Review Article

Occupational noise regulation and hearing conservation in African LMICs: A narrative policy and implementation review

Katijah Khoza-Shangase

Department of Audiology, School of Human and Community Development, University of the Witwatersrand, Johannesburg, South Africa

Abstract

This narrative review critically examines the state of occupational noise regulation and hearing conservation in African low-and middle-income countries (LMICs), a region where the burden of noise-induced hearing loss (NIHL) is escalating due to rapid industrialization and systemic weaknesses in regulatory design and implementation. Using structured searches in PubMed, Scopus, and Web of Science, peer-reviewed literature published between 2000 and April 2025 was systematically identified and screened. Twelve eligible studies focusing on regulatory and policy aspects of occupational hearing conservation in African LMICs were included. An inductive thematic analysis revealed four core themes: The existence and variability of occupational noise regulations across countries, persistent implementation and enforcement challenges, limited and fragmented characteristics of hearing conservation programs (HCPs), and critical gaps in policy frameworks. The findings indicate that while several African LMICs have adopted regulations addressing occupational noise exposure, there is significant inconsistency in scope, content, and application. Weak enforcement mechanisms, inadequate training and monitoring systems, low health literacy among workers, and lack of integration with broader public health strategies hinder effective prevention of NIHL. High-risk industries such as mining, manufacturing, and construction remain disproportionately affected. Emerging evidence from innovative interventions and the underutilized role of audiologists highlights opportunities for integrated, contextually tailored HCPs. This review highlights the need for strengthened, context-sensitive, and enforceable regulatory frameworks that are aligned with international standards but tailored to local realities. It provides essential insights for policymakers, occupational health professionals, audiologists, and other stakeholders seeking to reduce the burden of NIHL and advance hearing conservation in Africa. By consolidating findings and offering implementation-focused recommendations, this review contributes to shaping more responsive and sustainable occupational health policy across the region.

Keywords: Africa, hearing conservation, low- to middle-income countries, occupational noise, policy review, regulations

Address for correspondence:
Prof. Katijah Khoza-Shangase,
Department of Audiology, School of Human and Community Development,
University of the Witwatersrand, Johannesburg, South Africa.
E-mail: katijah.khoza-shangase@wits.ac.za

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INTRODUCTION

The global landscape of hearing loss reveals a significant disparity, with the majority of affected individuals

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residing in African low-and middle-income African countries (LMICs).[1] This uneven distribution underscores the pressing need to address hearing health in these regions, particularly in Africa, where the burden is substantial. In 2023, approximately 40 million people in Africa were estimated to be living with hearing loss, a figure projected to escalate to 54 million by 2030 and further to 97 million by 2050.[1] This upward trajectory, as highlighted by the World Health Organisation (WHO), signals a growing public health concern that demands immediate and effective intervention strategies. The WHO report[2] attributes this rise, in part, to limited access to ear and hearing care specialists across the continent, with Pillay *et al*.[3] highlighting this capacity versus demand challenge for audiologists in South Africa, specifically.

The consequences of untreated hearing loss extend far beyond the individual, impacting their quality of life through impaired social interactions, reduced educational and vocational opportunities, and links to poorer cognitive outcomes.[4,5] Furthermore, the economic costs associated with this condition are considerable, with Africa incurring an estimated US$ 27 billion annually.[1] This substantial economic burden emphasizes the importance of prevention, early detection, and rehabilitation efforts. Despite these individual and societal consequences, hearing health continues to be overlooked in public health policy across African LMICs,[2,6] where systemic health inequalities compound the risks posed by occupational noise exposure.[7]

A significant and preventable cause of hearing loss worldwide is exposure to excessive noise in occupational settings.[8] The book "Occupational noise-induced hearing loss: An African perspective" specifically addresses this issue within the African context.[9] Workers in LMICs, particularly in sectors such as manufacturing, transportation, construction, mining, utility, and agriculture, face an elevated risk of noise-induced hearing loss (NIHL).[10-12] The WHO corroborates these sectors as having the highest risk profiles.[12] In Africa, the increasing pace of industrialization further amplifies the potential for occupational noise exposure. Studies conducted in Tanzania on noise levels in iron and steel factories serve as a stark reminder of the high exposure levels prevalent in some industries.[13-16] The ongoing industrial growth in African LMICs, while crucial for economic advancement, presents a considerable risk of increased occupational noise exposure and subsequent hearing impairment if not accompanied by robust regulations and proactive preventive measures.[7,17] This creates a critical intersection between economic development and public health protection.

Effective occupational noise regulations and well-implemented hearing conservation programs (HCPs) are essential tools for preventing NIHL and safeguarding the hearing health of workers.[18,19] The South African NIHL Regulations provide an example of a country-specific regulatory framework.[20-22] Comprehensive HCPs typically encompass several key components, including systematic noise monitoring, the implementation of engineering and administrative controls to reduce noise exposure, the provision and proper use of hearing protection devices (HPDs), regular audiometric testing to detect early signs of hearing loss, thorough training and education for workers and management, and meticulous record-keeping.[21,23,24] SANS 10083:2021 in South Africa further details these essential elements.[20] The success of hearing conservation hinges on a comprehensive and integrated approach where each component functions effectively. The absence or inadequacy of any single element can significantly undermine the overall effectiveness of efforts to prevent NIHL.[25,26] Therefore, regulations must mandate a holistic and regularly reviewed implementation of HCPs, moving beyond a singular focus on permissible noise limits or the provision of hearing protection alone.

Despite the recognized importance of regulations and HCPs, their implementation and effectiveness in African LMICs are fraught with numerous challenges.[7,17,27] Khoza–Shangase and Moroe[9] provide an in-depth exploration of these multifaceted challenges. These can include a general lack of awareness about the risks of occupational noise and the benefits of hearing conservation measures, limited financial and human resources for implementation and enforcement, weak or inconsistent enforcement of existing regulations, cultural and linguistic barriers that hinder effective communication and training, and the frequent prioritization of other pressing health issues that may overshadow the importance of hearing health.[9] Furthermore, the presence of stigma and discrimination towards individuals with hearing impairment can further complicate efforts to promote hearing conservation and help-seeking behaviors.[28] The unique socioeconomic, cultural, and health landscapes of African LMICs likely contribute to specific obstacles in hearing conservation that may differ significantly from those encountered in high-income countries.[9] This necessitates a focused policy review that goes beyond generic global perspectives and interrogates the unique regulatory landscapes, enforcement ecosystems, and public health priorities within African LMICs.

To the best of the author's knowledge, no prior peer-reviewed review has systematically analyzed policy

and regulatory mechanisms related to occupational noise and hearing conservation in African LMICs. This narrative review addresses this gap by examining existing regulations and hearing conservation policies across the region. It identifies key barriers to effective implementation, such as inadequate enforcement, resource limitations, and inconsistent program design, and proposes evidence-based, actionable recommendations. By focusing exclusively on peer-reviewed literature, this review aims to provide a rigorous analysis that can inform context-sensitive, sustainable strategies for protecting hearing health in African LMICs.

METHODS

This study utilized a narrative review methodology to systematically synthesize peer-reviewed literature relevant to occupational noise regulation and hearing conservation in African LMICs. This approach was chosen for its ability to accommodate diverse sources and study designs while providing a contextualized understanding of policy and implementation issues in hearing conservation across the region.[29]

Literature search strategy

A structured and reproducible literature search was conducted using major electronic databases including PubMed, Scopus, and Web of Science. This search covered publications from January 2000 through to April 2025. The search strategy combined medical subject headings (MeSH) and free-text keywords, using Boolean operators to enhance sensitivity and specificity. Key terms included terms such as "hearing conservation," "occupational noise," "occupational noise-induced hearing loss," "regulations," "policy," "legislation," combined with the geographical focus "Africa" and the economic context "low-income countries" and "middle-income countries." To ensure thoroughness, the search also included the names of specific African countries (e.g., Nigeria, Kenya, Ghana, Tanzania, South Africa, Uganda, Zimbabwe, Malawi, and Cameroon). Forward and backward citation tracking and manual searches of reference lists were also performed to ensure completeness.

Inclusion and exclusion criteria

Articles were eligible for inclusion in this review if they: (1) were peer-reviewed and published in English between 2000 and April 2025; (2) focused on occupational noise regulations, policies, or HCPs within African LMICs; (3) provided descriptive or analytical discussion of regulatory frameworks, enforcement practices, or implementation of hearing conservation strategies in occupational settings; and (4) offered empirical data (quantitative or qualitative), systematic or narrative reviews, or policy analyses relevant to the study objectives. Studies were excluded if they (1) were not peer-reviewed (e.g., gray literature, editorials without analytic depth, conference abstracts), (2) focused exclusively on recreational noise or nonoccupational causes of hearing loss, or (3) did not address the African LMIC context or were irrelevant to occupational hearing conservation.

Countries classified as LMIC were determined according to the World Bank's income classification system for the 2024 fiscal year, which categorizes economies based on gross national income per capita using the Atlas method. Only African countries falling into the LMIC brackets were considered eligible for inclusion.

Note on language limitations

Only studies published in English were included in this review. This decision was made for pragmatic reasons, as resource constraints prevented the translation of non-English texts. While this may have excluded potentially relevant research, it ensured consistency in data extraction and analysis. Future reviews with translation capacity may be able to incorporate non-English publications to broaden representativeness.

Study selection and data extraction

The selection process involved two independent reviewers from the Wits Preventive Audiology Research Cluster who screened titles and abstracts for relevance based on the criteria above. Any disagreements between the two reviewers were resolved through discussion or, if necessary, consultation with a third reviewer to reach a consensus. Full texts of potentially eligible studies were then reviewed to confirm inclusion. The initial search yielded 879 records, of which 27 full-text articles were evaluated for eligibility. Following detailed appraisal, 12 studies were included in the final synthesis [Table 1].

A standardized data extraction form was utilized to collate the following information: (1) The author(s) and year of publication, (2) the specific country/region in Africa that the study focuses on, (3) the study design and methodology employed, (4) the key findings related to occupational noise regulations or hearing conservation, (5) any policy recommendations made by the authors, and (6) the barriers to the implementation of effective hearing conservation policies that were identified in the article.

Twelve studies met the inclusion criteria and were synthesized into a structured evidence table [Table 2]

Table 1: Summary of the review process

Step	Description	*n*
Identified through database searching	Peer-reviewed journal databases and indexed searches (PubMed, Scopus, Web of Science, AJOL, etc.)	879
Screened for relevance	Based on the title and abstract review	879
Full-text assessed for eligibility	Comprehensive reading	27
Excluded after full-text review	Deemed not relevant	18
Identified via supplementary searches	Added to ensure completeness	3
Included in the final synthesis	Final included studies	12

AJOL: African Journals Online

summarizing their core contributions to understanding regulatory and implementation dynamics.

Data analysis

Following the creation of the evidence table, an inductive thematic analysis was conducted, adhering to Braun and Clarke's[30] six-step framework. This analysis focused on the key findings, policy recommendations, and barriers to implementation identified in the peer-reviewed literature. Thematic analysis involved an iterative process of coding the extracted data to identify recurring themes and patterns across the studies. These initial codes were then organized into broader categories and interpreted to provide a comprehensive understanding of the current state of occupational noise regulations and hearing conservation in African LMICs, as reflected in the peer-reviewed academic literature. Thematic saturation was reached when additional studies no longer introduced novel insights,[31] ensuring a comprehensive and balanced synthesis of the literature. Three additional studies were included during the final stage of data extraction, following iterative refinement of the search strategy and confirmation of their relevance through full-text review. These included a critical legal analysis,[32] a narrative review of compounded risks from HIV and ototoxicity,[33] and a policy/practice review specific to audiologist involvement in HCPs.[34]

Quality assurance and ethical considerations

To ensure the reliability, transparency, and credibility of this narrative review, several methodological safeguards were implemented. These included systematic documentation of the search strategy and study selection, continuous refinement of the research focus, critical evaluation of study soundness and relevance, and reflexivity to account for potential researcher biases.[35,36] As a literature-based review, formal ethical approval was not required; however, ethical integrity was maintained through comprehensive citation, use of credible peer-reviewed research, objective study selection and analysis, and recognition of potential conflicts and limitations, ensuring diverse perspectives and transparency in reporting.[37]

RESULTS

Based on the evidence in Table 2, a total of twelve peer-reviewed studies were included in this narrative review. The profile of these studies reveals a variety of research designs, with five being systematic literature reviews, two editorial pieces, two employing cross-sectional surveys, one using a qualitative methodology, one being a retrospective review of audiograms, and one study focused on the development and testing of an artificial intelligence (AI)-based early warning system. Geographically, the studies predominantly focused on South Africa[18,23,27,32-34,38] and Tanzania,[14,15] with one study examining various industries in Kenya[39] and another in Ghana,[24] and one editorial providing a broader African perspective.[17] In terms of industry sectors, mining was a significant focus, particularly the gold and platinum mining sectors in South Africa and general mining in Tanzania. The iron and steel industry in Tanzania was also represented, as well as a study covering metal and grain milling industries in Kenya.

Evidence table

The evidence table, Table 2, summarizes the key details extracted from the peer-reviewed articles included in this narrative review. It provides a structured overview of the research landscape concerning occupational noise regulations and hearing conservation in African LMICs.

Thematic analysis findings

Four interlinked themes emerged from the twelve studies analyzed [Table 3]. While each theme is discrete, they collectively highlight the systemic weaknesses in regulation formulation, operationalization, and oversight concerning occupational noise regulations and hearing conservation in African LMICs.

Theme 1: Status of occupational noise regulations

Peer-reviewed studies indicate that a foundational layer of occupational health and safety regulations addressing noise exposure exists in many African LMICs.[21,40-46] These regulations often set permissible noise exposure limits, frequently aligning with international benchmarks such as 85 dBA for an 8-h workday. Scholarly research provides evidence of such regulations in countries like South Africa,[18,23,27,32-34,38,47,48] Kenya,[39] Tanzania,[14,15] and Ghana.[24] A critical legal analysis by Pillay and Manning[32] adds that in South Africa, despite formal legislation, the occupational health legal framework remains outdated, fragmented, and poorly aligned with international standards. Academic analyses reveal a significant variability in the scope and comprehensiveness of these regulations

Table 2: Comprehensive evidence synthesis of occupational noise regulation and hearing conservation in African low- and middle-income African countries

Author(s) and year	Country/region	Study design/ methodology	Key findings/study focus	Recommendations/policy proposals	Identified implementation barriers
Khoza-Shangase *et al.*[17]	Africa (Focus on South Africa)	Editorial introducing a special issue	ONIHL remains high; lack of Africa-specific management strategies	Promote locally relevant ONIHL research for policy impact	Sparse comprehensive research; underdeveloped frameworks
Moroe *et al.*[23]	Africa (Mining Sector)	Systematic literature review (1994–2016)	Limited coverage of HCP components; over-reliance on HPDs	Encourage multipillar HCPs with policy enforcement and education	Inadequate training; weak enforcement; limited engineering controls
Madahana *et al.*[18]	South Africa (Mining)	Tech intervention development	Early-warning AI system improves detection of noise levels	Integrate IoT in HCPs; train workers; align with regulations	Technology adoption gaps; poor enforcement; behavioral resistance
Moroe[27]	South Africa (Mining)	Qualitative interviews	Health literacy is poor; unclear responsibility for education	Centre education within audiology roles; adapt for literacy diversity	Linguistic barriers; compensation-linked disincentives; low prioritization
Musiba[15]	Tanzania (Mining)	Cross-sectional (audiograms)	High NIHL prevalence; highest among youngest workers	Establish prevention programs and local hearing baselines	No guidance for audiogram classification; limited enforcement
Nyarubeli *et al.*[14]	Tanzania (Iron and Steel)	Cross-sectional (KAP questionnaire)	Weak noise protection practices; low HPD availability	Roll out standardized HCPs with institutional accountability	Low capacity in institutions; insufficient training; poor awareness
Gongi *et al.*[39]	Kenya (Various Industries)	Survey and noise assessment	Excessive noise in small industries; low HPD use	Enforce compliance and improve worker awareness	HPDs unavailable/ uncomfortable; weak safety governance
Amedofu[24]	Ghana (Mining)	Audiogram review	Minimal hearing shift observed; supports HCP use	Refine HCP assessment criteria; involve occupational professionals	Spotty enforcement; limited HCP integration
Moroe and Khoza-Shangase[38]	South Africa (Mining)	Systematic literature review	Identified global advances in HCPs with limited local uptake	Localize international innovations; test feasibility in LMICs	Lack of context-fit research; weak adoption of new practices
Khoza-Shangase[33]	Sub-Saharan Africa (focus on HIV-endemic regions)	Narrative review	ART-related ototoxicity compounds ONIHL risk	Integrate ototoxicity surveillance into HCPs	Research gaps; policy blind spots for ototoxicity
Moroe *et al.*[34]	South Africa (mining sector)	Descriptive policy/ practice review	HCPs are fragmented and lack standardization	Standardize and audit HCP implementation; enhance audiologist leadership	Weak oversight; minimal audiologist involvement
Manning and Pillay[32]	South Africa	Critical legal analysis	Existing laws are outdated and fragmented	Update occupational legislation; clarify legal HCP requirements	Legal inertia; misalignment with practice realities

LMICs: African low-and middle-income African countries, HCPs: Hearing conservation programs, KAP: Knowledge, attitude and practice, HPDs: Hearing protection devices, AI: Artificial intelligence, IoT: Internet of things, ART: Antiretroviral therapy, NIHL: Noise-induced hearing loss, ONIHL: Occupational NIHL

Table 3: Summary of key themes and contributing studies

Theme	Description	Studies contributing to theme
Theme 1: Status of occupational noise regulations	Examines the existence, scope, and variability of occupational noise laws across African LMICs	[14-18,23,24,27,32-34,38,39]
Theme 2: Challenges in implementation and enforcement	Highlights weak enforcement, limited awareness, and systemic barriers impeding effective application of regulations	[14-18,23,24,27,32-34,38]
Theme 3: Characteristics and effectiveness of HCPs	Evaluates the implementation of HCPs and the extent to which they align with international best practices	[9-11,13,15,17,18,26,27,33,34,38,39]
Theme 4: Policy gaps and recommendations	Identifies missing legal provisions and offers reform strategies grounded in reviewed literature	[14,15,24,27,32-34]

LMICs: African low-and middle-income African countries, HCPs: Hearing conservation programs

across different nations.[9,17] Some studies point to instances where specific legislation addressing noise is either absent or exists within a fragmented legal framework.[9,32,34]

Theme 2: Challenges in implementation and enforcement

A consistently highlighted theme in the evidence reviewed is the challenge of weak implementation and enforcement of occupational noise regulations.[14,17,18,23,26,27,39] The gap between policy formulation and practical application remains a major obstacle to effective hearing conservation in African LMICs. Studies identify a multitude of interconnected barriers hindering implementation, including limited awareness among employers and employees, insufficient resources, inadequate training, and weak supervisory mechanisms.[14,15,18,23,27,34,39] Compliance issues, often driven by cost-saving priorities, further undermine program effectiveness.[23,24] Cultural and linguistic factors, as well as competing health priorities, also interfere with adoption and sustainability.[18,27,33,34]

The mining sector in South Africa illustrates this disconnect clearly–despite regulations and HCPs,

miners are still widely exposed to noise levels above permissible limits.[18,23,27,32-34,38,47,48] The literature highlights the absence of sector-specific enforcement mechanisms, with agriculture and informal sectors notably neglected despite their high exposure risks. Moroe *et al*.[34,48] emphasize inconsistent involvement of audiologists and limited standardization of HCPs as significant implementation weaknesses.

Theme 3: Characteristics and effectiveness of hearing conservation programs

The review indicates that HCPs in African LMICs are frequently implemented with limited success.[9,13,15,17,33,35,38] A recurring theme is an overreliance on HPDs rather than on higher-tier interventions like engineering and administrative controls.[7,9] This imbalance often undermines the long-term effectiveness of hearing conservation strategies. Critical program components – routine noise monitoring, regular audiometry, and robust recordkeeping – are often inconsistently applied.[10,11,16,18,26] Variability in the quality and interpretation of audiometric testing has also been reported, further complicating early identification and intervention for ONIHL.[34,48]

Theme 4: Policy gaps and recommendations

Significant gaps in occupational noise policy frameworks remain across African LMICs.[14,15,24,32-34] The absence of context-relevant, enforceable regulations and the fragmentation of existing laws continue to hinder progress. The evidence highlights a troubling disconnect between policy formulation and worker-level awareness. Even when policies exist, they are often poorly communicated, underfunded, and lack incentive structures for compliance.

DISCUSSION

The review highlights not only the uneven presence of regulations across African LMICs but also the structural impediments undermining their efficacy. These include institutional fragmentation, limited intersectoral coordination, and underresourced regulatory agencies. The synthesis of evidence reveals that while many countries in the region have established some form of regulatory framework addressing occupational noise exposure, significant inconsistencies exist in their scope and comprehensiveness. Furthermore, the literature consistently highlights a substantial gap between the existence of these regulations and their effective implementation and enforcement in practice. A multitude of interconnected barriers, ranging from a lack of awareness and limited resources to cultural factors and competing health priorities, contribute to this challenge.

The literature also illustrates that the absence of sector-specific enforcement mechanisms disproportionately affects informal and agricultural workers. Moroe *et al*.[34,48] emphasize inconsistent involvement of audiologists and limited standardization of HCPs as significant implementation weaknesses. These findings mirror WHO's broader concerns about implementation gaps in LMIC health policy and reinforce calls for localized, culturally relevant models of regulatory design.

Recent literature identifies the need to integrate hearing conservation into broader public health initiatives, particularly in HIV-endemic areas where ototoxicity from antiretroviral therapy and tuberculosis (TB) treatments compounds noise-related hearing risks.[33] This intersection of occupational and clinical health domains highlights the need for holistic frameworks. Khoza–Shangase[33] highlights the need to expand HCP frameworks to include ototoxicity monitoring in HIV and TB-endemic settings. Fragmented implementation, coupled with the undervaluation of non-HPD interventions, severely limits HCP efficacy. The findings highlight the urgent need for standardized, comprehensive, and evidence-based program design. Reviewed literature advocates a central role for audiologists, better management oversight, and a shift toward prevention-oriented measures.

To address these shortcomings, studies recommend the harmonization and strengthening of occupational health and safety (OHS) laws to cover all workplace ototoxic hazards.[14,24,32-34] Enforcement must be enhanced through regulatory oversight and accountability mechanisms. Evidence also points to the need for integrating hearing conservation into broader health initiatives – including those addressing HIV/AIDS and TB – thereby acknowledging the complex interplay between occupational and public health challenges.[17,33] Health literacy initiatives for both employers and employees are also seen as vital for embedding a culture of prevention.[27]

The academic literature further calls for greater professional leadership by audiologists and interdisciplinary teams in the policy design, implementation, and evaluation of HCPs.[18,27,34] Teleaudiology is identified as a promising innovation to reach underserved regions, particularly in rural or remote work environments.[18,38] For high-risk sectors like mining, enhanced data systems, audiogram classification standardization, and feedback-informed monitoring are recommended to elevate program precision and accountability.[17,18,34,38]

Recent contributions from Pillay and Manning[32] highlight the structural inadequacy of current legal provisions, while

Khoza–Shangase[33] proposes a paradigm shift toward multi-risk occupational health frameworks that integrate HIV/ART considerations. These recommendations underscore the need for collaborative, evidence-informed, and context-sensitive reform – bridging legal, clinical, and occupational domains to protect hearing health in African LMICs.

Limitations

Despite the insights gained from this review, certain limitations must be acknowledged. The narrative design, while suited for a broad synthesis, may introduce interpretative bias in the selection and interpretation of studies. Limiting the search to English-language peer-reviewed articles may have excluded relevant grey literature or regionally published work in other languages. The diversity in study designs and contexts across the included papers may constrain direct comparison of findings. In addition, by focusing broadly on African LMICs, country-specific and subregional-level nuances may not be fully captured. Finally, the limited volume of peer-reviewed research on this specific topic also constrains the comprehensiveness of conclusions drawn.

CONCLUSION

This narrative review concludes that although occupational noise regulations exist in several African LMICs, there are consistent gaps in their enforcement, coverage, and implementation. These findings are directly supported by the included studies, which collectively demonstrate that existing frameworks often fall short of providing effective protection for workers across diverse sectors such as mining, manufacturing, and informal industry settings. Studies such as those by Pillay and Manning,[32] Moroe *et al*.,[23,34] and Musiba[15] highlight the fragmented nature of legal provisions, the lack of audiologist involvement, and inadequate program standardization. Others, such as Madahana *et al*.[18] and Khoza–Shangase,[33] highlight the potential of innovative technologies and the importance of integrating ototoxicity monitoring, particularly in high-burden health contexts.

To support implementation science and inform stakeholder action, the following evidence-based, actionable recommendations are derived directly from the findings. First, governments should harmonize and update national occupational health legislation to ensure comprehensive and enforceable noise protection standards across all sectors. This includes establishing guidelines for HCP implementation and integrating occupational hearing health within broader public health initiatives, especially in HIV- and TB-endemic regions.[14,15,32,33] Second, employers must implement comprehensive HCPs that prioritize upstream interventions – such as engineering and administrative controls – over exclusive reliance on HPDs. This is supported by findings that emphasize the overuse of HPDs and lack of effective program structures.[23,34,39] Employers should also invest in quieter technologies, regular training, and access to high-quality audiometric testing.[18,27] Strategies should also consider linguistic and cultural diversity in workforce education. Third, healthcare professionals, particularly audiologists and occupational health practitioners, should play a leadership role in program design, worker education, and outcome evaluation. Several studies noted inconsistent audiologist involvement and call for their central role in program oversight and standardization.[27,34,38] Targeted training in occupational hearing health and collaborative research across sectors is necessary to address context-specific challenges. Lastly, international organizations can support regional progress by funding implementation research, facilitating technology transfer (e.g., AI-based early warning systems),[18] and encouraging adaptation of globally validated frameworks to local contexts.[38]

In sum, prioritizing hearing conservation through evidence-informed regulation, coordinated implementation, and sustained resource investment will be essential to mitigating ONIHL in African LMICs and achieving more equitable occupational health outcomes. The insights gained from this review provide a concrete foundation for strengthening policy, practice, and research in occupational hearing health across the continent.

Contribution to the field

This manuscript provides a critical, evidence-based synthesis of the current state of occupational noise regulations and hearing conservation efforts across African LMICs. By systematically analyzing peer-reviewed literature published over the past two decades, it highlights significant gaps in regulatory frameworks, inconsistencies in implementation and enforcement, and systemic barriers to effective hearing conservation. The study contributes novel insights into how occupational hearing health is (or is not) prioritized in policy across diverse African contexts and emphasizes the urgent need for contextually responsive, enforceable, and inclusive regulatory strategies. This work offers valuable guidance for policymakers, occupational health practitioners, audiologists, and global health stakeholders seeking to improve hearing conservation frameworks in LMIC settings, particularly within high-risk industrial sectors.

Author contributions

This is a single-authored manuscript. Prof. Katijah Khoza-Shangase conceptualized the study, conducted the literature review, analysed the data, and wrote the manuscript in its entirety.

Ethical policy and institutional review board statement

As this study involves the review of existing literature, there were no direct ethical concerns. This narrative review adhered to all ethical standards pertinent to studies that do not involve direct contact with human or animal participants.

Data availability statement

All data generated and/or analyzed during this study are included in this published article.

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Conflicts of interest

There are no conflicts of interest.

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