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ORIGINAL ARTICLE

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The hearing healthcare workforce: insights into density, distribution and opportunities for capacity-development

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ABSTRACT

Objective: Hearing loss is a major global health concern, yet many countries lack the necessary workforce to provide hearing care services. This study aimed to evaluate the global distribution, availability, and training of hearing healthcare providers, including audiologists and other professionals involved in hearing care.

Design and study sample: A cross-sectional electronic survey was conducted from June 2022 to March 2024 by the Global Otolaryngology-Head and Neck Surgery Initiative, collecting national-level data from 93 countries representing 77 percent of the world's population. Responses were analysed by income classification and geographic region based on World Bank and World Health Organization categories.

Results: The global density of audiologists was 1.48 per 100,000 people, with more than 70 percent of countries reporting fewer than one audiologist per 100,000. The overall hearing healthcare workforce density was 4.1 per 100,000 population. Training opportunities were limited in low-income countries, where 83 percent of audiologists were trained outside their home country. The African, Eastern Mediterranean, and South-East Asian regions were especially underserved. Workforce roles and service scope varied widely across regions and income levels.

Conclusions: These findings highlight critical disparities and emphasise the need for targeted workforce planning and sustainable training programs to improve global hearing care.

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Audiology; global hearing healthcare; workforce development; capacity building; audiology workforce; low- and middle-income country; otolaryngology

Introduction

Hearing loss affects 1.6 billion people globally and ranks as the third leading cause of disability worldwide. By 2050, the global prevalence of hearing loss is projected to rise to 2.5 billion cases, affecting one in four people, with one in ten of these requiring subspecialty care (Haile et al. 2021). Hearing loss impacts education and employment opportunities, socialisation, mental health, and productivity, creating financial dependence (Cao et al. 2023; Lieu et al. 2020; Shan et al. 2020; World Health Organization 2021). Unaddressed hearing loss costs over $980 billion annually yet can be prevented through public health initiatives and hearing healthcare interventions (World Health Organization 2021).

Despite their significant impact on population health, hearing conditions remain markedly under-

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prioritised in global health discourse, with acute challenges in low- and middle-income countries (LMICs), where insufficient representation in national health policies and resource allocation decisions perpetuates ongoing disparities (Canick et al. 2023). Higher prevalence of hearing loss estimates correlates with limited access to hearing care, particularly in the Western Pacific region and South-East Asia regions (Orji et al. 2020). Disparities in hearing care also persist across sub-Saharan Africa, driven by severe shortages of ENT specialists and audiologists alongside insufficient training opportunities for healthcare professionals in the region (Mulwafu et al. 2017).

The prioritisation of hearing loss, however, is slowly gaining recognition in the global health agenda (Wilson et al. 2019). Hearing loss has been identified as a direct or indirect modifiable risk factor among older adults with conditions such as diabetes, hypertension, and cognitive decline (Maidment and Wege 2022; Wilson et al. 2019; World Health Organization 2017). However, barriers to accessing hearing care, including workforce shortages, lack of equipment and infrastructure, inadequate funding, low awareness, and stigma, are more apparent in LMICs where the burden of hearing loss is highest (Waterworth et al. 2022).

It is therefore essential to characterise and address hearing healthcare service delivery gaps to mitigate the growing global burden of hearing loss. This effort aligns with universal health coverage (UHC) and Sustainable Development Goal 3.8 to ensure equitable access to quality health services without risking financial hardship (Kieny et al. 2017).

In 2012, the WHO Multi-country Assessment of National Capacity to Provide Hearing Care provided a comprehensive baseline assessment of the hearing healthcare workforce. Among 57 member states, 40% reported more than one audiologist per million population, with substantial variation by country income level and WHO region (World Health Organization 2013). More recently, global surveys have documented significant disparities in the availability and distribution of otolaryngology-head and neck surgery clinicians, with pronounced gaps in LMICs where surgical care is underprioritized (Petrucci et al. 2023). A review of several workforce data spanning 10 years highlighted significant shortages of hearing healthcare professionals, leading to challenges in meeting the demand for services (Kamenov et al. 2021). These studies point to a critical gap in data regarding the availability and distribution of hearing care cadres, including audiologists and other allied hearing health workers. With a growing global population and increasing health care needs, an updated assessment of the hearing healthcare workforce is needed to support planning and capacity building efforts.

This study aimed to evaluate the density and distribution of the hearing healthcare workforce across World Bank income groups and WHO regions and characterise training availability and scope of practice of audiologists.

Methods

Study design

The Hearing Healthcare Workforce Survey (Supplement 1) was developed collaboratively by members of the Global Otolaryngology-Head and Neck Surgery Initiative (Global OHNS Initiative, (n.d.)), an international non-profit research collaborative with over 400 members across 64 countries. The Global OHNS Initiative facilitated survey design and dissemination through its international professional network but was not itself the study population; respondents were recruited independently.

An iterative expert-consensus process, led by senior Global OHNS Initiative members, guided survey development. Items were informed by previously published global surveys and refined through regular consultation with hearing healthcare clinicians and researchers to capture perspectives from diverse health-system and income settings. Drafts were reviewed by practicing audiologists and otolaryngologists from high-income countries (HICs) and LMICs to ensure clarity and content validity. External experts in biostatistics and survey design also contributed methodological advice to enhance reflexivity and rigour.

The final survey required approximately 10 minutes to complete and captured information on demographic characteristics (including gender and geographical location), the availability of training programs, and the scope of audiological care within the respondent's country. The survey was translated into the six official United Nations languages and distributed via email and WhatsApp. This study was conducted under the broader Global OHNS Initiative research program, for which an umbrella ethical determination was obtained from the Partners Human Research Committee (PHRC), the centralised Institutional Review Board for the Mass General Brigham healthcare system (Protocol 2021P000076). The determination covered related international surveys conducted within the Global OHNS Initiative. This survey involved a voluntary electronic questionnaire asking participants to provide

information on the hearing healthcare workforce in their country. No clinical procedures or interventions were undertaken, and the survey was considered minimal risk.

Hearing healthcare provider definitions

Definitions for providers of hearing healthcare services in the global hearing healthcare workforce were based on input from international experts from the Global OHNS Initiative. An audiologist was defined as "*a university degree-trained health care professional who specializes in the identification, assessment, and management of disorders of hearing, balance, and other disorders.*" Additional definitions can be found in (supplementary information Table S1). The total hearing healthcare workforce was defined as a combination of all professionals (audiologists, audiology technicians, OHNS clinical officers, and other hearing healthcare workers).

Data collection

Eligible participants included leaders of audiological professional societies, leaders of public health government agencies such as ministries of health, and audiology or OHNS professionals from the 194 WHO member states and Taiwan (Chinese Taipei). Following the methodology of previous workforce surveys by the Global OHNS Initiative, national and regional audiological professional societies were first contacted through professional networks and publicly available contact information. In cases where no national professional society existed, contacts included leaders of medical licencing boards, public health government agencies, and practicing clinicians identified through professional networks or publicly available information from academic institutions and publications.

Informed consent was obtained from all participants before data collection. Participants were provided with detailed information outlining the study objectives, procedures, risks, and confidentiality measures. Responses were gathered securely using the encrypted REDCap (Research Electronic Data Capture) database (Harris et al. 2019). Due to the diversity of the global medical workforce structures across different countries, this study utilised participant-provided workforce data. These data were sourced from databases, national reports, and personal knowledge through professional networks. Data collection began 10 June 2022, and ended 2 March 2024, when few responses were obtained with additional rounds of outreach.

Statistical analysis

For countries/territories with multiple survey responses for workforce estimates, responses were prioritised in the following manner: 1) professional societies, 2) ministries of health, and 3) practicing clinicians. We calculated country or territory-specific workforce density by dividing the number of estimated hearing care providers (audiologists alone or all hearing healthcare professionals) derived from survey responses by the country population data (Worldometer 2024). Distributions were visualised with quantile plots. For any outlier values or extreme estimates reported for the audiology workforce number for a particular country or territory, the reported figure was confirmed with the original survey participant who provided the estimate. Additionally, if multiple responses were received from the same country or territory, the numbers were reviewed by authors CW and LM to identify discrepancies. In such cases, the discrepancies were cross-checked to ensure they fell within a similar estimated magnitude or range.

To understand regional and income level differences in workforce density, including demographic and training differences, countries were categorised into the six WHO regions (African, American, South-East Asian, European, Eastern Mediterranean, and Western Pacific) and the four World Bank income groups – low-income countries (LICs), lower-middle-income countries (LMICs), upper-middle-income countries (UMICs), and HICs (World Bank 2022; World Health Organization 2022). For comprehensive total hearing care workforce estimates, data from this study were supplemented with previously published data from the Global OHNS Initiative survey to account for missing countries (Petrucci et al. 2023); a further 27 country responses were added, leading to a total of 120 countries representing the total hearing healthcare workforce. Data analysis was performed using R Project, version 4.4, for Statistical Computing.

Results

Survey responses

We received and analysed responses from 93 of 195 (47.6%) countries or territories, representing a total population of 6.8 billion people and 84.8% of the total global population. Of all responses, 77/93 countries/territories reported audiology workforce estimates,

representing 6.28 billion people (77.1% of the world's population) and 82.7% of survey responses, and 84/93 reported total hearing healthcare workforce estimates, representing 6.4 billion people (80.3% of the world's population). Hearing healthcare workforce estimates were collected from professional, audiology, or medical societies ($n = 38$, 49.3%), public health government sources such as ministries of health ($n = 18$, 23.3%), and from clinicians or personal contacts with personal knowledge to provide estimates of country numbers ($n = 21$, 27.2%). Respondents from eight countries (Argentina, Belgium, Ecuador, Honduras, Israel, Japan, Mexico and Oman) did not provide audiology workforce estimates. There were multiple survey responses from 10 countries: Burundi, the Democratic Republic of the Congo, Fiji, South Korea, Myanmar, Nigeria, Netherlands, Nepal, South Africa, and Russia (see Supplementary Table S2 for detailed numbers). The survey responses received varied by WHO region, with the highest coverage in the regions of Western Pacific (21 of 35 countries, 60%) and South-East Asia (7 of 12 countries, 58.3%). The survey focused particularly on audiologists as a specialised cadre.

Workforce density and characteristics

Among 77 responding countries/territories providing audiologist estimates, the mean total audiologist workforce was 1.48 audiologists per 100,000 population (range: 0 – 14.13) (Table 1). Provider density varied by World Bank income group. The density of audiologists was highest in HICs and decreased progressively with income level, such that low-income countries had the lowest density (Table 1). Most countries, 77% ($n = 60/77$), had fewer than one audiologist per 100,000 population (Figure 1). Among these, this pattern persisted across income groups, with nearly all lower-middle and low-income countries having fewer than one audiologist per 100,000 (Table 1; Figure 2). Regionally, Europe and Western Pacific regions (3.12 and 2.15 audiologists per 100,000) had the highest audiologist densities while the Eastern Mediterranean and South-East Asia (0.18 and 0.19 audiologists per 100,000) regions had the lowest densities (Figure 2).

Among 111 responding countries providing total hearing healthcare workforce data, the mean total hearing healthcare workforce density was 4.1 providers per 100,000 population (range: 0 – 86.37) (Table 1). Similar trends were observed in distribution of the hearing healthcare workforce by the World Bank income group to the audiologist density (Figure 2; Table 1).

The mean percentage of female audiologists comprised 56% ($n = 57$ countries or territory responses), with the lowest proportions of female audiologists observed in the Eastern Mediterranean (38%, $n = 4$) and African regions (44%, $n = 16$) (Table S3).

Audiologists working in urban areas accounted for 69% ($n = 60$) of the total workforce, with the highest percentages in South-East Asia (77%, $n = 5$) and the Americas regions (74%, $n = 15$) (Table S4). Public-sector employment accounted for 38% ($n = 22$) overall, with the lowest representation in the Eastern Mediterranean (7%, $n = 3$) and Southeast Asian regions (31%, $n = 5$) (Table S5).

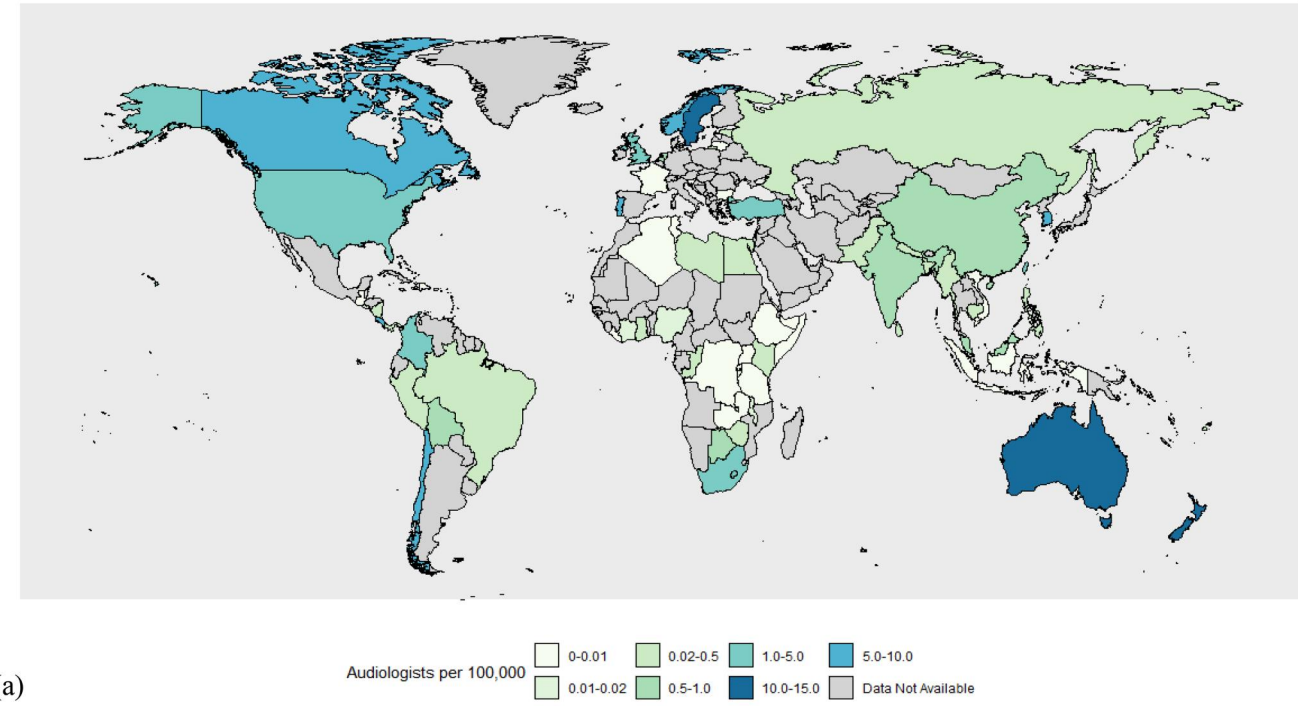
Total hearing healthcare workforce characteristics

Except for ENT Clinical Officers, the majority of cadres were female and worked within the private sector (Table 2). Most of these providers worked in

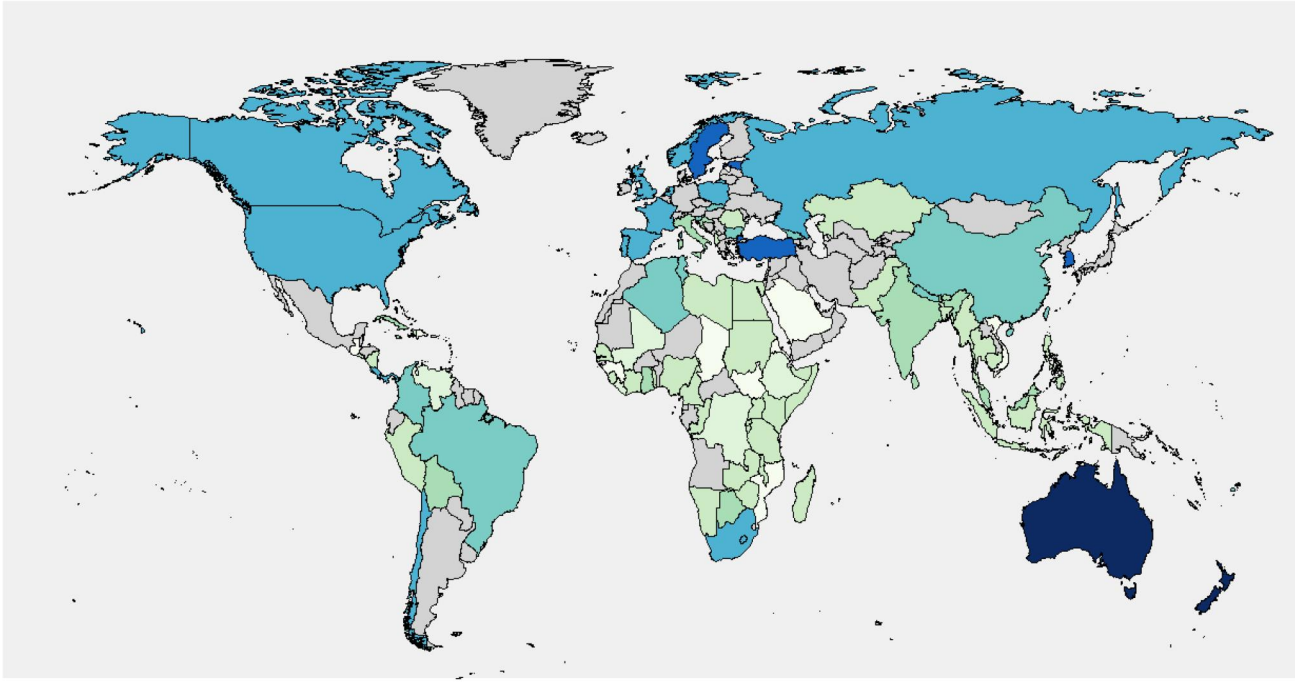
Table 1. Mean density of audiologists and total hearing healthcare workforce per 100,000 population by (a) World Bank income group and (b) World Health Organization (WHO) region.(a)

(a)	Low-income countries (LICs)	Lower-middle-income countries (LMICs)	Upper-middle-income countries (UMICs)	High-income countries (HICs)
Number of responding countries (n)	($n = 8$)	($n = 27$)	($n = 19$)	($n = 21$)
Density of audiologists per 100,000 (mean)	0.01	0.12	1.32	4.07
(minimum, maximum)	(0.00, 0.02)	(0.00, 0.63)	(0.00, 5.76)	(0.00, 14.13)
Number of responding countries (n)	($n = 17$)	($n = 32$)	($n = 29$)	($n = 30$)
Density Total Hearing Care Workforce (mean)	0.00	1.4	5.4	6.5
(minimum, maximum)	(0.00, 0.3)	(0.00, 19.9)	(0.00, 86.4)	(0.00, 16.6)

(b)	Overall	AFR	AMR	EMR	EUR	SEAR	WPR
Number of responding countries (n)	77	18	17	5	12	6	19
Density of Audiologists per 100,000	1.48	0.3	1.66	0.18	3.12	0.19	2.15
Mean (minimum, maximum)	(0, 14.13)	(0, 4.24)	(0, 5.76)	(0, 0.44)	(0, 14.13)	(0, 0.63)	(0, 13.81)
Number of responding countries (n)	111	33	19	7	22	9	21
Density of Total Hearing Care Workforce per 100,000	4.1	0.4	2.7	1.8	5.2	10.2	8.1
Mean (minimum, maximum)	(0.00, 86.4)	(0.00, 5.4)	(0.0, 9.5)	(0.0, 8.1)	(0.1, 14.1)	(0.2, 86.4)	(0.0, 51.7)



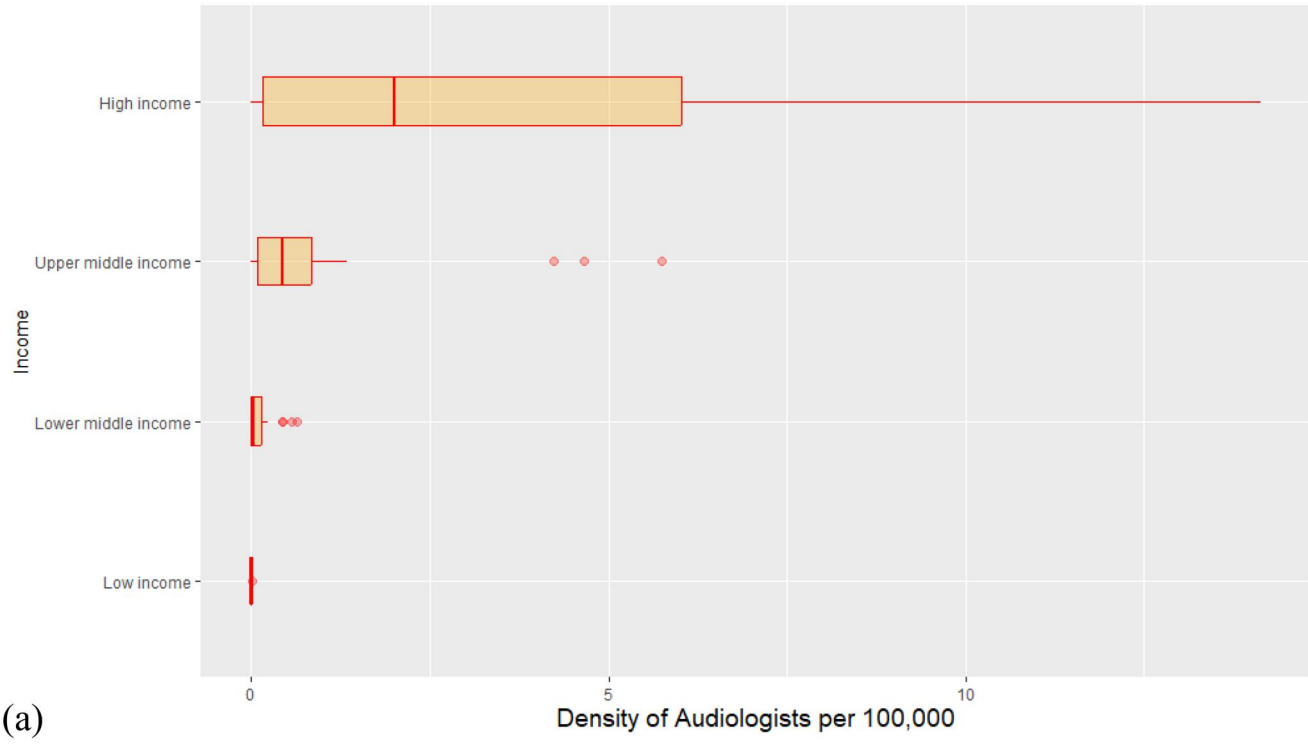
(a)



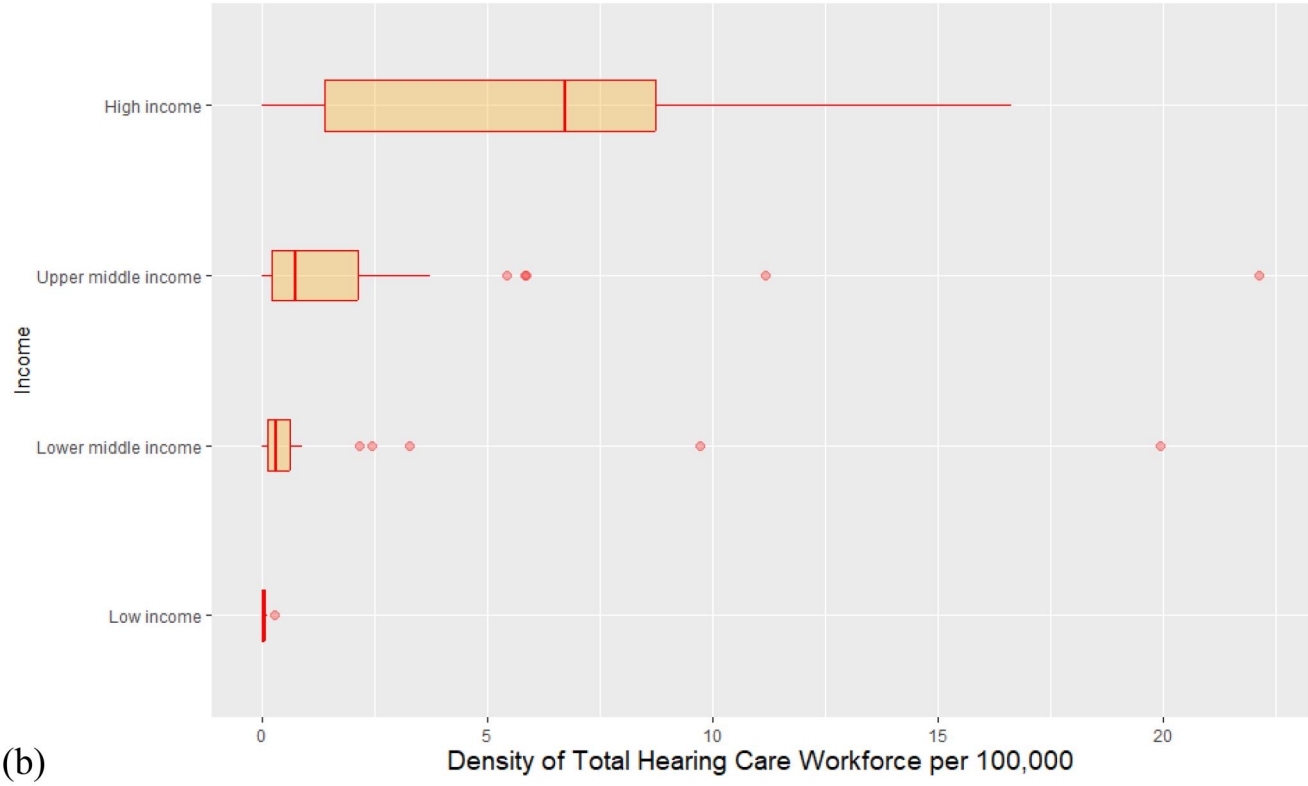
(b)

Figure 1. Global density of the hearing healthcare workforce, showing the density of audiologists per 100,000 population (a) and the density of the total hearing healthcare workforce per 100,000 population (b), based on data from 93 and 120 responding countries/territories, respectively.

Note: Total hearing healthcare workforce includes audiologists, audiology technicians, otolaryngology–head and neck surgery (OHNS) clinical officers, and other hearing healthcare workers.

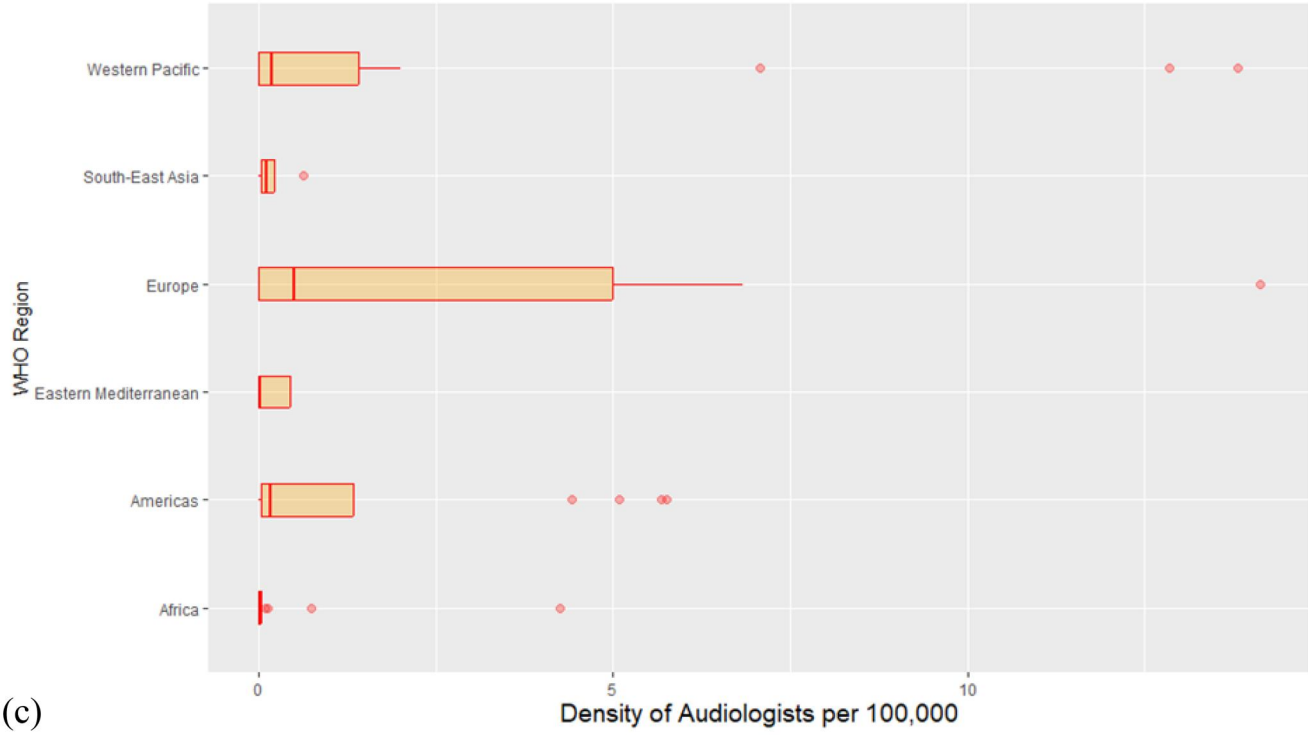


(a)

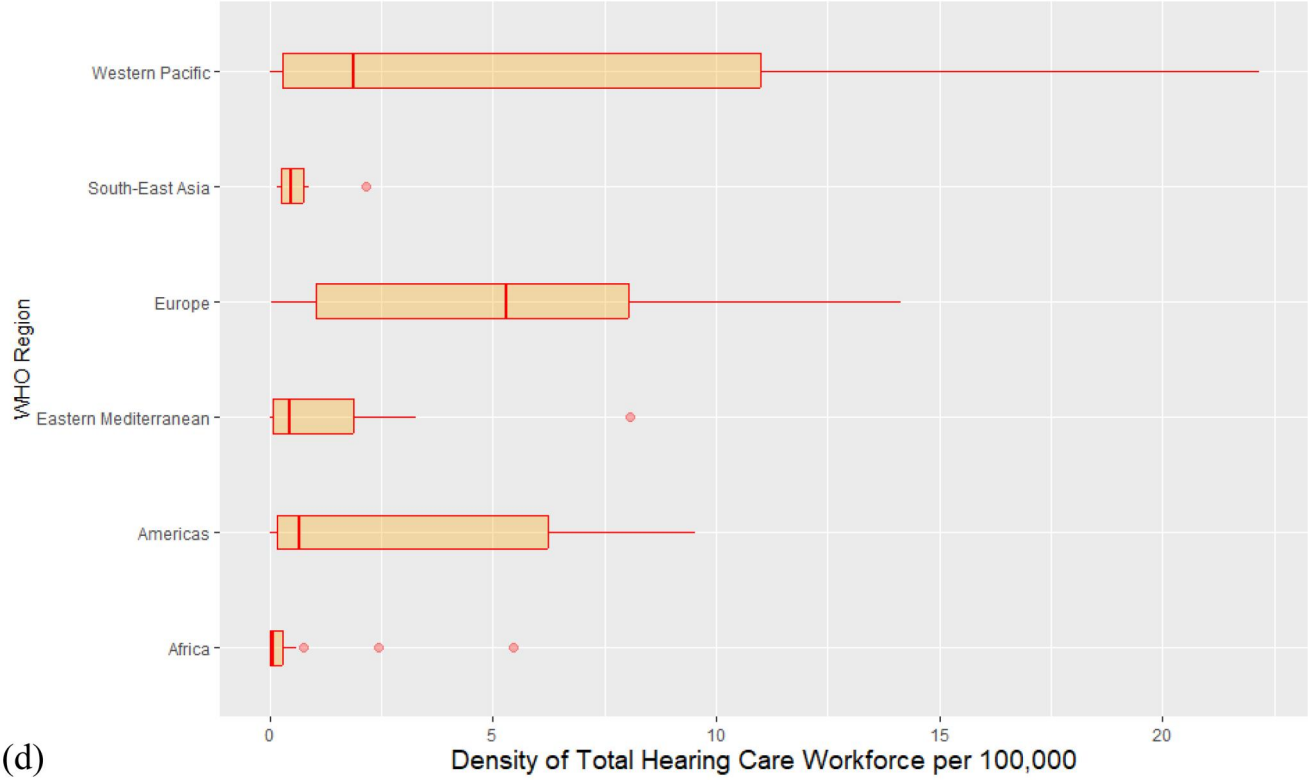


(b)

Figure 2. Mean density of hearing healthcare providers per 100,000 population, stratified by World Bank income group and World Health Organization (WHO) region: (a) audiologists by World Bank income group, (b) total hearing healthcare workforce by World Bank income group, (c) audiologists by WHO region, and (d) total hearing healthcare workforce by WHO region.



(c)



(d)

Figure 2. Continued.

Table 2. Hearing healthcare workforce characteristics by provider type ($n = 93$ countries).

Characteristics of the hearing health care workforce	Audiologists	Audiology Technicians	ENT Clinical Officers	Hearing Healthcare Workers
Percentage female	56%	53%	40%	55%
Number of responding countries	57	37	42	24
Percentage who work in urban areas	68%	70%	71%	66%
Number of responding countries	61	37	41	22
Percentage who work in public sector only	38%	37%	62%	36%
Number of responding countries	56	38	41	24
Percentage trained outside of their country of practice	43%	30%	25%	22%
Number of responding countries	59	38	40	24

Table 3. Percentage of countries with audiology training programs by World Bank income group ($n = 87$ countries).

	Overall	Low-income countries	Lower-middle income countries	Upper-middle income countries	High-income countries
Percentage of countries with audiology training programs (number of responding countries)	44.8% (39/87)	12.5% (1/8)	48.2% (14/29)	31.8% (7/22)	60.7% (17/28)

Table 4. Percentage of hearing healthcare providers who received training outside of their country of practice by World Bank income group ($n = 90$ countries).

	Overall ($n = 90$)	**Low-income countries** ($n = 8$)	**Lower-middle income countries** ($n = 29$)	**Upper-middle income countries** ($n = 24$)	**High-income countries** ($n = 29$)
Audiologists	44%	83%	46%	47%	31%
Number of responding countries	58	5	19	16	14
Audiology technicians	30%	58%	20%	24%	30%
Number of responding countries	37	7	14	7	9
Otolaryngology Clinical Officers	29%	61%	26%	21%	12%
Number of responding countries	35	5	14	7	9
Hearing Healthcare Workers	19%	25%	56%	11%	10%
Number of responding countries	21	4	8	6	3

urban areas and were trained within their country of practice. Among 87 responding countries, 44.8% ($n = 39$) reported having audiology training programs, with the fewest observed in LICs; where local training was limited, most audiologists trained abroad; LICs were most affected (Tables 3–4).

Both the number of audiology graduates per 1,000,000 population and the annual number of graduates increased with country income level, which parallels the distribution of in-country training programs (Figures S1–S2).

Scope of practice of audiologists (Table S3)

Common practices by audiologists globally include adult (100%, $n = 71$ responding countries/territories) and paediatric audiological assessment (94%, $n = 71$), and hearing aid fittings (93%, $n = 71$). Less frequently performed practices are telehealth/tele audiology (56%, $n = 70$), otoscopy/ear cleaning (56%, $n = 71$), and deafness education (62%, $n = 71$). A higher percentage of audiologists from HICs provide telehealth, vestibular assessments, cochlear implant services, early intervention, and promote preventative practices. However, a higher percentage of audiologists in LMICs perform ear cleaning and occupational hearing screening.

Discussion

This survey presents a comprehensive evaluation of the current global landscape of the available hearing healthcare workforce. Data from 93 countries, representing 77% of the global population, indicate an average density of 1.48 audiologists and data from 120 countries, representing 83% of the global

population, indicate an average density of 4.1 total hearing healthcare providers per 100,000 population. Densities are highest in high-income countries, where audiologists have a wider scope of practice, and decrease proportionally with income level. The concentration of graduates in higher-income settings signals not only fewer clinicians in lower income countries but also reduced prospects for developing in-country specialisation and achieving sustainable workforce growth. Furthermore, this study highlights that the hearing healthcare workforce is more concentrated in secondary and tertiary healthcare facilities, urban centres, and the majority are employed within the private sector.

These findings build upon those from the 2012 WHO Multi-Country Assessment (World Health Organization 2013), providing updated insights into the global availability and distribution of audiologists, as well as the scope of practice and availability of audiology training programs. In the 2012 assessment, 40% of the 57 countries reporting audiologist data had more than one audiologist per million population. In the present study, audiologist workforce data were available from 77 countries, with a mean density of 1.48 audiologists per 100,000 population. Although differences in sampling and methodology preclude a direct comparison of workforce density between the two assessments, substantial disparities in audiologist availability between high- and lower-income countries persist. Lower-income countries also had more limited scopes of practice, with services more commonly focused on fundamental diagnostics and rehabilitation rather than specialised services. This study further highlights concerns regarding the limited availability of audiology training programs and the preparation of the future workforce, issues which have been previously highlighted in the field of audiology (Patterson et al. 2025). The availability of local training programs remains a key barrier to hearing healthcare workforce expansion and retention, especially in lower-resource settings where a substantial proportion of audiologists receive their training abroad (Mulwafu et al. 2014; Patterson et al. 2025; Waterworth et al. 2022; 2024). Training programs can be expanded by investing in educational infrastructure to develop institutional capacity and implementing targeted recruitment strategies. These efforts, combined with policy initiatives to strengthen training models and embrace innovative workforce strategies are important for addressing global audiology workforce shortages. Such comprehensive approaches can help expand the scope of practice of audiologists in lower income countries (Kamenov et al. 2021). However, even in higher income countries, this remains a challenge. In South Africa, for example, universities now offer a separate 4-year degree program for audiologists and speech pathologists, moving away from the previously combined degree model (Pillay et al. 2020). Whilst specialisation has improved, workforce distribution challenges persist with an overwhelming majority of audiologists (78%) employed in the private sector in urban, densely populated areas.

To address workforce gaps a multifaceted approach is needed. McPake et al. (2024), recommend strategies such as transforming education with localised competency-based curricula, improving retention through competitive salaries and professional development to increase skill diversity, and focusing on rural deployment with protected public health positions offering financial incentives and opportunities for career advancement (McPake et al. 2024). Regional models demonstrate the feasibility of this approach; across Pacific Island countries and territories, primary ear and hearing care workers trained using WHO resources have been successfully deployed to manage simple ear disease and provide community-level ear care education, supported by regional coordination and visiting specialist oversight (Thorne et al. 2019). By training and empowering community health workers, primary care providers, and mid-level practitioners to provide basic hearing healthcare services, countries could expand access to care, particularly in rural and underserved areas, which reduces the burden on specialised practitioners within secondary or tertiary institutions (McPake et al. 2024; Orji et al. 2020; WHO African Region 2024). This approach would complement the specialised services provided by audiologists while addressing the immediate needs of populations with limited access to tertiary care facilities (Pillay et al. 2020).

Capacity building efforts should focus on establishing local training programs that integrate hearing care across the life span (Nuss et al. 2025; World Health Organization 2021). These programs can promote a continuum of care, encompassing prevention, screening, early diagnosis, early intervention, and rehabilitation. Programs fostering the development of robust interprofessional networks would encourage collaboration between healthcare professionals from primary to tertiary care (Nuss et al. 2025). By integrating this task-shifting approach with advanced technologies and innovative practices, sustainable systems can be created, enhancing referral mechanisms across all

levels of care, which ultimately improves access to quality services in underserved regions (Bhutta et al. 2019). Such task-sharing initiatives that leverage digital tools must be planned alongside national governance arrangements and accompanied by funded training, supervision, and provision of appropriate equipment to ensure safe and effective use by community health workers and primary care cadres (O'Donovan et al. 2026).

Addressing disparities in the hearing healthcare workforce also requires comprehensive policy frameworks that strengthen both workforce development and health systems. The World Health Organization's *World Report on Hearing* and the *Country Coordination and Facilitation* approaches provide strategic guidance for building a sustainable hearing healthcare workforce, particularly in low- and middle-income countries (Thuku et al. 2020; World Health Organization 2021). These frameworks outline clear progression pathways and professional development opportunities while ensuring that lower-level cadres are formally recognised and integrated into service delivery models (James et al. 2019). Despite this strategic guidance, no explicit global density target for audiologists currently exists, which represents a significant gap in international workforce policy.

The WHO Global Strategy for Human Resources for Health: Workforce 2030, explicitly recognises hearing care workers as part of the broader health workforce agenda and calls for planning targets that extend beyond physicians, nurses and midwives to reflect a more diverse and context- appropriate skills mix (World Health Organization 2016). The Strategy further projects that 18 million additional health workers are needed globally by 2030, primarily in low-resource settings, to achieve universal health coverage; a shortfall within which the hearing healthcare workforce represents substantially under-represented cadres (World Health Organization 2016). Drawing on these projections, and on this study's finding that HICs, where hearing healthcare outcomes are comparatively better, consistently achieve audiologist densities exceeding 1 per 100,000 population, we propose that a minimum density of 1 audiologist per 100,000 population represents a reasonable and achievable aspirational benchmark for policymakers, particularly in LMICs where current densities fall well below this threshold. Importantly, consistent with WHO guidance, such a threshold should serve as a minimum starting point rather than a fixed planning target, with country-level workforce planning ultimately guided by needs-based assessments, health system context, and optimal skills mix (World Health Organization 2016). Equivalent minimum density benchmarks for hearing healthcare workers (at primary and community care level) are similarly absent and warrant urgent attention from international bodies.

Translating these policy frameworks into practice requires clear role delineation across workforce cadres. In Kenya, for example, where audiologists are in critically short supply (0.03 per 100,000), policies must establish recognised career pathways and competency-based frameworks to define roles, responsibilities, and skill requirements of audiologists operating at secondary and tertiary level, and hearing healthcare workers providing community-based and primary care services (Ndegwa et al. 2024). Framing community-based approaches as complementary to, rather than competitive with, audiologists is crucial when navigating potential role tensions. A clear delineation of roles and referral protocols is important in establishing hearing healthcare workers as extensions of professional audiology services, rather than replacements. This tiered model recognises the specialist expertise of audiologists whilst acknowledging that sustainable, equitable hearing care requires a functioning primary level workforce operating alongside, and in coordination with, specialist services, especially in underserved regions.

To maximise impact, health system policies must create designated positions with appropriate remuneration structures, particularly in primary healthcare settings, where task-shifting has proven effective (Bhutta et al. 2019; Suen et al. 2019). Education and training policies should focus on developing standardised, locally relevant curricula that balance theoretical knowledge with practical skills and offer continuous professional development (Ndegwa et al. 2024). Furthermore, sustainable implementation requires adequate funding mechanisms, regulatory frameworks, and the integration of these workers into existing healthcare structures.

To strengthen future assessments, we recommend developing a uniformly standardised survey tool specifically designed to categorise the various hearing healthcare workforce cadres, their training statuses, and workforce needs (Kamenov et al. 2021; Nuss et al. 2025). Employing a validated, purpose-built instrument would enhance data reliability and comparability for informing global workforce planning and policies. Additionally, addressing gaps in hearing healthcare data could involve integrating workforce

metrics into national health management information systems, leveraging digital health tools, and standardising reporting through population-based prevalence studies to improve planning and resource allocation for evidence-based policymaking. Finally, we recommend future workforce surveys include specific measures of digital and AI readiness, such as government co-ownership, interoperability, and degree of integration with national systems, to distinguish pilots from interventions poised for scale (O'Donovan et al. 2026)

Limitations

While this study provides the most recent comprehensive assessment of the hearing healthcare workforce, there are multiple limitations. The data were reported by stakeholders across different countries and are therefore non-uniform and varied in source and availability. To mitigate potential reporting bias, responses from professional societies and ministries of health were prioritised over those from individual clinicians, and outlier estimates were cross-checked with local team members or against multiple responses from the same country.

Additionally, the inability to determine an accurate response rate presents a limitation, as it impedes comparisons with other workforce surveys where response rates are commonly used as a benchmark for assessing potential biases and data quality. Furthermore, the workforce density figures were derived from estimates rather than precise counts, which may introduce variability or inaccuracies depending on the data sources and reporting methods used. Despite these limitations, the study's findings align with previously published surveys and reports, reinforcing credibility to the overall patterns and trends observed.

Conclusions

In conclusion, significant inequities in the hearing healthcare workforce distribution exist across regions and within countries, with insufficient numbers of providers, especially in low-income settings. Addressing workforce gaps requires a comprehensive needs-based strategy that includes investing in innovative training programs, workforce diversification, and task-shifting strategies that empower a broader range healthcare providers in provision of hearing care services. Evidence-driven policies and investments to enhance local capacity and promote sustainable, context-appropriate solutions to bridge the workforce gaps in hearing care can ultimately improve access to quality hearing care.

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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