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Review Article

Simulation-Based Approaches for Training Communication and Counseling Skills in Clinical Education in Audiology: A Scoping Review

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ARTICLE INFO

Article History:
Received April 29, 2024
Revision received July 8, 2024
Accepted August 12, 2024

Editor-in-Chief: Erin M. Picou
Editor: Christina Roup

https://doi.org/10.1044/2024_AJA-24-00097

ABSTRACT

Purpose: This review article aimed to obtain an understanding of the positive outcomes and challenges associated with the use of simulation-based approaches for teaching communication and counseling skills in clinical education in audiology as described in the literature.
Method: A scoping review was conducted during October 2023 to identify published journal articles that described how simulation-based approaches were used for teaching or assessing communication and/or counseling skills among audiology students. Database searches yielded 208 articles initially. Following abstract screening and full-text review, 17 articles were included for analysis.
Results: Most studies focused on using simulation-based approaches for teaching, and there was a stronger focus on pediatric audiology. Most studies involved the use of standardized patients, with data collected via quantitative approaches using rating scales and surveys. Simulation-based approaches can offer positive learning experiences and practice opportunities for students acquiring communication and counseling skills. However, the benefits of simulation over traditional methods are unclear. Students may struggle to integrate technical and communication skills in simulated learning experiences.
Conclusions: Engaging with simulation-based approaches may provide important practice opportunities, but these methods are not sufficient to ensure acquisition of communication and counseling skills. More qualitative studies are needed to understand the nuances of if and how students might acquire such skills via simulated learning experiences. We offer some suggestions for improvement of future studies on this topic.

Communication and counseling skills are central to the practice of audiology. They enable audiologists to offer patient-centered care, build meaningful relationships, promote understanding of information, and ultimately encourage patient acceptance of recommendations (English, 2022). According to Beck and Kulzer (2018), the four most important communication and counseling skills are empathy, active listening, nonverbal communication, and the use of silence.

Despite knowledge of these skills and consensus regarding their fundamental role in audiology service delivery, professional practice guidelines remain unclear, resulting in inexplicit expectations for graduate training (Muñoz et al., 2018). In addition, research has shown that both students and qualified audiologists may find communicating with patients challenging—for example, explaining complex audiological information (English, 2008; Watermeyer et al., 2015), focusing on issues related to patient well-being (Clark et al., 2021), validating patients' emotions (Coleman et al., 2018), providing counseling (Meibos et al., 2017), and developing patient-centered relationships (Manchaiah et al., 2019). These skills, like other skills that audiologists learn, arguably

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require explicit curricular attention. Such attention may involve teaching patient-centered care principles (Muñoz et al., 2018; Tai et al., 2019) and offering specific opportunities for students to practice and develop these skills (English, 2022).

However, communication and counseling skills are sometimes embedded into existing course structures rather than taught as part of specific communication courses (Clark, 2006; Sweetow, 2018), and methods for training such skills are often inconsistent and unstructured (Whicker et al., 2018). Bridging of counseling and communication skills knowledge is needed between coursework and clinical experiences (Muñoz et al., 2018).

A variety of experiential teaching and learning strategies for teaching interpersonal communication skills to audiology students are described in the literature, including video reflexivity (Tai et al., 2018), experiential learning activities, and simulation-based approaches such as role play and engagement with standardized patients (SPs; Beck & Kulzer, 2018). Simulation-based approaches are starting to become more established methods of clinical teaching and student training in audiology, especially in settings in the Global North. They are typically used in conjunction with, rather than as alternatives to, traditional approaches to training. Among other benefits, simulation-based approaches can reduce risks for both students and patients, offering a safe environment for them to practice applying their theoretical knowledge before interacting with real patients (Alanazi & Nicholson, 2023; Jansen, 2015). Although Alanazi and Nicholson's (2023) recent systematic review on the use of simulation-based approaches in audiology education includes a relatively small number of studies, their findings highlight the usefulness of these approaches for increasing audiology students' skills, knowledge, and confidence. Andre et al.'s (2021) survey of the use of simulation for audiology training in the United States revealed that these approaches are most frequently used for counseling training.

Although some literature as well as three systematic reviews on this topic (Alanazi & Nicholson, 2023; Dzulkarnain et al., 2015; Morrison-Thomas, 2023) are available on the use of simulation for clinical training in general in audiology, there are no existing reviews that have consolidated empirical evidence specifically about the use of simulation-based approaches for training communication and counseling skills with audiology students. Without a review of this topic and a thorough understanding of how simulation approaches are being (and can be) used for communication and counseling skills training, it may be difficult for clinical educators (CEs) to determine which simulation-based approaches might be most useful when training these skills or how best such approaches might be used as an adjunct to traditional approaches to communication and counseling skills training.

The primary goal of this scoping review was to comprehensively examine the existing literature on simulation-based approaches used for communication and counseling skills in audiology education. We aimed to obtain an understanding of the positive outcomes and challenges associated with the use of simulation-based approaches for teaching communication and counseling skills in clinical education in audiology. Our research questions focused on understanding the types of simulation-based approaches used, how they were applied and for what purpose, how students' communication and/or counseling skills were evaluated in these studies, and key outcomes in terms of the efficacy of these approaches and student experiences thereof.

Method

Structure and Reporting

We used the guidelines for scoping reviews from Arksey and O'Malley (2005) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews Checklist (Tricco et al., 2018). A review protocol was not registered. Ethical approval was not required for this scoping review, as it involved the analysis of publicly available literature.

Identifying Relevant Studies

During October 2023, we systematically searched titles, abstracts, and key words without time limitations across six databases, including CINAHL, ERIC, Google Scholar (this search was limited via Publish or Perish software to the first 100 entries downloaded), Medline, Scopus, and Web of Science Core Collection. Our decision to select these databases was informed by Bramer et al.'s (2017) recommendations for optimizing database selection for reviews as well as careful scrutiny of the databases used in other reviews (e.g., Alanazi & Nicholson, 2023). We did not limit searches by date.

The search terms and key words used for this scoping review were carefully selected to encompass the breadth of the topic. After conducting preliminary searches via Medline, Scopus, and Web of Science, we refined our search string as follows: Audiology AND student AND (simulation OR simulated OR "standardized patient" OR "role play" OR manikin OR "virtual reality" OR "computer-based" OR "case-based") AND (communication OR counseling). Boolean operators (AND, OR) were used to combine these terms effectively.

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Study Selection

English-language peer-reviewed journal articles and gray literature (theses or dissertations) involving empirical research were included. We did not limit the type of research design. Studies were excluded if they were not relevant to the research question, did not include an empirical study, were duplicates (including where a published article repeated the contents of an unpublished thesis), and/or included scoping or systematic reviews (see Figure 1). We did not exclude articles by the same primary author where the sample and sample sizes were the same but the aims or focus areas were different.

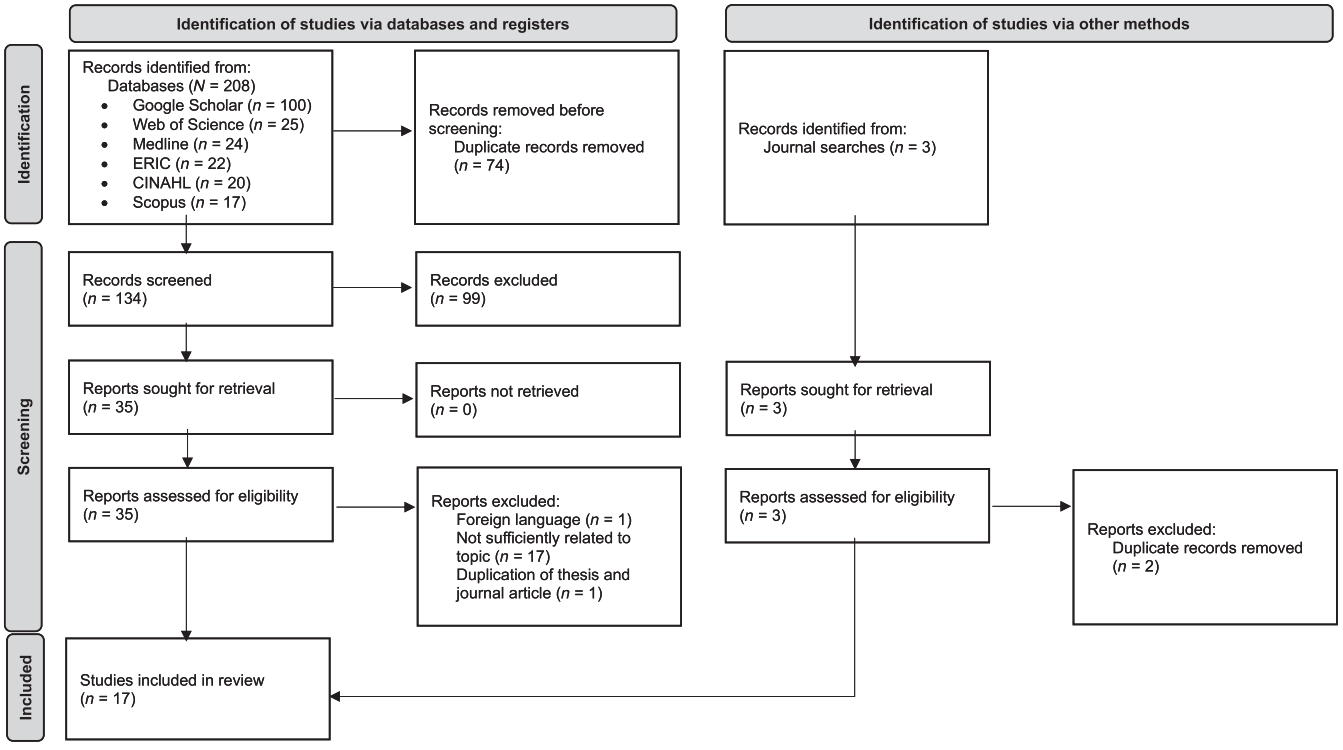
Both authors independently conducted the initial screening of titles and abstracts to identify potentially relevant articles, using rayyan.ai, which was set to blinded review. Both authors then discussed and resolved any conflicting decisions. Full-text sources were then assessed for eligibility based on the inclusion and exclusion criteria, with specific attention paid to whether the source included sufficient focus on audiology students, simulation-based approaches to clinical teaching, and communication and counseling. Both authors independently assessed the full-text sources and discussed and resolved any conflicting decisions.

Both authors also conducted hand searching of three major journals in the audiology field (*International Journal of Audiology*, *American Journal of Audiology*, and *Journal of the American Academy of Audiology*) as well as the reference lists of relevant reviews (Alanazi & Nicholson, 2023; Dzulkarnain et al., 2015; Morrison-Thomas, 2023). This search garnered one additional article that met the search criteria.

Data Charting

Variables were extracted from the selected studies using a predefined data extraction form developed by the authors. Both authors completed a pilot data extraction exercise together. Thereafter, each author completed data extraction for half of the studies and then checked approximately 25% of the other author's charting for reliability. Information was collected from each article about author(s) and publication year, country of origin, study aim, study design, methodology, population, sample size, simulation type, field of audiology (population/pathology), purpose of the simulation (training, practice, assessment, transition from theory to practice), details of the communication and counseling skills targeted, and key findings/outcomes. Given the scoping nature of this review article, a formal quality assessment of individual studies was not conducted.

Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews flow diagram.



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Data Synthesis

We analyzed the data extracted from the included studies using a textual approach for analyzing results and drawing conclusions. This approach was loosely based on Braun et al.'s (2019) description of a domain summary approach to thematic analysis. It involved both authors working together to identify common themes, concepts, and trends in the literature, which were subsequently categorized and organized. We specifically identified themes related to trends per type of simulation-based approach, study designs, and also the kinds of communication and counseling skills being targeted via simulated learning experiences. Given the scoping nature of this review article, a formal quality assessment of individual studies was not conducted.

Results

Overview of the Included Studies

Seventeen studies were eligible for inclusion in this review (see Figure 1). All studies investigated simulation-based approaches used with audiology students for training communication and counseling skills. Articles were published in a range of journals in the audiology field, predominantly in the *International Journal of Audiology* (n = 3), the *American Journal of Audiology* (n = 3), and the *Journal of the American Academy of Audiology* (n = 2). Articles ranged in dates from 2007 to 2022, with most published after 2015 (n = 13). Several authors featured prominently in the set of articles reviewed, including Alanazi (n = 5), Nicholson (n = 4), Hughes (n = 3), and Wilson (n = 3). Most studies were conducted in the Global North, including the United States (n = 9), Australia (n = 4), and New Zealand (n = 2). Two studies were conducted in the Global South, from Malaysia (n = 1) and Saudi Arabia (n = 1; see Table 1).

Most studies included audiology students (n = 14). Two studies also included speech-language pathology students (Alanazi & Nicholson, 2019; Alanazi et al., 2022). Other participants included CEs (n = 3), evaluators/raters (n = 3), audiology program directors (n = 2), and experienced clinicians (n = 1). Most studies focused on the use of simulation for teaching counseling and communication skills (n = 12), whereas a few studies used simulation for assessing counseling and communication skills (n = 5). Studies focusing on the assessment of these skills varied in design, with three of them exploring the perceived improvement in skills before and after simulated learning experiences using SPs or computer-based simulators. The other two studies evaluated the counseling and communication skills of students using a specific scale or tool, while simultaneously assessing the feasibility of the tool.

A larger number of the articles focused on pediatric audiology (n = 8), including specific foci such as breaking bad news, parent counseling, newborn hearing screening, auditory brainstem response assessment, and visual reinforcement audiometry. Six studies focused on adult audiology, including topics such as basic audiometry, case history taking, noise-induced hearing loss, and specific pathologies (e.g., tinnitus, vertigo). Four studies focused on general audiology and did not specify a population or pathology.

Most articles involved a quantitative study design (n = 15), one of which was a randomized controlled trial design (Hughes et al., 2016b). Several studies included surveys to determine students' self-rated confidence levels (n = 5), perceptions (n = 4), experiences (n = 3), and satisfaction (n = 1) with simulation-based training for communication and counseling skills. Six studies involved evaluation of student skills during simulated learning experiences, typically via a rating scale or checklist. Nine studies involved postsimulation data collection, and six involved both pre- and postsimulation data collection. Two of the articles included qualitative studies with methods such as interviews, focus group discussions, and qualitative questionnaires to tap into student experiences (see Table 1).

Types of Simulation-Based Approaches Described in the Studies

Simulated learning experiences for training communication and counseling skills mostly involved SPs with role play (n = 14). Other simulation-based approaches included work with baby or child manikins (n = 5), virtual patients (n = 4), case-based scenarios (n = 4), computer-based simulation (n = 1), and peer role play (n = 1).

Application of Simulation-Based Approaches for Communication and Counseling Skills

For some of the studies, communication or counseling skills was the main outcome of the simulated activity (n = 7), whereas in other studies, these skills were part of the simulated learning experience that also focused on other clinical skills. Six studies focused on counseling after audiological screening or assessment, with one of these studies specifically exploring the appropriateness of information and ensuring patient understanding and the other study focusing on counseling via an interpreter. Five studies explored case history taking and feedback provision, which included interpersonal skills as well as verbal and nonverbal communication. Other studies (n = 3)

Table 1. Overview of how simulation is used to teach communication and counseling skills in the literature reviewed.

Authors	Country	Aim/focus of the study	Sample	Simulation type	Audio field (population/ condition)	Type of counseling/ communication skills addressed	Counseling/ communication: main focus of simulated learning experience or not
Alanazi & Nicholson (2017)	U.S.	Students' perceptions of simulated hearing screening and parent counseling scenarios	17 students	Role play with SPs Case scenarios Baby manikin	Pediatric (NHS)	Parent counseling post hearing screening	Part of the simulated learning experience
Alanazi & Nicholson (2019)	U.S.	Students' confidence level, knowledge, and skills after an interprofessional simulation activity	50 students (15 AUD, 35 SLP)	Role play with SPs Case scenarios	Pediatric (EHDI)	Communicating newborn hearing screening or diagnostic test results and counseling parents	Part of the simulated learning experience
Alanazi et al. (2016)	U.S.	Effect of combined use of trained SPs and a baby simulator on students' hearing screening and parental counseling knowledge and skills	14 students, 4 SPs	Role play with SPs Case scenarios Baby manikin	Pediatric (NHS)	Counseling parents on hearing screening results, working with an interpreter when counseling parents	Part of the simulated learning experience
Alanazi et al. (2017)	U.S.	Students' reflection during debriefing on hearing screening and simulated parental counseling scenarios	17 students	Role play with SPs Baby manikin	Pediatric (NHS)	Counseling parents post newborn hearing screening	Part of the simulated learning experience, but the study's main aim was to analyze debriefing sessions
Alanazi et al. (2022)	Saudi Arabia	Effect of simulation training versus video simulated case scenarios on students' confidence in knowledge and professional competencies	34 students (24 AUD, 10 SLP)	Role play with SPs Case scenarios Baby manikin	Pediatric (NHS)	Case history taking, communicating screening results, counseling parents	Part of the simulated learning experience
Andre et al. (2021)	U.S.	Experiences of clinical educators regarding simulation as a teaching technique and status of simulation for training students in the U.S.	3 SLP and AUD CEs; 48 AUD program directors	Not specified	General	Counseling skills	Not a measured aspect, but mentioned as one of the benefits of simulation

(*table continues*)

Table 1. *(Continued).*

Authors	Country	Aim/focus of the study	Sample	Simulation type	Audio field (population/ condition)	Type of counseling/ communication skills addressed	Counseling/ communication: main focus of simulated learning experience or not
Dzulkarnain et al. (2019)	Malaysia	Efficacy of SP training with feedback plus standard role play for case history taking compared to role play alone	26 students	SP training of audio students Role play with CEs	Adult (general hearing concerns, tinnitus, vertigo, facial numbness, noise exposure, head and neck injuries)	Case history taking	Main focus of the simulated learning experience
English et al. (2007)	U.S.	Development of an instrument to evaluate counseling skills	10 students 3 raters 1 SP	Role play with SPs	Pediatric (NHS)	Counseling skills (breaking bad news)	Main focus of the simulated learning experience
Fulton (2017)	U.S.	Student perceptions of a simulated learning experience	53 students	Virtual patients Virtual clinicians (avatars)	Adult	Counseling skills (professional provision of information at an appropriate level that ensures patient understanding)	Part of the simulated learning experience
Heitz et al. (2014)	New Zealand	Effects of a simulated learning experience on students' perceived level of learning, confidence, and ability to conduct pure tone audiometry and case history taking	12 students	Role play with SPs Virtual patients	Adult	Case history taking skills	Main focus of the simulated learning experience
Howland (2012)	New Zealand	Effect of training with virtual patient software on student case history taking skills	12 students	Virtual patients	Adult (case history taking, basic audiometry)	Case history taking skills	Main focus of the simulated learning experience
Hughes et al. (2016a)	Australia	Development of a tool for assessing students' case history taking and feedback giving skills	24 students 5 SPs 2 CEs 3 evaluators	SPs	Adult (noise-induced hearing loss)	Case history taking and feedback provision (nonverbal and verbal communication, interpersonal skills) skills, professional practice skills	Main focus of the simulated learning experience

(*table continues*)

Table 1. *(Continued).*

Authors	Country	Aim/focus of the study	Sample	Simulation type	Audio field (population/ condition)	Type of counseling/ communication skills addressed	Counseling/ communication: main focus of simulated learning experience or not
Hughes et al. (2016b)	Australia	Comparison of SPs versus seminars for training students to take a case history and give feedback	24 students 5 SPs 2 CEs 3 evaluators	SPs	Adult (noise-induced hearing loss, cholesteatoma, otitis media, otosclerosis, meningioma, acoustic neuroma)	Case history taking and feedback provision (nonverbal and verbal communication, interpersonal skills) skills, professional practice skills	Main focus of the simulated learning experience
Naeve-Velguth et al. (2013)	U.S.	Students' experiences of simulated patient counseling activities	30 students	SPs	Pediatric (NHS)	Breaking bad news to parents of an infant diagnosed with hearing loss	Main focus of the simulated learning experience
Picou & Tharpe (2015)	U.S.	AUD program directors' perspectives on SPs	8 AUD program directors 5 experienced clinicians	SPs	General	Interpersonal skills	Not a measured outcome
Wilson et al. (2010)	Australia	Student perceptions of interactions with SPs and computer-based simulations	25 students	SPs Computer-based simulation of audiological testing	Not specified	Case history taking and feedback within a diagnostic context (including verbal and nonverbal communication)	Part of the simulated learning experience
Wilson et al. (2020)	Australia	Student perceptions of simulated learning experiences	15 students	Role play/peer role play Baby manikin Child manikin/puppet	Pediatric (auditory brainstem response assessments of neonates, visually reinforced orientation audiometry assessments of young children)	Interpersonal skills, case history taking, feedback (including verbal and nonverbal communication)	Part of the simulated learning experience

Note. SP = standardized patient; NHS = newborn hearing screening; AUD = audiology; SLP = speech-language pathology; EHDI = early hearing detection and intervention; CE = clinical educator.

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only included case history taking skills, and two studies explored communication and counseling when having to convey bad news to parents about their child's hearing. One study only focused on students' interpersonal skills when interacting with an SP.

Evaluation of Communication/Counseling Skills Using Simulation-Based Approaches

Communication or counseling skills was one of the main outcomes of the simulated learning experience for nine of the studies. From these nine studies, these skills were evaluated using postsimulation surveys or questionnaires (n = 3), focusing on student perceptions and experiences of the simulated learning experience and whether they perceived simulation-based approaches to have increased their ability to interact with patients. Four studies made use of a rating scale, of which three specifically made use of the Audiology Simulated Patient Interview Rating Scale (Hughes et al., 2016a) and one made use of a scale that rated students on getting started, breaking news, assessing parents' understanding, eliciting concerns, giving a timeframe for action, and suggesting specific actions while awaiting follow-up. One study utilized quantitative questionnaires, transcripts of each case history, and participant notes to evaluate students on their verbal and written accuracy, experience, confidence, and efficiency scores during case history tasks. Similarly, another study evaluated students on their verbal accuracy, written accuracy, confidence, number of questions, and efficiency during case history taking.

For the remaining eight studies, communication and/or counseling skills formed part of the simulated learning experience but was not the primary focus or aim of the activity. Of these studies, five made use of questionnaires, either post or pre and post the simulated learning experience. These questionnaires focused more broadly on students' perceptions of their confidence, knowledge, skills, and satisfaction (n = 4), with one study having explored student perceptions in terms of realism, training, interaction with CEs, interaction with types of simulation, and level of anxiety. Evaluation was conducted with program directors, CEs, and/or experienced clinicians in two of the studies that utilized focus groups and a combination of questionnaires and interviews. One study made use of qualitative analysis of debriefing sessions through video playback of the simulated sessions. Two studies did not have a measured outcome.

Results for Specific Simulation-Based Approaches

In general, those studies that solicited student perceptions of simulation-based approaches reported positive learning experiences, more specifically with SPs and role play, manikins, and virtual interactive patient software. Simulation offers opportunities for students to practice both technical and professional skills, and students welcome such opportunities.

SPs and Role Play

Students reported engaging with SPs as part of a role play exercise as helpful learning opportunities that can assist them to practice communication skills (including challenging skills such as breaking bad news), review and reflect on their skills, and make mistakes in a psychologically safe environment. They perceived working with SPs as more realistic than engaging in peer role plays. Simulation with SPs was found to improve counseling and case history taking skills, professional competencies, and interpersonal skills and has potential to boost students' confidence when communicating with patients.

In terms of the use of this approach, the literature suggested that students should be provided with additional practice opportunities for complex cases. Lengthy, extended role play sessions are not necessary, and role play prompts should be brief. Students do need reflection time after engaging in role play sessions. Recorded sessions with SPs can also be beneficial for student learning.

Some challenges were noted in the use of SPs for communication and counseling skills training. One study noted that training with SPs provided no benefit over training via seminars on how to provide case history and feedback to patients. Although working with SPs might boost students' confidence, certain aspects of communication and counseling skills (e.g., establishing rapport and inviting questions and concerns) may not necessarily show an improvement in confidence after a simulated learning experience with an SP.

On a more pragmatic note, SPs require training that necessitates an investment of time and access to resources to set up this type of simulated activity. Students require preparation to interact with SPs, together with careful and thorough debrief and reflection opportunities after the simulated activity. Two studies mentioned that trained or hired SPs should be used to facilitate fair evaluation and standardization of simulation scenarios, rather than CEs taking on the role of an SP.

Peer Role Play

Peer role play was not well described in the literature. One study that did report on this method indicated that students perceived it as realistic, although learning outcomes may be limited, and it does not always allow for relevant and realistic evaluation. Research advocated for giving students the opportunity to play both the

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patient and the audiologist. Students found that controlling a manikin and playing the role of a parent were challenging. Importantly, students in this study reported that they would welcome more opportunities to practice integrating technical and professional skills in a consultation.

Manikins

Students perceived the use of manikins as realistic. Clinical training using this approach has the potential to improve confidence and professional competencies, provided debrief sessions are in place. Students indicated they would welcome more exposure to practicing professional and technical skills during simulated learning experiences with manikins, although in complex simulations involving manikins and role play, they reportedly struggled to juggle both the communicative and technical elements simultaneously.

Case Scenarios

Only two studies reported on the use of case scenarios for teaching communication and counseling skills. Students perceived this type of simulation-based approach as realistic, especially when coupled with debriefing. Video-simulated case scenarios may stimulate student learning and improve confidence and professional competencies.

Virtual Interactive Patient Software

Software can improve students' case history taking skills and has potential as an adjunct learning opportunity alongside other training approaches, given that students can access a wide range of pathologies for practicing their skills. Studies reported positive results in students' perceived case history taking skills when trained via this simulation-based approach, although there is no evidence that it improves skills per se or that it improves students' confidence in communicating with patients. The available literature suggests that virtual patient software is not sufficient to replace real clinical encounters and it may be restrictive in its opportunities for engagement unless programmed from simple to complex scenarios.

Discussion

In general, the use of simulation-based approaches can provide a positive learning experience as well as important opportunities for practice for students acquiring communication and/or counseling skills. Students welcomed such opportunities. Although not specific to communication and/or counseling skills, Dzulkarnain et al. (2015) noted that simulation-based approaches are effective for basic clinical audiology training. Similarly, findings from the systematic review by Alanazi and Nicholson (2023) highlighted simulation-based approaches as an effective learning tool for clinical skills development, with a generally positive learning experience noted by students.

There are several simulation-based approaches that have been used to teach communication and/or counseling skills, particularly in pediatric audiology. Of these approaches, we noted that SPs were used most frequently, which is not surprising given that training communication and counseling skills requires interaction. SPs and role play, case scenarios, and manikins were perceived by students as being realistic, although the latter may be more beneficial for practicing technical skills. Peer role play was not well described in the included studies, and although virtual interactive patient software showed an improvement in case history taking skills, there was little benefit regarding communicating with patients. This lack of benefit or reduced efficiency in enhancing communication skills may be attributed to the limited authenticity of simulation-based approaches proposed in some medical education literature (Elhilu et al., 2023; Gelis et al., 2020; Lane & Rollnick, 2007). Simulation-based activities seldom focused on communication skills only and were typically embedded into broader simulated learning experiences that included clinical or technical skills. In some of the studies, there was a specific focus on the case history taking and/or feedback provision aspects of communication.

A distinct benefit of simulation-based approaches over other traditional approaches in terms of students' acquisition of communication and/or counseling skills is not clear across the studies reviewed, however, nor do they seem sufficient in themselves to ensure a transition from working in a simulated learning environment to working with real patients. Engaging with SPs can provide good practice opportunities, and this approach has several potential benefits, but it does not ensure acquisition of these skills and/or a boost in confidence in implementing these skills practically. Similarly, peer role play may be beneficial, but it is not enough on its own to facilitate acquisition of communication and/or counseling skills. Students may struggle to integrate technical skills and communication with patients in the same simulated learning experience, especially when multiple simulation-based approaches are used. Virtual patient software may offer opportunities for practicing skills, but it is perhaps better placed for training procedural rather than communicative skills.

Implications for Practice: Some Caveats to Consider When Implementing Simulation-Based Approaches to Training

We noted several caveats while reviewing the selected studies, which we will now discuss. These caveats arguably have relevance for all kinds of clinical education scenarios in audiology in which simulation-based approaches are employed, not just for training of communication and counseling skills.

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Communication skills are inherently challenging to teach and to learn because these skills are dynamic, cannot necessarily be quantified into predefined skills, and are directed by scenarios and their related complexities (Salmon & Young, 2011). Whereas some simulation-based approaches to training communication and counseling skills may provide preliminary opportunities for practice, others are not necessarily fit for purpose for all skill sets and levels of complexity of skills that students need to obtain. This point links to the notions of fidelity and realism, where some simulation-based approaches may be more realistic than others (Alinier & Oriot, 2022). For example, approaches such as peer role play and virtual reality may not be sufficiently realistic enough to train communication and counseling skills. In addition, van Weel-Baumgarten et al. (2013) found that students value practice opportunities with SPs who represent the population that they will engage with in their upcoming clinical placements. In the case of virtual reality and even manikin use (specifically those manikins that can be programmed to respond verbally to students), the hype around technology use in the simulation field may detract from the core objectives and outcomes of the skills that CEs want students to learn and master.

The implementation of simulation-based approaches for clinical training must be undergirded by thorough planning and engagement with pedagogical models for using these types of approaches. Le (2023) suggests that in order to complement rather than replace other learning opportunities, the scenario, assessment, and learning outcomes created as part of a simulation-based training program must be taken into account within the context of all other learning opportunities. Even peer role play, which is typically considered a low-fidelity exercise, requires planning and rigor in its implementation, and students need to be trained and debriefed in using this approach (Kanji et al., 2024; Nestel & Tierney, 2007). CEs also need to be clear about the purpose of the simulated learning experience and its proposed outcomes.

Half of the studies included in this review did not mention or discuss the debrief or feedback process with students after the simulated learning experience. Such experiences should include an opportunity for debrief, reflection, and/or feedback, in line with the literature (Fanning & Gaba, 2007; Mullan et al., 2014; Rudolph et al., 2007). Cheng and colleagues emphasize that debriefing, if effective, can facilitate student understanding through reflection and the transfer of learning from simulated to real-life contexts (Cheng et al., 2014, 2015). Reflective questions should be carefully considered, especially for scenarios where audiology students are juggling several complex skills simultaneously. This process does not necessarily need to be a formalized one because some simulated learning experiences might be structured in a more exploratory way to allow students the opportunity for a "first go" at trying out specific skills. It may also be useful to consider who is providing feedback to the students—in the case of simulated learning experiences involving SPs, it might be helpful for students to get some feedback from the SP.

Ultimately, any use of simulation-based approaches, particularly for training communication and counseling skills, must be embedded within a broader program of teaching, creating a structured teaching and learning framework (Labuschagne et al., 2023). Many of the studies reviewed did not give much (if any) information on how the simulated learning experience described fitted into a broader program of training of communication and counseling skills. A training program needs to consider developmental hierarchies and should be structured, scaffolded, and graded to enable students to make the transition from theory to practice. In particular, CEs need to consider the multilayered complexity of skill demands in particular simulated learning experiences, especially when technical skills are combined with professional and/or communicative skills in the same experience, or similarly when multiple simulation-based approaches are combined in one experience (e.g., manikins plus SPs). CEs also need to be careful not to overload students by expecting practice (and/or mastery) of too many skills simultaneously.

Although several of the studies assessed students' levels of confidence when engaging in simulated learning experiences, sometimes comparing pre–post simulation confidence levels, it must be borne in mind that there is a difference between self-perceived confidence and actual competence to perform that skill. There is a danger in assuming that these two concepts—confidence and competence—are the same or that they are mutually influential. This has been highlighted in medical education where after completing specified tasks, student confidence did not align with competence (O'Donoghue et al., 2018). CEs therefore need to be careful to construct clear outcomes when implementing simulation-based approaches to teaching and assessment and equally to communicate these outcomes clearly to students. O'Donoghue et al. (2018) also emphasize the importance of feedback, highlighting that practice without appropriate feedback could result in high levels of confidence but not competence.

Simulation-based approaches cannot replace real patient interactions, especially when the focus is on communication and counseling skills, but they can provide a stepwise approach to move students across a continuum of complexity and realism. A multimethod approach could be useful, for example, starting off with some low-fidelity simulated learning experiences to introduce specific communicative or counseling skills, moving toward incorporating higher fidelity simulation-based approaches and multiple skills simultaneously, and finally transitioning to

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encounters with real patients, incorporating opportunities for reflection. Such a continuum of learning and practice opportunities might look something like the following: Start with peer role play and move to working with an SP, then an SP and a manikin, and, finally, a real patient.

Implications for Future Research: Some Comments on the Nature of the Studies Included

Very little qualitative work was noted among the studies included in this review article. It has been suggested that students' verbal communication skills competence is best evaluated during observations of simulated consultations with SPs followed by constructive feedback (MacDonald-Wicks & Levett-Jones, 2012). Where students' communication and counseling skills were directly evaluated or observed during simulation studies, this tended to be done via rating scales and/or Likert scales. These findings are consistent with results from a systematic review of literature in medical education (Blackmore et al., 2018). Based on our experience of having conducted interactional research in this area, communication and counseling skills are complex and nuanced for students to learn and master and for researchers and CEs to analyze and evaluate. Analysis of communication does not lend itself to checklists and ratings, given its complexity. For example, Tai et al. (2019, p. 104) remind us that "... coding a communicative task as 'partially performed' does not indicate the quality of how the student enacted the task." We believe there is a danger in these types of research designs of oversimplifying communicative processes and obtaining only a thin understanding of how students acquire these skills. Similarly, too much focus on how the simulated learning experience was received by students runs the risk of neglecting to explore how and whether skills were acquired via simulation-based approaches. Thus, future research on this topic needs to delve deeper into the processes of skills acquisition and student learning as well as evaluations and qualitative feedback from CEs who are key to the training and learning process.

As mentioned already, it would be useful for future studies on this topic to focus on providing a more thorough description of aspects such as the debrief process and how the simulated learning experience fits into a broader program of training for communication and counseling skills. Lastly, we note the limited number of studies from the Global South, which represents a gap needing to be filled.

Limitations

We limited our searches to include English-language papers, which may have excluded some relevant studies. Our search string was comprehensive in its inclusion of different types of simulated activities, but there is a chance that due to differences in nomenclature in the field of simulation in clinical education, we may have missed some studies.

Scoping reviews are, by nature, limited because they focus on breadth rather than depth and offer an overview of research on a specific topic. That said, we believe this review article offers some important insights for CEs involved in using simulation-based approaches with audiology students, as well as some necessary improvements for future research on the topic.

Data Availability Statement

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

Acknowledgments

This work is based on research supported wholly or in part by the National Research Foundation of South Africa (Grant 141995 awarded to Jennifer Watermeyer).

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