

Original Article

Students' perception of high-fidelity clinical simulation in preparation for healthcare practice. A cross-sectional study in occupational therapy

Percepción de estudiantes sobre la simulación clínica de alta fidelidad en la preparación de práctica sanitaria. Un estudio transversal en terapia ocupacional

Percepção de estudantes sobre a simulação clínica de alta fidelidade na preparação para a prática de saúde. Um estudo transversal em terapia ocupacional

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Abstract

Introduction: High-fidelity clinical simulation constitutes a fundamental tool in Occupational Therapy education. However, evidence regarding Occupational Therapy students' perceptions of the use of clinical simulation in their preparation for professional practice remains limited. **Objective:** To describe the perception of fourth-year Occupational Therapy students at the University of Chile regarding the implementation of high-fidelity clinical simulation in the preparation for healthcare practice in 2024. **Methodology:** Quantitative, cross-sectional, and descriptive study. Sixteen undergraduate students enrolled in the course "Integrated Practice IV in Health" in Occupational Therapy participated, selected through convenience sampling. The participants signed an informed consent form and completed an anonymous questionnaire. A univariate descriptive analysis was performed for quantitative data, and content analysis was applied to open-ended responses using IBM SPSS Statistics v.25. **Results:** Students expressed high satisfaction with the information received (81.3%), the advance planning of the scenario (87.5%), and the initial meeting with the professor (81.3%). Most students felt they were able to apply the therapeutic skills they had learned (87.5%) and found the scenario appropriately challenging (68.8%). Additionally, 75% stated that the debriefing strengthened their learning, highlighting a respectful and collaborative environment

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with the evaluation committee (100%). **Conclusions:** Student perceptions of high-fidelity clinical simulation are favorable, as they believe it improved their preparation for healthcare practice, promoting the understanding and application of therapeutic skills.

Keywords: Occupational Therapy, Simulation Exercise, Professional Training, Professional Competence.

Resumen

Introducción: La simulación clínica de alta fidelidad constituye una herramienta fundamental en la formación en terapia ocupacional. Sin embargo, la evidencia sobre la percepción de los estudiantes de terapia ocupacional respecto al uso de la simulación clínica en su preparación para la práctica profesional es aún limitada.

Objetivo: Describir la percepción de los estudiantes de cuarto año de Terapia Ocupacional de la Universidad de Chile sobre la implementación de simulación clínica de alta fidelidad en la preparación para la práctica en atención de salud en 2024. **Metodología:** Estudio cuantitativo, transversal y descriptivo. Participaron 16 estudiantes de la asignatura Práctica Integrada IV en Salud del pregrado en terapia ocupacional, seleccionados por muestreo por conveniencia. Los participantes firmaron consentimiento informado y respondieron un cuestionario anónimo. Se realizó análisis descriptivo univariado para datos cuantitativos y análisis de contenido para respuestas abiertas usando IBM SPSS Statistics v.25.

Resultados: Los estudiantes mostraron alta satisfacción con la información recibida (81,3%), la planificación anticipada del escenario (87,5%) y la reunión inicial con el profesor (81,3%). La mayoría opinó que pudieron aplicar las habilidades terapéuticas aprendidas (87,5%) y que el escenario fue desafiante (68,8%). El 75% consideró que el debriefing fortaleció su aprendizaje, destacando el ambiente respetuoso y colaborativo con la comisión evaluadora (100%). **Conclusiones:** La percepción estudiantil sobre la simulación clínica de alta fidelidad es favorable, ya que consideran que mejoró su preparación para la práctica en atención de salud, favoreciendo la comprensión y aplicación de habilidades terapéuticas.

Palabras clave: Terapia Ocupacional, Ejercicio de Simulación, Capacitación Profesional, Competencia Profesional.

Resumo

Introdução: A simulação clínica de alta fidelidade constitui uma ferramenta fundamental na formação em terapia ocupacional, entretanto, a evidência sobre a percepção dos estudantes de terapia ocupacional quanto ao uso da simulação clínica na sua preparação para a prática profissional ainda é limitada. **Objetivo:** Descrever a percepção dos estudantes do quarto ano de Terapia Ocupacional da Universidade do Chile sobre a implementação de simulação clínica de alta fidelidade na preparação para a prática em atenção à saúde em 2024. **Metodologia:** Estudo quantitativo, transversal e descritivo. Participaram 16 estudantes de graduação da disciplina “Prática Integrada IV em Saúde” de Terapia Ocupacional, selecionados por amostragem por conveniência. Os participantes assinaram um termo de consentimento informado e responderam a um questionário anônimo. Foi realizada uma análise descritiva univariada dos dados quantitativos e uma análise de conteúdo das respostas abertas, utilizando o IBM SPSS Statistics v.25.

Resultados: Os estudantes demonstraram alta satisfação com as informações recebidas (81,3%), o planejamento antecipado do cenário (87,5%) e a reunião inicial com o professor (81,3%). A maioria considerou que foi capaz de aplicar as habilidades terapêuticas aprendidas (87,5%) e que o cenário foi desafiador (68,8%). Além disso, 75% consideraram que o debriefing fortaleceu seu aprendizado, destacando o ambiente respeitoso e colaborativo com a comissão avaliadora (100%). **Conclusões:** As percepções dos alunos sobre a simulação clínica de alta fidelidade são favoráveis, pois eles acreditam que ela melhorou sua preparação para a prática da saúde, promovendo a compreensão e a aplicação de habilidades terapêuticas.

Palavras-chave: Terapia Ocupacional, Simulação, Formação Profissional, Competência Profissional.

Introduction

In the contemporary context of health sciences education, the training of competent professionals requires the incorporation of innovative pedagogical strategies capable of responding to the complexity of clinical scenarios and the changing dynamics of healthcare systems (Frenk et al., 2022). In this context, clinical simulation has gained increasing relevance as a training tool, by providing controlled and safe environments that foster the development of both technical and transversal competencies, through the integration of theoretical knowledge with clinical practice and decision-making in complex scenarios (Elendu et al., 2024). Occupational therapy, as a health discipline, has not been exempt from this trend, gradually incorporating simulation into its training processes (Grant et al., 2021).

From this perspective, it is relevant to consider the guidelines proposed in the Global Consensus Statement on Simulation-Based Practice in Healthcare (Díaz Navarro et al., 2024), which highlight the need to integrate simulation as a structural component in health education programs. This aims to strengthen the quality of teaching and, consequently, improve the care provided to individuals. The statement promotes clinical simulation as a key pedagogical tool to foster meaningful learning and the development of clinical and professional competencies, emphasizing the importance of ensuring equitable, sustainable, and contextually relevant access to these training experiences. All of this is framed within the principles of equity, diversity, and inclusion, essential foundations in the design and implementation of educational proposals in occupational therapy.

In parallel, the shift from traditional models to student-centered approaches has driven the adoption of active and participatory methodologies, aimed at promoting the mobilization of knowledge, skills, and attitudes in response to the challenges of personal, social, and professional life (Jerez, 2015). This approach is consistent with the Educational Model of the University of Chile, which proposes a competency-based curriculum designed to respond both to social transformations and to the advances of the disciplines and their training frameworks (Universidad de Chile, 2021).

Regarding the above, it is relevant to highlight that the concept of competence has been approached from different perspectives, typically converging in its understanding as a comprehensive construct that encompasses both knowledge as well as the development of values, and the ability to solve problems in different settings (Albanese et al., 2008; Hawes et al., 2017). Taking this into account, the definition of competence proposed in the Tuning Europe Project is adopted (González & Wagenaar, 2003), which understands competences and skills as the process of acquiring and understanding theoretical knowledge specific to an academic field, developing the ability to apply such knowledge practically in specific contexts, and shaping a way of being that integrates values, influencing how other people are perceived and how interactions occur in society.

Professional competence training in occupational therapy requires the integration of theory and practice in real contexts. According to the accreditation requirements of the World Federation of Occupational Therapists, students must complete at least 1,000 hours of clinical practice, which must include the implementation of intervention processes with individuals, groups, or communities (World Federation of Occupational Therapists, 2016).

In this context, clinical simulation emerges as a student-centered methodological strategy, supported by collaborative and constructivist learning theories. Several studies have recognized its usefulness in the acquisition and maintenance of clinical skills (McGaghie et al., 2016; Merchán-Baeza et al., 2021; Castillo et al., 2024), as well as in the development of transversal competencies such as effective communication, teamwork, confidence, autonomy, self-efficacy, reflection, and the ability to make critical judgments (Valencia Castro et al., 2019; Grant et al., 2021), through the interaction with simulated patients in structured clinical settings.

Simulation constitutes a learning method that recreates representative environments of essential aspects of the real context, with the purpose of training students through guided and interactive practice with expert professionals. In this way, it is established as a fundamental educational tool in teaching and learning processes (Gaba, 2004; Amaya, 2008; Valencia Castro et al., 2019). This method allows for the creation of safe and controlled learning environments, promoting flexible training adapted to educational goals. Clinical simulation diminishes risks for both students and real patients, enabling the progressive adjustment of difficulty levels according to the competencies achieved, and offering opportunities for repetition that facilitate skill development (Díaz Navarro et al., 2024; Valencia Castro et al., 2019).

Given its high potential, various health professions have integrated simulation as a fundamental part of their clinical training (Shoemaker et al., 2011; Treadwell & Havenga, 2013). These learning experiences encourage students to face challenges suited to their skills, supporting the development of specific competencies according to their level of training.

In the field of professional training in occupational therapy, a significant increase in the implementation of simulated learning activities has been recorded in recent years (Grant et al., 2021). This methodology has been used mainly for the development of professional and communication skills, as well as for the promotion of critical thinking (Valencia Castro et al., 2019). Additionally, simulation facilitates the development of key competencies such as professional reasoning, problem-solving, decision-making

(Bethea et al., 2014), goal setting, information gathering, communication, professional behavior, and intervention (Bennett et al., 2017). Students recognize and positively value clinical simulation as an effective teaching tool that facilitates the acquisition of essential competencies for their future professional practice (Vásquez & Hernández, 2021; Haracz et al., 2015; Merchán-Baeza et al., 2021; Castillo et al., 2024).

One of the most relevant methods in occupational therapy training is the use of standardized or simulated patients, a high-fidelity strategy notable for its authenticity, which is recognized as a key element for the success of simulation experiences (Giles et al., 2014; Haracz et al., 2015; Cahill, 2015; Gibbs et al., 2017). This methodology involves the participation of a person (either an actor or a real patient) properly trained to follow a standardized script, in order to realistically portray a patient or client (Grant et al., 2021; Yeung et al., 2013).

It is important to mention that simulation fidelity refers to the degree to which the simulation replicates reality, both in terms of the equipment used, the environment, and the emotional and psychological responses involved (Shea, 2015). Fidelity can be increased through careful planning of the environment and the specific characterization of each simulated patient, using techniques such as *moulage* (simulation of illness or injury) and appropriate attire (Treadwell & Havenga, 2013). Simulation, based on a low-tech, high-fidelity approach (Shoemaker et al., 2011), has proven effective without incurring high equipment costs, with an emphasis on the educational experience.

Preparation to carry out a simulation requires creating a stimulating work environment that fosters the participation and performance of each student. This preparatory process includes activities such as briefings and providing instructions to both simulated patients and students and team members, all with the goal of ensuring a high-quality, safe, and effective simulated scenario. Lioce et al. (2015) and Serrat Antolí & Camps (2023) point out that simulation is divided into three key moments:

1. **Briefing:** The initial phase characterized by introducing students to the simulation objectives. Background information on the simulated scenario is provided, emphasizing that it is a space in which errors are learning opportunities.
2. **Simulation:** This is when the simulated scenario is carried out, in which students interact in situations that replicate aspects of real-life clinical practice.
3. **Debriefing:** This stage involves a process of deliberate and conscious reflection, aimed at building deep and meaningful learning.

The *debriefing* phase is fundamental, as various studies show that it incorporates feedback elements that make it an effective pedagogical strategy for educational assessment during the learning process, in contrast to summative assessments. This methodology contributes significantly to the professional development of students (Maestre & Rudolph, 2015). It is important to note that *debriefing* should be facilitated by a properly trained professional, who must have the necessary competencies to guide a structured and critical reflection. This facilitator is responsible for making explicit the reasoning processes underlying the decisions made, with the aim of sustaining or improving future clinical performance (Maestre & Rudolph, 2015).

Perlmutter & Cleghorn (2024) identify key elements for the effective implementation of simulation in occupational therapy training. One of the main aspects is the need to establish learning objectives appropriate to the students' level of knowledge and skills, which allows the experience to be guided toward meaningful outcomes. Besides, scenario planning should integrate not only the medical and mental health conditions of the simulated patient but also contextual factors such as the family, social, work, and clinical environment, incorporating social determinants of health as essential components for a comprehensive approach.

In addition, the pedagogical value of starting the simulation with limited case information is highlighted, as this promotes critical reflection and the activation of prior knowledge. To guarantee consistency and realism throughout the process, it is key to have detailed scripts guiding the performance of standardized patients, instructors, and other participants, which contributes to creating an immersive, structured, and meaningful learning experience.

Feedback is an essential component of clinical simulation, as it contributes to the development of professional competencies. Several authors highlight its value when delivered by both faculty and standardized patients (Issenberg et al., 2005; Zigmont et al., 2011). In particular, Shea (2015) emphasizes the effectiveness of real-time and post-feedback in facilitating students' critical reflection on their communication, behaviors, and clinical skills, thus promoting meaningful and contextualized learning.

Zigmont et al. (2011) argue that post-simulation analysis is the most critical component of the process. To this end, they propose a model composed of three phases: deactivation, discovery, and in-depth. In the first, students' immediate emotional reactions are addressed in a safe and supportive environment. The second phase promotes self-reflection and the identification of strengths and areas for improvement, facilitating the construction of new learning. Finally, the in-depth phase seeks to link what is learned in the simulation with actual clinical practice, ideally through subsequent experiences with real or standardized patients.

Despite advances in the development and implementation of clinical simulation as an educational strategy, significant challenges remain related to its integration into curricula, the training of teacher facilitators, and the validation of its educational impact on occupational therapy students. In the national context, evidence regarding students' perceptions of this methodology is still limited, particularly in settings preparing for professional practice. Understanding these perceptions is essential to guide the design of relevant, sustainable, and contextualized pedagogical strategies that promote quality professional training aiming at active and meaningful learning.

In relation to the above, the objective of this study is to characterize the perceptions of fourth-year occupational therapy students at the University of Chile regarding the implementation of high-fidelity clinical simulation scenarios in the context of healthcare practice preparation during the year 2024.

Materials and Methods

Study design

A quantitative study was carried out using a non-experimental, cross-sectional design with a descriptive scope (Hernández-Sampieri & Mendoza-Torres, 2023). This type of design was chosen to access participants' perceptions regarding their experience and satisfaction with the clinical simulation activity. The data collection and measurement process was conducted in a single time period. In addition, the descriptive scope is oriented toward examining certain characteristics of a specific phenomenon, in this case, clinical simulation, in a specific context. Through descriptive analysis, we sought to characterize the study variables and highlight the different dimensions of the phenomenon in question (Hernández-Sampieri & Mendoza-Torres, 2023).

Participants

Participants were selected using a non-probability convenience sampling strategy (Otzen & Manterola, 2017). This method was chosen because it allows for the selection of accessible cases that express interest in participating, based on accessibility and proximity. Participants were selected based on their close relationship with the professor in charge of the activity within the context of the course.

During 2024, all fourth-year students participating in the first semester of Integrated Practice IV in Health ($n = 18$) were contacted via email. Sixteen students (88.9%) answered the questionnaire anonymously approximately two weeks after completing the clinical simulation. The students who answered the questionnaire had previously experienced simulation scenarios in other courses.

The inclusion criteria were established as follows: (1) participation in the Integrated Practice IV in Health course taught in 2024; (2) completion of the clinical simulation activity; and (3) voluntary participation in the study and informed consent. The professor in charge of the course was responsible for the development and implementation of the simulation activity.

Data collection

To collect data, the survey method was used, which is based on asking a group of people questions about different events that may be current, past, or future (Ruiz-Bueno, 2009). This type of technique allows for obtaining information based on the use of language to access past or current experiences, allowing for the recognition of participants' thoughts, feelings, and actions (Ruiz-Bueno, 2009). The data collection instrument was a structured standardized questionnaire (Meneses, 2016), with 11 categorized questions and 2 open-ended questions, organized into two dimensions. These are: (a) Brief and (b) Simulation and debriefing. The questionnaire was validated by the research team.

Data analysis

Data analysis was performed using IBM SPSS Statistics v. 25 software. Univariate descriptive statistical analysis was applied for each of the study variables, which were expressed through frequency tables. Content analysis was used for open-ended questions (Lindgren et al., 2020).

Ethical considerations

This study was conducted in accordance with the fundamental ethical principles for research involving human subjects, in accordance with the Declaration of Helsinki (Asociación Médica Mundial, 2024) and the bioethical criteria proposed by Emanuel (2003).

Institutional authorization was obtained from the School of occupational therapy at the University of Chile to carry out the study, including the implementation of clinical simulation scenarios in the training context. The participating students signed an informed consent form, which specified the objectives, procedures, benefits, and potential associated risks, thus ensuring voluntary participation and respect for autonomy.

Since clinical simulation can elicit emotional responses, the implementation of preparation and coping strategies to prevent potential risks associated with participation was considered during the *briefing* and *debriefing* stages before and after each simulation. In this way, the simulation stages were planned to prevent risks or manage unwanted responses associated with the training experience itself. The briefing facilitated participants' preparation, the debriefing promoted critical reflection, and both stages helped mitigate potential adverse psychological effects.

The confidentiality, anonymity, and privacy of the participants were protected. The information was anonymized and stored in a digital system with restricted access to the research team, preventing the data collected from being linked to specific individuals. Individual privacy was safeguarded through procedures that prevented the disclosure or misuse of personal information.

Study context

The teaching experience was conducted for the course Integrated Practice IV in Health, corresponding to an eighth-semester (fourth-year) subject of the Occupational Therapy professional program at the University of Chile, which has a duration of five years. The activity took place in April 2024 at the University's Clinical Skills Center.

Clinical simulation was introduced into the course in 2023. The learning objective of the activity was to apply assessment strategies and techniques for the occupational diagnosis of adults and older adults within the field of occupational therapy health interventions.

Description of the evaluation

Four high-fidelity clinical simulation scenarios were designed, which were conducted consecutively in a single session under the coordination of the course instructor and with the participation of four actors who portrayed standardized simulated patients.

During the activity, students were organized into rotating stations, playing different roles specifically created for this training experience. These roles included: lead interviewer, supporting interviewer, lead feedback provider, and supporting feedback provider (see Table 1). In each scenario, one student played the role of lead interviewer and another as support, while two students observed the performance to later act as feedback providers.

All students rotated through the different roles across the four scenarios, allowing for a comprehensive training experience. Performance evaluation was conducted through a peer-assessment methodology, in which students provided feedback to their classmates based on pre-established criteria. This pedagogical strategy enabled active participation in all stages of the clinical simulation, including *briefing*, scenario execution, and *debriefing*, fostering critical reflection and collaborative learning. The simulation was planned as an intermediate course activity, prior to students undertaking an eight-week clinical practice period in healthcare settings.

Table 1. Roles of Participants in the Activity.

Role	Responsibilities
Main interviewer	Leads the evaluation or interview, guides the process, and makes the main decisions during the interaction with the simulated patient. Responsible for leading the conversation, asking relevant questions, and obtaining meaningful information.
Supporting interviewer	Supports the lead evaluator during the assessment. May take notes, observe specific aspects, or provide additional information if necessary.
Lead Feedback Provider	Provides constructive feedback to the interviewer. Identifies strengths, areas for improvement, and offers specific suggestions for development.
Supporting Feedback Provider	Supports the lead feedback provider by offering additional perspectives or alternative approaches on the interviewer's performance.

Note. Own elaboration.

Scenarios were developed with comparable levels of complexity, including topics related to occupational therapy in Health, divided into physical health (older adult with a stroke and middle-aged adult with acquired weakness in the intensive care unit due to COVID-19) and mental health (older adult with Alzheimer's disease and young adult with autism spectrum disorder) (Table 2). The teaching staff compared the scenarios to ensure that the performance requirements were equivalent and appropriate for fourth-year occupational therapy students.

Table 2. Description of the Scenarios Used in the Clinical Simulation Activity.

Scenario	Description	Intervention context	Session objective	Planned Interventions
Older Adult, Alzheimer's Disease (Early Stage).	Carmen, an 85-year-old widow, has had a life rich in experiences and responsibilities. Overcoming adversities, she raised her three children after the loss of her husband (who passed away when she was 40), keeping a positive attitude and bravely facing life's challenges. She enjoyed activities such as sewing, gardening, and celebrating special moments with her family. In recent months, she has experienced significant cognitive decline, which has impaired her memory and ability to carry out daily tasks. Carmen now faces recurrent forgetfulness in her routine, repeating previously asked questions and misplacing objects in her environment, while remaining aware of these cognitive lapses. The geriatrician at CESFAM diagnosed her with early-stage Alzheimer's disease and referred her to Hospital San José. Carmen lives with her youngest daughter at home. Her daughter is her primary caregiver, as she works remotely for the public prosecutor's office.	You are the occupational therapist at the Memory Unit of this hospital, a place where support is provided to people with dementia and their families, and you will be in charge of Carmen's case.		
		First session with the patient.	You should gather more background information about the patient and foster adherence to a multi-component intervention plan.	Occupational interview

Table 2. Continued...

Scenario	Description	Intervention context	Session objective	Planned Interventions
Young Adult, Autism Spectrum Disorder	Joaquín is a 20-year-old young adult facing the transition to university life with Autism Spectrum Disorder (ASD). This diagnosis was made later in life, during his first degree in Commercial Engineering, which helped explain why it did not meet his expectations, leading him to switch to a degree in Digital Design and Animation.	You are the occupational therapist in a mental health program at a COSAM, responsible for Joaquín's intervention.		
	Joaquín has experienced a lifelong sense of difference. From an early age, he has faced difficulties in social interaction and feels uncomfortable in social situations he must attend. In addition, he finds it challenging to plan and anticipate events, as well as to recognize his own abilities. Maintaining eye contact, interpreting social cues, and engaging in conversations present formidable obstacles for him. These challenges may limit his ability to establish authentic connections with peers and professors, thereby restricting his full participation in the university environment. He was referred by the University Support System to occupational therapy.	First session with the patient.	You should gather more background information about the patient and promote adherence to a mental health support program, aimed at managing anxiety and fostering the social and planning skills necessary for successful functioning at university.	Occupational interview

Table 2. Continued...

Scenario	Description	Intervention context	Session objective	Planned Interventions
Middle-Aged Adult, Acquired Weakness in ICU due to COVID-19	Rodolfo, a 53-year-old lawyer with a successful professional history and a stable economic situation, was affected by COVID-19. Before contracting the virus, Rodolfo led an active and highly productive lifestyle, despite dealing with moderate obesity. However, his situation took an unexpected turn when he contracted COVID-19, resulting in a two-month hospitalization in the Intensive Care Unit (ICU). During this period, he required invasive mechanical ventilation, was placed in an induced coma for one month, and experienced aphonia following orotracheal intubation, which was later converted to a tracheostomy. During his ICU stay, he received care from physiotherapy, occupational therapy, and speech-language pathology. He is currently receiving outpatient care at the Clinical Hospital of the Pontifical Catholic University (Apoquindo). He was referred by the physiatrist due to generalized muscle weakness, constant fatigue, and paresthesia in both hands.	You are the occupational therapist in the hospital's rehabilitation unit, responsible for Rodolfo's rehabilitation process.	You should gather more background information about the patient and promote adherence to the rehabilitation program.	Occupational interview

Table 2. Continued...

Scenario	Description	Intervention context	Session objective	Planned Interventions
	The reason for consultation includes decreased dexterity in performing activities of daily living and tasks at work. Rodolfo is very concerned about the constant fatigue he experiences, which leaves him exhausted even after performing the simplest tasks.			
Older Adult, Ischemic Stroke in the Right Middle Cerebral Artery	Juan, a 65-year-old taxi driver, suffered an ischemic stroke in the right middle cerebral artery (3 weeks since onset). As sequelae, he presents left-sided hemiparesis, being able to move his upper limb with difficulty and clumsiness, along with a limping gait. Furthermore, he experiences cognitive difficulties that impact his daily functioning, affecting the familiarity with which he used to approach his responsibilities (deficits in sustained attention). He presents with low mood. He continues his rehabilitation process in the Physical Medicine and Rehabilitation Unit on an outpatient basis at Hospital San José, the same hospital where he received 14 days of inpatient care.	You are the occupational therapist in charge of Juan's neurorehabilitation program.	You should gather more background information about the patient and promote adherence to the neurorehabilitation program, taking into account his current difficulties and their impact on his role as a worker.	Occupational Interview

Table 2. Continued...

Scenario	Description	Intervention context	Session objective	Planned Interventions
	His wife becomes impatient with this process, does not fully understand the severity of the situation, and assists him as much as possible to help him perform activities of daily living with support.			

Note. Own elaboration.

The evaluation criteria for the occupational interview included the ability to:

1. Choose relevant and appropriate questions.
2. Conduct the interview in a structured manner.
3. Adapt the pace, performance, and language appropriate to the patient.
4. Reflect on their performance and the interview.

The simulation activity was planned considering various elements, which are discussed in more detail below, and besides, it was organized into three stages: *Briefing*, *Simulation*, and *Debriefing*, which are explained further below.

Simulation planning

For the briefing stage, a learning guide was developed, and seven lectures were delivered on the following topics: professional reasoning in health contexts, the occupational therapy evaluation process, anamnesis and interview processes, ethical and legal aspects of the patient-professional relationship, documentation of healthcare and progress notes, use of the therapeutic self, boundaries during the intervention process, biosafety and prevention of healthcare-associated infections, safety considerations in hospital-based interventions, and psychological first aid. These activities were conducted four weeks prior to the preparation for the clinical simulation.

Guidelines were established to create an authentic environment similar to a healthcare facility, equipped with tables, chairs, stretchers, and computers, allowing for a variety of options for carrying out the assessment process.

Each simulated patient received a script that included personal and family history, roles, habits, interests, employment status, health issues, and reason for consultation.

Online training was conducted for the four simulated patients, where the previously submitted scripts were discussed and reviewed, including instructions on how to respond to the students' actions. Each simulated patient was instructed not to assist the students during the simulation activity. This training included the participation of the course instructor.

Briefing stage

As an initial activity, the students were contextualized regarding their roles and scenarios, emphasizing the educational objectives. Although the literature recommends limiting the provision of background information before the simulation, it was decided to anticipate content and roles, considering the characteristics of the cohort and the pedagogical objectives. Therefore, the scenarios were submitted in writing, including case information and the corresponding instructions for conducting the clinical simulation.

Simulation stage

The simulation stage was supervised by the instructor from an observation room equipped with cameras, allowing for detailed monitoring of performance in the four scenarios, focusing on each specific situation.

Each scenario lasted a total of 40 minutes, distributed as follows:

- **Scenario introduction (5 minutes):** Presentation of the clinical case, setting up the space, and planning the assessment strategy.
- **Simulated patient assessment (20 minutes):** Conducting the planned interview and assessment, concluding with a closing statement aimed at encouraging patient adherence to a future intervention program.
- **Reflection on performance (15 minutes):** After the simulated patient left the room, a *debriefing* session was held with the evaluation committee and the simulated actor/patient, who provided feedback from the user's perspective. In addition, students acting as feedback providers (located in a mirrored room) evaluated the patient's performance and offered suggestions for improvements.

The session included the simultaneous development of four high-fidelity clinical simulation scenarios, distributed in separate rooms to facilitate the participation of all students. The 18 participants were organized into rotating groups, with pre-assigned roles (main interviewer, support interviewer, main feedback provider, and support feedback provider), allowing each student to experience different levels of responsibility and perspective during the simulation. This structure promoted a continuous, comprehensive, and collaborative learning experience.

Debriefing stage

During the debriefing, the simulated patients provided direct feedback to the students, sharing their perceptions from a user satisfaction perspective. At the same time, the students who assumed the role of feedback providers carried out a structured reflection process. This included a detailed description of the events that took place during the simulation, followed by an exploration of the thoughts, feelings, and actions of all participants.

Emphasis was placed on incorporating analytical and reflective elements to guide the discussion and foster effective learning. The debriefing process was structured into three key stages: 1) the description of feelings and perceptions; 2) the analysis of events in relation to the learning objectives; 3) the application of learnings to future situations.

Results

Qualitative component

Table 3 presents a descriptive summary of the frequency distribution of answers provided by the participants regarding the different stages of the clinical simulation: *Briefing*, *Simulation*, and *Debriefing*. This table offers an overview of the perceptions of fourth-year occupational therapy students at the University of Chile regarding the implementation of high-fidelity clinical simulation scenarios in the context of preparation for health care practice during 2024.

Table 3. Distribution of answer frequencies provided by the participants in relation to Planning and Briefing, Simulation, and Debriefing.

Stage 1: Planning and Briefing	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The instructions allowed me to be better prepared to face the activity.	0	0	0	3 (18.8%)	13 (81.3%)
I received the simulation scenario assigned to me with enough time in advance to prepare for the interview.	0	0	0	2 (12.5%)	14 (87.5%)
The initial meeting with the instructor in charge allowed me to be better prepared to face the activity.	0	0	0	3 (18.8%)	13 (81.3%)
Stage 2: Simulation					
The activity allowed me to apply therapeutic skills learned in the course.	0	0	0	2 (12.5%)	14 (87.5%)
Conducting the interview in pairs (instead of individually) allowed me to approach the activity with more confidence.	0	0	2 (12.5%)	4 (25%)	10 (62.5%)
Conducting the interview in pairs (instead of individually) limited my performance.	6 (37.5%)	3 (18.8%)	3 (18.8%)	2 (12.5%)	2 (12.5%)
The complexity of the scenario in which I conducted my interview was appropriate for the skills I have developed throughout the course.	0	0	1 (6.3%)	4 (25%)	11 (68.8%)
The simulated patient is able to realistically represent the health condition for his/her consultation.	0	0	0	8 (50%)	8 (50%)
Stage 3: Debriefing					
The debriefing conducted by the evaluation committee helped reinforce my learning.	0	0	0	4 (25%)	12 (75%)
The debriefing was conducted within an environment of respect between the evaluation committee and the student pair.	0	0	0	0	16 (100%)

Stage 1: Planning and briefing

The results show a highly positive perception regarding the preparation for the activity. Most participants strongly agreed that the instructions (81.3%), the simulation scenario (87.5%), and the initial meeting with the instructor in charge of the activity (81.3%) allowed them to be better prepared for the activity.

In this experience, the results related to the instructions, the advance provision of the scenario, and the simulation induction are positive. All participants emphasized that the instructions and information provided allowed them to prepare adequately.

The planning of the high-fidelity clinical simulation included an initial meeting between the participants and the course instructor in charge, in which the objectives and expectations were clarified without revealing the specific case. This preparation fostered student confidence and contributed to the successful execution of the activity, demonstrating proper performance.

Stage 2: Simulation

In the simulation stage, participants also evaluated the activity positively, with 87.5% strongly agreeing that the activity allowed them to apply therapeutic skills. The majority (62.5%) felt more confident conducting the interview in pairs, although 37.5% considered that this did not limit their performance. The simulation scenario was considered appropriate by 68.8%, and the representation of the simulated patient was viewed as realistic by the same proportion of participants (50% strongly agreed and 50% agreed).

In this experience, the simulation was effective in allowing participants to apply therapeutic skills conducive to conducting an effective occupational interview, with the majority having a positive perception of being able to apply what they learned. Working in pairs increased confidence for most, although some felt it limited their performance. Additionally, the complexity of the scenario was considered appropriate by the majority of respondents.

Stage 3: Debriefing

Finally, in the next stage, the debriefing was highly valued, with 75% of respondents indicating that it reinforced their learning, suggesting that it helped improve their understanding and application of the concepts learned during the simulation.

Regarding elements considered by the evaluation committee in this experience, analysis and reflection were the most consistently included in the debriefings, with inclusion rates of 100% (16) and 87.5% (14), respectively. Exemplification, although also common, was included in 75% (12) of the debriefings, indicating that it is not a universally present element in all cases (Figure 1).

Finally, 100% of respondents stated that the debriefing was conducted within an environment of respect between the evaluation committee and the participating students, fostering a positive and constructive learning environment.

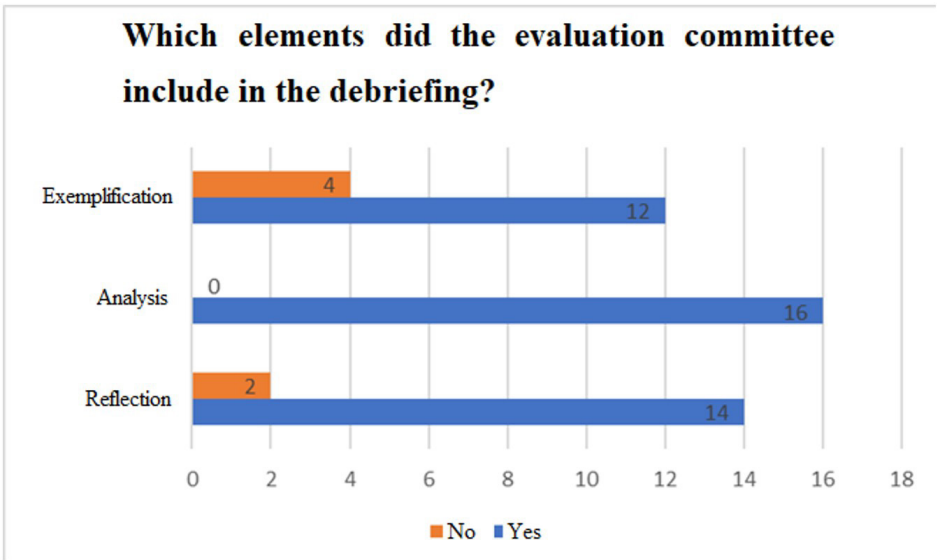


Figure 1. Elements Included in the Evaluation Committee's Debriefing Phase.

Qualitative component

Based on the content analysis of the responses to the open-ended questions in the questionnaire, seven analytical categories were developed.

Preparation of the activity

The participants indicate that both the previous classes and the preparation for the activity were quite useful, allowing them to anticipate the demands of the activity. In this regard, one of the respondents points out:

Having prior background to approach the interview was a facilitator for carrying it out.

On the other hand, having prior information regarding the case studies was another facilitator that reduced uncertainty before the simulation. Regarding this, another respondent mentions:

Overall, I feel that the material provided regarding the cases was very useful.

Considering preparation instances is seen as a facilitating element for the group of students, allowing them to anticipate the activity. Additionally, reviewing the thematic content of the unit in the exercise prior to the simulation generates greater confidence when putting therapeutic skills into practice.

Competencies and disciplinary aspects

Clinical simulation is recognized as a key instance for training and developing disciplinary competencies that contribute to performance in the context of professional practice. Considering this, one respondent comments:

I think it is a good opportunity to put into practice the necessary skills when conducting an interview, and besides it allows one to overcome the fear of interviewing.

The development of competencies in this area is related to the integration of theoretical knowledge and practical experience, enhancing future professional practice. In this regard, another respondent states:

I think it went really well overall; we worked a lot during the classes on case reasoning and analysis.

Another respondent mentioned:

A very useful activity that allows for a comprehensive disciplinary application.

The development of high-fidelity clinical simulation sessions enables the training and demonstration of competencies in a safe and controlled environment.

Feedback

Regarding feedback, it is important to consider the different stakeholders involved. On one hand, a strength of the activity was having feedback from the simulated patient, who, in their role as an expert by experience, created a climate of trust with the students. On the other hand, incorporating a peer-to-peer co-evaluation dynamic promoted symmetry and horizontality, avoiding power positions or hierarchies that could affect performance. In light of this, one respondent stated:

I think it's great that, in addition to receiving feedback from the person acting [which was more focused on the human aspect], we also received feedback from our classmates [placing more emphasis on our subject].

From this, it is possible to identify strengths and weaknesses in performance, as well as to provide timely support and suggestions for improvement. The design of the activity in pairs fosters collaboration and teamwork. Another respondent mentioned:

I find it very valuable to receive feedback both from classmates and from the user, as it allows us to improve from the professional perspective of our peers, but also to gain the user's perspective on how they felt during the process.

Finally, feedback fosters a safe environment that allows for the expression of evaluative judgment, therefore avoiding threats to individual performance. In line with this, another respondent stated:

I found the feedback to be very relevant; the whole environment felt safe to conduct the interviews.

In conclusion, feedback is a key aspect for the proper development of the simulation activity, creating spaces of trust and co-construction of performance skills and the expected learning outcomes.

Planning and timing of the activity

Regarding the planning and the time allocated for the development of the simulation activity, it is important to consider allowing more time for feedback, as students expressed the need to delve more deeply into certain aspects of the process. In line with this, one respondent stated:

I would have liked to have perhaps had more time for feedback from the actors and my classmates.

Another participant mentioned:

That the feedback time be longer because there were occasions when it could not be carried out in depth.

As a lesson learned, it is important to allocate more time in future simulation activities, especially for the feedback stage, in order to enhance learning situated within the context of clinical simulation.

Positive aspects and strengths

A significant portion of participants' comments focused on the positive aspects of the activity. Some of these were related to the development of therapeutic skills centered on knowledge, attitudes, and abilities. In relation to this, one respondent reported:

I think it was a very good activity that was extremely helpful in strengthening therapeutic skills.

Participants highlighted that these activities are valuable because they allow for the practical application of theoretical knowledge. This connection between theory and practice is often not possible to achieve with other teaching-learning methodologies. In this regard, one respondent stated:

It is a very good opportunity to practice, especially soft and communication skills, and to put into practice those more theoretical concepts.

Interactive simulation with standardized patients stands out as an effective methodology for the training of occupational therapists. Respondents valued the fact that having individuals trained to act as patients in clinical scenarios creates a realistic experience and contributes to the feedback process. In line with this, one participant mentioned:

The actors were very good and really immersed in their roles, which helped make the situation more realistic.

In conclusion, the standardized patient simulation activity enables students to apply theoretical knowledge in a practical context, promoting the development of therapeutic and communication skills.

New simulation opportunities

The clinical simulation activity was well accepted by students, being regarded as an innovative strategy that facilitates the development of practice-based skills in a real-world context. In this regard, respondents expressed the need to carry out more activities of this kind during the training process. As one participant pointed out:

In addition, it would also be good to have another of these simulations at the end of the course to be able to compare our performance before facing professional practice.

In this participant's words, the importance of incorporating more simulation activities as a means of better preparing for professional practice is highlighted. This is reinforced by another respondent, who stated:

And perhaps add another simulation date to further consolidate learning.

Generally, there is a high level of satisfaction with the activity, with an emphasis on the need to have more practical activities of this kind in the practical courses of the degree program.

Recommendations for the future

The clinical simulation activity in the context of the Comprehensive Practice IV course in Health stands out as an innovation compared to previous versions of the course, as it had not been previously implemented. While this activity was very well received by students, it is important to recognize that there are aspects that can be improved for future versions of the course. On the one hand, comments were noted regarding the need to incorporate health care records, such as clinical records and health care outcomes.

I would add the part of the progress notes at the end, so that we have more knowledge about it.

Another participant mentions:

Perhaps we should hold a next session in which, besides interviewing, we should evaluate and complete the process of writing the session.

Incorporating the development of a healthcare record can promote the development of reflective and disciplinary writing skills when working with cases in a clinical context, in addition to simulating future demands common in a healthcare facility. In addition, one participant states the need to work on personal skills to face these types of training activities, highlighting individual strengths when developing the therapeutic bond.

I think something good we could do before the simulations would be to do an exercise to identify one's own strengths for the therapeutic relationship, and thus be a little more calm and confident in the simulation.

Although this is the first time that a clinical simulation activity has been incorporated into this course, the results were positive, highlighting it as a transition to practice in a real context, allowing the deployment of therapeutic skills in a protected setting.

Discussion

In the simulation preparation phase, the results of this experience align with existing literature emphasizing the importance of adequate preparation in simulation-based education to improve learning outcomes (Lefor et al., 2020). Students' positive perceptions of this phase suggest that structured preparatory elements play a crucial role in preparing for effective simulation-based learning experiences.

This finding is consistent with previous research that has demonstrated the value of high-fidelity simulation in improving student confidence and skill application in various medical and healthcare contexts (Yu et al., 2021). Students' sense of confidence and competence during the simulation phase underscores the potential of simulation-based training to bridge the gap between theoretical knowledge and practical application in occupational therapy education.

Students' recognition of the complexity and realism of the scenarios indicates that the design and execution of the simulation activities were successful in creating immersive and authentic learning environments. While group dynamics can influence individual performance, they also offer unique learning opportunities through shared experiences and perspectives (Silberman et al., 2020). The positive results observed in this study align with the broader evidence base supporting high-fidelity simulation as a methodology for improving learning outcomes and preparing students for real-world healthcare challenges (Southall & MacDonald, 2021).

On the other hand, the findings of this study are consistent with those reported by Vásquez & Hernández (2021) regarding the training of occupational therapists in Chile. In their work, they emphasize the importance of incorporating clinical simulation into the training processes of occupational therapy students, highlighting the need for further research to fully understand its effects on the development of professional and transversal competencies. Their research underlines that, although simulation is still an

emerging methodology in the discipline, it already shows significant potential to improve the quality of occupational therapy education. The similarity between the findings of Vázquez and Hernández and those of the present study reinforces the continued relevance of clinical simulation as an effective educational tool and the need to keep exploring its long-term benefits.

Finally, Castillo et al. (2024) point out that clinical simulation is an effective strategy for the development of skills in health sciences students, as it provides a safe environment that supports the practice of technical competencies and critical decision-making. These findings are consistent with our experience, in which students reported feeling safe and competent when applying their therapeutic skills in high-fidelity scenarios.

Conclusions

The results obtained from the implementation of high-fidelity clinical simulation scenarios with fourth-year occupational therapy students at the University of Chile in 2024 show an overall highly positive perception. The structure of the process—which included the stages of planning and briefing, simulation, and debriefing—was considered effective in preparing students for their clinical placements.

During the planning and briefing stage, students perceived that the prior instructions, anticipation of the scenario, and the initial meeting with the course instructor in charge were essential for their preparation. Most participants agreed that these initial activities were useful in facing the challenge of the simulation.

In the simulation stage, most students felt confident and capable of applying the therapeutic skills they had learned, highlighting the effectiveness of simulation as an educational tool. Although some mentioned that working in pairs limited their performance, the majority valued the realism and complexity of the scenarios presented.

Finally, in the debriefing phase, group analysis and reflection were key elements in reinforcing learning. Students agreed on the importance of this stage, highlighting the respectful and positive environment that contributed to consolidating the knowledge acquired.

Overall, these findings suggest that the implementation of high-fidelity clinical simulations was effective in improving students' preparation for their transition into practice within a healthcare environment. The experience strengthened their confidence and competencies in the field of occupational therapy, reflecting the positive impact of this type of activity on the educational process of fourth-year students.

Regarding the training of occupational therapy students, high-fidelity clinical simulation emerges as a valuable pedagogical tool for the assessment of knowledge, especially when implemented in advanced stages of the training process. To maximize its effectiveness, it is essential that the proposed scenarios have an adequate level of complexity to challenge students' competencies, and that the simulation design includes rigorous planning in terms of learning objectives, evaluation criteria, and the role of the instructor. These elements must ensure consistent and equitable conditions for all participants. Likewise, the inclusion of a detailed script and structured feedback — including comments from standardized patients as part of peer evaluation — are fundamental to ensuring coherent performance and enhancing the learning experience.

Study Limitations and Projections

Regarding the study's limitations, it is worth highlighting the small sample size, consisting of only 16 participants, which limits the possibility of generalizing the results to broader populations. Additionally, the participants were selected using non-probability convenience sampling, which introduces a risk of selection bias, given that the students were chosen based on their accessibility and proximity to the professor in charge of the activity. This approach could have excluded certain relevant groups and affected the representativeness of the sample.

It is important to mention that the results could have been influenced by response bias, given that the participants were aware of their participation in an educational simulation, which could have influenced their responses toward what they considered most appropriate or expected. However, the transferability of the findings to other similar learning situations is enhanced by the detailed description of the study context, which facilitates the application of the results in comparable educational settings.

These limitations suggest that future studies could benefit from the inclusion of larger and more representative samples, as well as from the use of methods that mitigate selection and response bias, such as random sampling or the use of complementary techniques in data collection.

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Author's Contributions

Oscar Hernández-Lanas, Natalia Castillo-Núñez and Pablo Olivares-Araya were responsible for the conception of the manuscript, organization of sources, analysis, drafting, and revision. Oscar Hernández-Lanas led the research and wrote the final version of the manuscript. All authors approved the final version of the text.

Data Availability

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

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