% had an idea about it.

Question no. 25: *What is the level of hearing health awareness among the native people?*

Table 4: Feedback on Question 25.

Residual hearing health awareness	Positive response	Negative response
	13%	87%

According to the feedback on question 27 only 13% of the participant had hearing health awareness and the rest of the majority had no awareness about it.

Question no. 26: *What is the access to health care for hearing in Rangamati district?*

Table 5: Feedback on Question 26.

Accessibility to hearing health care center	Easy access	Rare access
	9%	91%

After analyzing the questions it came out that 9% of the respondent can get easy access to hearing healthcare centers whereas the rest 91% rarely got access.

Question no. 27: *What are the key challenges of seeking hearing health care in the study area?*

Table 6: Feedback on Question 27.

Challenges	Positive response	Negative response
	8%	92%

92% of respondents claimed that they faced challenges while seeking hearing health care in their area, though 8% of the respondent claimed that they faced fewer challenges during seeking heart health care from different hospitals and clinics or NGOs.

12. FGD ANALYSIS

The participants were asked some questions by the researchers about their knowledge of audiology profession, hearing health, hearing loss, ear infections, and ear hygiene, noise effects on hearing ability, awareness about hearing, and hearing loss. The responses are given below with distinct diagrams:

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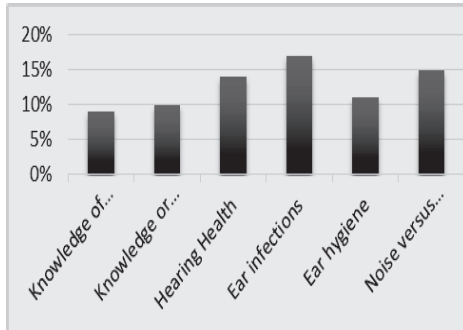


Figure 24: FGD analysis-1.



Figure 25: FGD analysis-2.

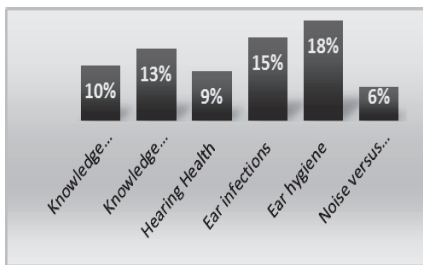


Figure 26: FGD analysis-3.

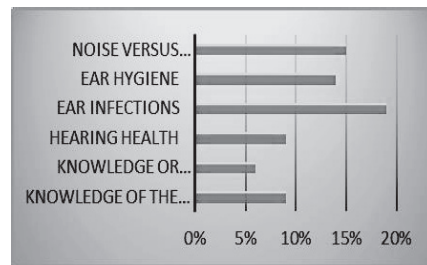


Figure 27: FGD analysis-4.

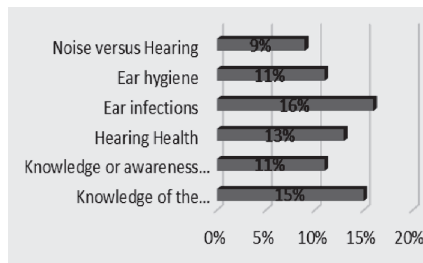


Figure 28: FGD analysis-5.

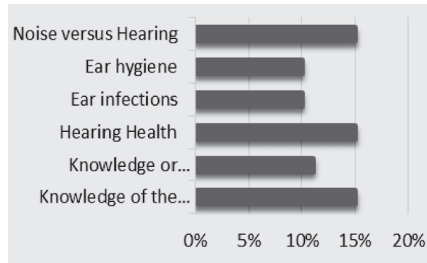


Figure 29: FGD analysis-6.

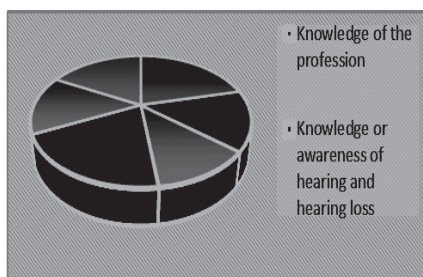


Figure 30: FGD analysis.

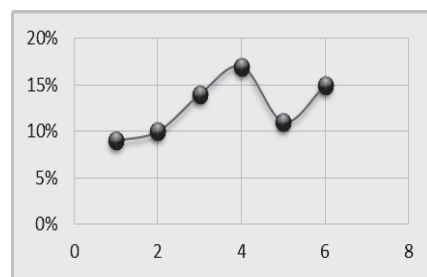


Figure 31: FGD analysis-8.

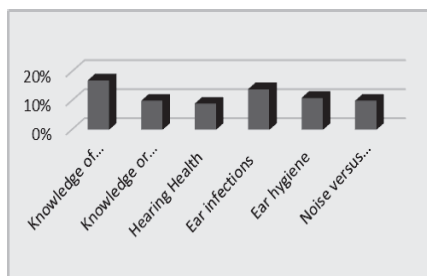


Figure 32: FGD analysis-9.

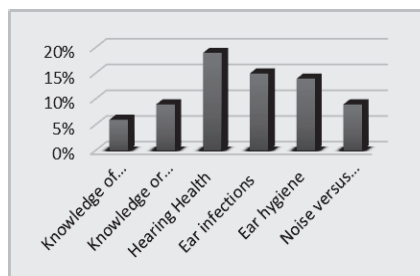


Figure 33: FGD analysis-10.

Overall, the researchers eventually determined that the survey questionnaire findings endorsed the FGD analysis. After analyzing the survey questionnaire, it became clear that the majority (approximately 90%) of participants had little knowledge of the audiology profession, as well as poor ear hygiene maintenance and audiological services. However, according to FGD results mere 10% of respondents were familiar with the audiology profession and were aware of hearing and hearing loss. Finally, it was seen that in terms of understanding ear infections, hearing health, and how noise can prevent hearing loss, roughly 45% of participants stated they were lacking. Any infections, irritation, or hearing loss caused some of them to visit the hospital. Most people believed in traditional healing or other forms of treatment. Only 11% of participants were aware of proper ear hygiene. They faced more challenges as there was less audiological infrastructure in their hospital setup and a lack of audiologists as well as ENT clinics & hospitals.

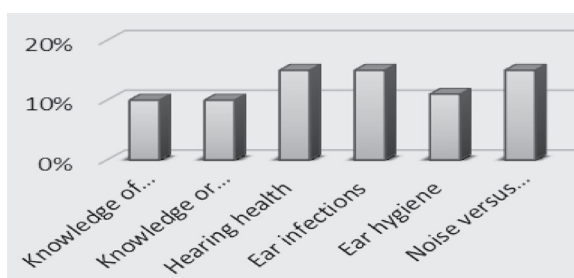


Figure 34: Overall FGD analysis.

13. DISCUSSIONS AND CONCLUSIONS

A recent study suggested that there is a widespread lack of knowledge of hearing health and audiology as a profession. Audiological services are unavailable at hospitals and local non-government clinics in Rangamati. It is

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hypothesized that healthcare personnel (professional nurses and doctors) at hospitals and local healthcare clinics are unaware of Rangamati's audiological services. Participants who were aware of the audiology profession said they learned about the services offered mostly from other healthcare workers and word-of-mouth. In this research, the mainstream 78% of the participants were unsure what to do if a hearing impairment was discovered. The researcher also found the majority of the population has poor knowledge about the audiology profession as well as poor awareness about their hearing & hearing health. So, the researcher concluded that this study underscores the urgent need for all relevant stakeholders to take action to raise public knowledge of the audiology profession, hearing, and hearing health services, particularly in the Rangamati areas. Based on the findings of this study, the research team suggested the following steps spread awareness:

- a. Upturn the audiology profession and its role in the detection and management of hearing- and balance-related problems.
- b. Firming the readiness of audiological services in the study area.
- c. Form public awareness among native people about ear hygiene by arranging screening camps.
- d. Plan for the prevention and control of key causes of preventable hearing loss within the context of primary health care.
- e. Promoting setting up hearing health organizations or associations, non-governmental organizations, and hearing health specialists is essential in the study area.
- f. Healthcare facilities should be expanded to underserved rural communities as well.

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