DOI: https://doi.org/10.54393/pbmj.v7i05.1087

PAKISTAN BIOMEDICAL JOURNAL
https://www.pakistanbmj.com/journal/index.php/pbmj/index
ISSN (P): 2709-2798, (E): 2709-278X
Volume 7, Issue 5 (May 2024)

Original Article

Audiology and Hearing Health in Islamabad and Rawalpindi: Awareness Perspective

Ghulam Saqulain[1*], Asma Pervaiz[2], Laiba Qazafi[2], Khadija Zahid[2] and Muhammad Abdul Sami[2]

[1]Department of Ear, Nose and Throat, Capital Hospital, Islamabad, Pakistan
[2]Shifa Tameer-e-Millat University, Islamabad, Pakistan

ARTICLE INFO

Keywords:
Public Awareness, Hearing Health, Hearing Loss, Audiology

How to Cite:
Saqulain, G., Pervaiz, A., Qazafi, L., Zahid, K., & Sami, M. A. (2024). Audiology and Hearing Health in Islamabad and Rawalpindi: Awareness Perspective: Audiology and Hearing Health. Pakistan BioMedical Journal, 7(05). https://doi.org/10.54393/pbmj.v7i05.1087

***Corresponding Author:**
Ghulam Saqulain
Department of Ear, Nose and Throat, Capital Hospital, Islamabad, Pakistan
ghulamsaqulain@yahoo.com

Received Date: 12th May, 2024
Acceptance Date: 29th May, 2024
Published Date: 31st May, 2024

ABSTRACT

There exists a literature gap on public awareness of audiologists and their services in Pakistan. The educated population's awareness is of utmost concern as they are a knowledge resource for the masses especially the uneducated with low literacy. **Objective:** To assess the impact of public awareness on audiology and hearing health in Islamabad and Rawalpindi. **Methods:** This cross-sectional study was performed at Shifa International Hospital from February to June 2023. n= 377 participants were recruited using random sampling and assessed using a 15-item closed-ended questionnaire. **Results:** Regarding knowledge of the profession of audiology, (92.8%) never visited an audiologist and (58.1%) heard about an audiologist by word of mouth. (45.6%) considered important to get their hearing tested and (61.8%) thought that the hearing of adults can be tested. (34.2%) thought that ear infection causes hearing difficulties followed by noise (33.2%). Despite (97%) recognizing the importance of hearing tests, only (7.2%) consulted an audiologist. They had knowledge that ear infection and loud noise could lead to hearing loss and believed in keeping their ears clean with cotton buds. **Conclusions:** It was concluded the study reveals a lack of awareness regarding audiology as a profession, leading to a limited number of individuals seeking audiological services. While there is a general understanding of the importance of hearing testing and recognition of the causes of hearing loss, there is room for improvement in raising awareness about the specialized role of audiologists in addressing hearing-related issues.

INTRODUCTION

Audiology is a healthcare profession. It is dedicated to hearing with a distinctive clinical role of assessing hearing abilities and addressing impairments arising from hearing disorders [1]. Audiologists are healthcare providers who perform assessment, diagnosis and intervention related to hearing and balance issues [2]. Over and above the clinical aspects, the field also encompasses the crucial elements of hearing loss prevention, as well as promoting hearing health [3]. The aim is early identification of potential hearing problems, addressing existing issues, and improving overall communication abilities and quality of life for those affected by hearing-related conditions. Furthermore, audiologists assess individuals' requirements for hearing devices, and are responsible for evaluating, fitting, and dispensing hearing aids to those who require them. They play a crucial role in improving the hearing ability and overall communication capacity of individuals who experience hearing loss. A significant number of audiologists also perform assessments to measure balance function, and provide treatment for individuals experiencing balance dysfunction. This additional area of expertise allows audiologists to offer comprehensive care to individuals with hearing and balance-related conditions, and to address any issues that may impact their overall quality of life [4]. In developing regions, the prevalence of all causes of hearing loss (HL) is significantly higher compared to developed regions. Insufficient access to adequate perinatal healthcare in

DOI: https://doi.org/10.54393/pbmj.v7i05.1087

developing countries contributes increasing prevalence of infections. These include infections like syphilis and rubella, birth-related issues like low weight, asphyxia; and increased bilirubin in newborns. These factors are closely associated with an increased risk of hearing loss in infants. Moreover, in economically disadvantaged nations, congenital hearing loss is significantly influenced by the administration of ototoxic pharmaceuticals (such as aminoglycoside drugs, antimalarial like quinine, some diuretic drugs) during the perinatal period, as well as limited access to maternal vaccination and understanding. Moreover, in underdeveloped nations, the incidence of HL (>40dB) on both sides amounts to 6/1000 births per year, compared to 2-4/1000 births in developed countries [5]. The regions of Asia, South Asia, Pacific, and Sub-Sahara are the most afflicted by HL in the globe, with a prevalence rate about four times that of high-income countries (WHO, 2018). Studies on pediatric hearing loss in Pakistan have been conducted in which the results concluded that HL can affect psychosocial and academic issues because of language barriers [6]. Human communication heavily relies on the sense of hearing, making it one of the fundamental senses for effective communication. Any form of hearing loss, whether it occurs early or later in life, can hinder the ability to communicate effectively and have considerable impact on the overall well-being and life satisfaction of an individual [7]. HL is an escalating global health issue which is of universal significance with 466 million individuals worldwide suffering HL which can result in issues including cognitive, psychological etc. Hence, addressing HL is essential not only for individuals but also for society, since it is also linked to impact on economy with raised costs of health care, reduced productivity and quality of life [8]. When hearing health services are not easily accessible to the public, people may not be aware of the importance of regular hearing check-ups or the potential risk of hearing loss. This lack of awareness can lead to delays in seeking treatment for hearing problems and may result in irreversible damage to hearing abilities. It is necessary to direct attention on awareness of audiology in order to prevent ear and hearing issues. Hearing and hearing health measures have a significant impact on ensuring that people in impoverished nations do not face the risk of permanent hearing loss, which is an irreversible pattern. The level of understanding among the general population regarding hearing impairment and maintaining healthy hearing may be harmed by a lack of audiological and Hearing care services. Audiology being a new profession in Pakistan [9], there is little data on public awareness of audiologists and their services in Pakistan, particularly among educated people. The educated population's awareness is of much concern as they are the source of knowledge providers to the mass population of people who are uneducated with low literacy in Pakistan.

The aim of this study was to assess the effect of public awareness on audiology and hearing health in Islamabad and Rawalpindi.

METHODS

This cross-sectional study was conducted over 5 months from 1st Feb, 2023 to 30th June, 2023. It was conducted at Shifa International Hospital (SIH), Islamabad, Pakistan following ethical clearance of research from Institutional Review Board (IRB) and Ethics Committee, of the hospital (Reference No# 0371-22; Dated 4th Jan, 2023). The study recruited a sample of n=377 individuals from Islamabad and Rawalpindi utilizing convenient sampling, after calculating a sample of 377 utilizing Rao soft with a (95%) confidence interval and (5%) error margin. The sample included individuals of both genders, aged 20-50, encompassing professionals such as businessmen, IT professionals, lawyers, engineers, accountants, and call center employees. Notably, the sample excluded specific groups, including otorhinolaryngologists, audiologists, individuals with hearing aids/cochlear implants, attendees of hearing conservation programs or ear disease management training, and parents of hearing-impaired children. A questionnaire developed by Joubert *et al.*, to measure the knowledge and awareness regarding the field of audiology, hearing, HL, ear care and hygiene was used for data collection [10]. Tool has 05 sections including sections for demographics, knowledge and awareness regarding field of audiology, hearing, HL and ear care. Data were collected through online and in-person surveys to assess the level of awareness among individuals regarding audiology, hearing, and hearing health. All participants were provided with detailed information about the study and assured of confidentiality, and participants who furnished written consent were included. Data were entered and analyzed using SPSS version 26.0. Results were presented in terms of percentage and frequency.

RESULTS

A sample of 377 participants having mean age of 29.59 ± 8.074 revealed a predominantly female population of 231 (61.3%) with majority being undergraduates 242 (64.2%) and almost equal number of participants being students 150 (39.8%) and working in offices 149 (39.5%) (Figure 1).

DOI: https://doi.org/10.54393/pbmj.v7i05.1087

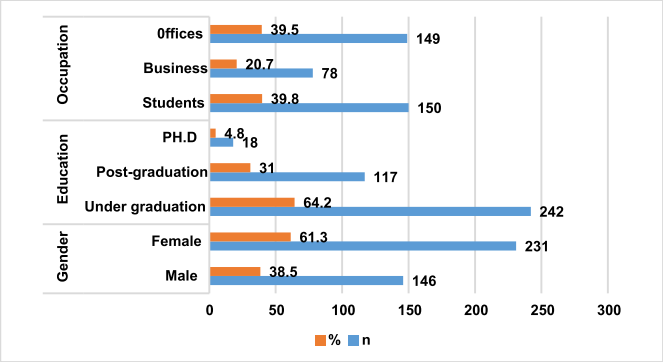

Figure 1: Demographic Characteristics of Sample Population (n=377)

Regarding knowledge of the profession of audiology, the majority 350 (92.8%) never visited an audiologist and most 219 (58.1%) heard about an audiologist by word of mouth. In connection with the knowledge of hearing and hearing loss majority 172 (45.6%) responded that it was of great importance to get hearing tested but most 233 (61.8%) were of the opinion that hearing of adults can be tested. Majority 130 (34.2%) were of the opinion that ear infection causes hearing difficulties followed by noise 125 (33.2%). When asked where would they go for help regarding hearing problem most 158 (41.9%) said they would go to an ENT doctor while 151 (40.1%) said they would go to an audiologist and most 185 (49.1%) preferred to go to hospital for hearing test. When asked if an ear infection could result in HL most 179 (47.5%) responded with yes while 151 (40.1%) were not sure. When asked about frequency of ear infection majority 217 (57.6%) responded hardly ever, majority 127 (33.7% reported that they frequently clean their ears, and most 285 (75.6%) use cotton buds for cleaning and 220 (58.4%) use cotton bud when they have an itch. Most 270 (71.6%) think music and noise could affect hearing. 318 (84.4%) opined that very loud noise could affect hearing. Most 170 (45.1%) thought that music in taxi, listening to MP3 and mobile phone could damage hearing (Table 1).

Table 1: Knowledge and Awareness of Population (n=377)

Knowledge Area	Query	Response	Frequency (%)
Audiology Profession	Have you ever visited an audiologist?	No	350 (92.8)
		Yes	27 (7.2)
	From which source did you find out about an audiologist?	Word Of Mouth	219 (58.1)
		Health Workers	85 (22.5)
		Radio	28 (7.4)
		TV	45 (11.9)
Knowledge Regarding Hearing and Hearing Loss	How important is it to have your hearing tested?	Greatly Important	172 (45.6)
		Considerably Important	81 (21.5)
		Important	93 (24.7)
		Somewhat Important	20 (5.3)
		Not Important At All	11 (2.9)
	Whose Hearing can be tested?	Babies	27 (7.2)
		Children	21 (5.6)
		Teenagers	15 (4)
		Young Adults	15 (4)
		Adults	66 (17.5)
		Everyone	233 (61.8)
Hearing/ Hearing Loss	What do you think is the cause of Hearing difficulties?	Ear Infection	130 (34.2)
		Noise	125 (33.2)
		Some Medications	33 (8.8)
		Family Members Having A Hearing Loss	55 (14.6)
		Wax	19 (5)
		None Of The Above	15 (4)
	Where do you go for help when you have hearing problem?	Audiologist	151 (40.1)
		Traditional Healer	26 (6.9)
		Ent Doctor	158 (41.9)
		No One	36 (9.5)
		Others	6 (1.6)
	Where can your hearing be tested?	Clinic	93 (24.7)
		Hospital	185 (49.1)
		Private Doctor	48 (12.7)
		I Don't Know	42 (11.1)
		Others	9 (2.4)
Ear Infections	Can an ear infection cause hearing loss?	Yes	179 (47.5)
		No	29 (7.7)
		Maybe	151 (40.1)
		I Don't Know	18 (4.8)
Ear Hygiene/ Care	How often do you have ear infection?	Hardly Ever	217 (57.6)
		Occasionally	39 (10.3)
		Some Time	84 (22.3)
		Frequently	31 (8.2)
		Almost Always	6 (1.6)
	How often you clean your ears?	Hardly Ever	52 (13.8)
		Occasionally	41 (10.9)
		Sometimes	85 (22.5)
		Frequently	127 (33.7)
		Almost Always	72 (19.1)
	What do you use to clean your ears?	Cotton Buds	285 (75.6)
		Match Sticks	16 (4.2)
		Pen Or Pencils	18 (4.8)
		Wet Cloth	45 (11.9)
		Nothing	13 (3.4)
	What do you use when your ears are itchy?	Cotton Buds	220 (58.4)
		Match Sticks	16 (4.2)
		Pen Or Pencil	11 (2.9)
		Finger	106 (28.1)
		Nothing	24 (6.4)
	Do you think excessive music or noise can damage your hearing?	Yes	270 (71.6)
		No	11 (2.9)
		Maybe	81 (21.5)
		I Don't Know	15 (4)

DOI: https://doi.org/10.54393/pbmj.v7i05.1087

	Do you think excessive loud noise can damage your hearing?	Yes	318 (84.4)
		No	8 (2.1)
		Maybe	42 (11.1)
		I Don't Know	9 (2.4)
	Which of the following do you think can damage your hearing?	Music In Taxi	7 (1.9)
		Listening to Mp3 Player	111 (29.4)
		Listening to Cell Phone	48 (12.7)
		All of the Above	170 (45.1)
		None of the Above	37 (9.8)

DISCUSSION

In this study, 377 participants from Rawalpindi and Islamabad were assessed for their knowledge of the audiology profession. Only (7.2%) know audiologists, while the majority of them were unaware of this field. Only (40.1%) demonstrated awareness, indicating a significant lack of awareness among the local population. Among those aware, (58.1%) learned through word-of-mouth, while (22.5%) were informed by other healthcare workers. In two different studies conducted by Joubert *et al.*, the level of awareness regarding the role of audiologists in conducting hearing tests and assisting with ear problems was investigated among participants. The findings indicated that only a minority, specifically (14%) of the participants, revealed knowledge about the involvement of audiologists in these areas of healthcare. They recommended that hearing healthcare professionals and associations to raise awareness of the public [10, 11]. In contrast in current study, among the participants who demonstrated awareness of audiologists, it was found that (58.1%) attributed their knowledge to word-of-mouth. Furthermore, (22.5%) of the participants mentioned that their knowledge about audiologists came from other healthcare workers. This indicates that interactions with healthcare professionals from different fields provided them with information about the role of audiologists in conducting hearing tests and managing ear-related issues. While a study by Govender and Khan involving mothers involved in post-natal caregiving of off springs revealed that only (45%) of participants revealed awareness that audiologists are responsible for screening, assessing, diagnosing, and managing hearing loss. Some participants mistakenly believed nurses and doctors provide these services. Moreover, over (70%) were unaware that audiologists can prescribe hearing aids and offer aural rehabilitation services [12]. A study conducted by Al Rjoob *et al.*, involving mostly general public and (32.8%) healthcare employees in 2022, examined the frequency of personal visits to audiologists among participants. The findings revealed that a significant majority, specifically (87.9%) of the participants, reported that neither they nor any of their family members had sought the services of an audiologist. In contrast, a small percentage of the participants, specifically (7.6%), reported having visited an audiologist themselves. This implies that only a minority of the participants had personally sought out the expertise and services of audiologists [13]. This is in compliance to current study in which majority 350 (92.8%) of the participants never visited an audiologist. In a study by Emanuel *et al.*, involving students revealed (70%) had knowledge of what audiologists do and the profession and (30%) learned about this profession from friends or family. This suggests that a significant portion of the participants had at least a basic understanding or awareness of the profession [14]. In current study 219 (58.1%) learned about an audiologist by word of mouth. In current study, the awareness regarding hearing assessments and caring for our ears revealed that people in Pakistan had minimal knowledge. This knowledge and awareness gap can be justified by the fact that the field of Audiology came to Pakistan much later than in other countries and therefore it took more time for work to be done in this domain and for more people to become knowledgeable about it. Hence systematic training of professionals to enhance the knowledge and awareness is required [15]. In spite of the fact that self-cleaning of ears was dangerous requiring awareness of masses [16], in the present study, the knowledge of ear hygiene revealed that (33.7%) of participants reported cleaning their ears frequently. When it came to the preferred cleaning tool for their ears, most participants (75.6%) mentioned using cotton buds. Other tools mentioned included wet cloths (11.9%), pen or pencils (4.8%), and matchsticks (4.2%). Similarly, in another study by Khan *et al.*, reported that 98% participants were involved in self-cleaning and (75%) of those maintained that it was of benefit and the commonly (79.6%) used tool being cotton buds with (2.5%) suffering injuries [16]. In a Saudi study conducted by Alkishi *et al.*, study revealed (27.3%) participants reported cleaning their ears once a week, (18.7%) performed daily cleaning, and (14.7%) cleaned their ears more than once a week. The primary reasons cited for self-ear cleaning were earwax (65.8%), dirt (45.8%), and itchiness (39.6%). When it came to the methods used for self-ear cleaning, the most common ones mentioned were cotton buds (65.2%), towels (45.3%), and using their fingers (28.9%) [17]. Similarly, in a Nigerian study by Gadanya *et al.*, (76.3%) participants reported using cotton bud. Moreover, for many individuals, the frequency of cotton bud use was once daily, indicating a regular practice of cleaning their ears. It was observed that both ears were frequently cleaned by the participants who used cotton buds [18]. However, ear should best be cleaned by trained personnel, hence training to improve education of healthcare personnel is essential [18]. In current study an overwhelming majority (84.4%) agreed that very high-intensity

DOI: https://doi.org/10.54393/pbmj.v7i05.1087

noise can affect hearing. When asked to indicate the type of noise in their area which can affect hearing. The majority of participants (45.1%) responded with "all of the above," followed by "listening an mp3" (29.4%) and "listening a mobile phone" (12.7%) or "music in a taxi"(1.9%). Similarly, in a Swiss study by Diviani *et al.*, respondents on average answered correctly to more than two out of three knowledge question. A significant majority of participants (95.4%) were aware that listening using earphones at high intensity can affect their hearing. Approximately three of four participants had knowledge that long duration exposure to sounds >85 dB can permanently affect ear (75.8%) and that the duration of sound exposure affects the extent of damage it can cause (72.2%) [19]. Also Joubert *et al.*, also investigated excessive noise exposure. In their study, (89%) of participants agreed that excessively loud noise could cause hearing damage. However, regarding the type of noise participants reported that to listen loud music in taxi or MP3 was the main source of damage [11]. Crandell *et al.*, in their study reported that significant majority of respondents (63%) accurately identified the inner ear as the most vulnerable to excessive noise. Furthermore, a high percentage of young adults (85%) were aware that there is no cure for hearing loss, this indicates that a substantial portion of the participants had a good understanding of the anatomical impact of loud sounds on the auditory system. Additionally, the study observed that nearly all participants (95%) recognized that excessive noise can cause damage to hearing at any age. This indicates a widespread understanding among the participants that exposure to loud sounds can have detrimental effects on hearing, regardless of one's age [20].

CONCLUSIONS

Lack of awareness regarding audiology as a profession, leading to a limited number of individuals seeking audiological services. While there is a general understanding of the importance of hearing testing and recognition of the causes of hearing loss, there is room for improvement in raising awareness about the specialized role of audiologists in addressing hearing-related issues. Additionally, efforts should be made to educate individuals, particularly teenagers and students, about the risks of excessive noise exposure and encourage safer listening practices to prevent hearing damage.

Authors Contribution

Conceptualization: MAS
Methodology: GS, MAS, KZ
Formal analysis: LQ
Writing-review and editing: AP

All authors have read and agreed to the published version of the manuscript

Conflicts of Interest

The authors declare no conflict of interest.

Source of Funding

The authors received no financial support for the research, authorship and/or publication of this article.

REFERENCES

[1] Stach BA and Ramachandran V. Clinical Audiology: An introduction. 3rd ed. San Diego: Plural Publishing; 2022.
[2] Martin FN and Clark JG. Introduction to Audiology: 12th ed. Pearson Education; 2015. doi:
[3] Anderson NB and Shames GH. Human Communication Disorders: An Introduction. 8th ed. Pearson Education; 2013.
[4] Neal K, McMahon CM, Hughes SE, Boisvert I. Listening-Based Communication Ability in Adults With Hearing Loss: A Scoping Review of Existing Measures. Frontiers in Psychology. 2022; 13. doi: 10.3389/fpsyg.2022.786347.
[5] Harris MS and Dodson EE. Hearing health access in developing countries. Current opinion in otolaryngology & Head and Neck Surgery. 2017 Oct; 25(5): 353-8. doi: 10.1097/MOO.0000000000000392.
[6] Farid N, Fatima G, Jahanzaib M. Identification of Problems faced by Children with Hearing Impairment in Acquisition of basic Skills: Exploration of Possible Solutions. Pakistan Languages and Humanities Review. 2023 Jun; 7(2): 790-805. doi: 10.47205/plhr.2023(7-II)70.
[7] Dobie RA and Van Hemel S. Hearing Loss: Determining Eligibility for Social Security Benefits. Washington (DC): National Academies Press (US); 2004.
[8] Chadha S, Cieza A, Krug E. Global hearing health: future directions. Bulletin of the World Health Organization. 2018 Mar; 96(3): 146. doi: 10.2471/BLT.18.209767.
[9] Intezar F, Khan SG, Noreen H, Iftikhar N. Awareness and Knowledge of Audiologists Regarding Benefits of Speech-Language Therapy for Hearing Impaired Individuals: Journal Riphah College of Rehabilitation Sciences. 2019 Nov; 7(2): 47-53. doi: 10.5455/JRCRS.2019070203.
[10] Joubert K, Sebothoma B, Kgare KS. Public awareness of audiology, hearing and hearing health in the Limpopo Province, South Africa. South African Journal of Communication Disorders. 2017 Jan; 64(1): 1-9. doi: 10.4102/sajcd.v64i1.557.

DOI: https://doi.org/10.54393/pbmj.v7i05.1087

[11] Joubert K, and Botha D. Contributing factors to high prevalence of hearing impairment in the Elias Motsoaledi Local Municipal area, South Africa: A rural perspective. South African Journal of Communication Disorders. 2019 Jan; 66(1): 1-7. doi: 10.4102/sajcd.v66i1.611.

[12] Govender SM and Khan NB. Knowledge and cultural beliefs of mothers regarding the risk factors of infant hearing loss and awareness of audiology services. Journal of Public Health in Africa. 2017 Jun; 8(1). doi: 10.4081/jphia.2017.557.

[13] Al Rjoob MA, Al Rjoob K, Kharraz BA. Public awareness of speech-language pathology and audiology: A pilot study in Jordan. La Tunisie medicale. 2022 May; 100(5): 384. doi:

[14] Emanuel DC, Donai JJ, Araj CF. The awareness of the profession of audiology among entering college students.

[15] McKee M, James TG, Helm KV, Marzolf B, Chung DH, Williams J *et al.* Reframing our health care system for patients with hearing loss. Journal of Speech, Language, and Hearing Research. 2022 Oct; 65(10): 3633-45. doi: 10.1044/2022_JSLHR-22-00052.

[16] Khan NB, Thaver S, Govender SM. Self-ear cleaning practices and the associated risk of ear injuries and ear-related symptoms in a group of university students. Journal of Public Health in Africa. 2017 Dec; 8(2). doi: 10.4081/jphia.2017.555.

[17] Alkishi S. Self-Ear Cleaning Practice and The Associated Risk of Ear Injuries and Ear-Related Symptoms in Saudi Arabia. Journal of Pharmaceutical Negative Results. 2022 Dec: 6873-83.

[18] Gadanya M, Abubakar S, Ahmed A, Maje AZ. Prevalence and attitude of self-ear cleaning with cotton bud among doctors at aminu Kano teaching hospital, Northwestern Nigeria. Nigerian Journal of Surgical Research. 2016 Jul; 17(2): 43. doi: 10.4103/1595-1103.194215.

[19] Diviani N, Zanini C, Amann J, Chadha S, Cieza A, Rubinelli S. Awareness, attitudes, and beliefs about music-induced hearing loss: Towards the development of a health communication strategy to promote safe listening. Patient Education and Counseling. 2019 Aug; 102(8): 1506-12. doi: 10.1016/j.pec.2019.03.013.

[20] Crandell C, Mills TL, Gauthier R. Knowledge, behaviors, and attitudes about hearing loss and hearing protection among racial/ethnically diverse young adults. Journal of the National Medical Association. 2004 Feb; 96(2): 176.