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ESTUDIOS

Accurate ratios for the calculation of Speech and Language Therapy staffing for health institutions: a systematic review

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Abstract: While the role of Speech and Language Therapy is well-documented, there is no consensus on the optimal method for estimating staffing needs in health institutions. This study aims to determine the accurate ratios for the calculation of Speech and Language Therapy staffing for health institutions. A systematic review with a qualitative approach was performed, including published evidence between 2024 and 2006 in PubMed, Web of Science and SciELO databases. The keywords 'Speech and Language Therapy', 'Speech and Language Therapist', 'Staff' and 'Staffing' were included. Of 4,837 reviewed documents, seven were selected for analysis. PRISMA guideline was used for the report. Ratios varied from .025 to 2.000 whole-time equivalent professionals per 10 clinical beds, with higher ratios for stroke, neurological conditions, and critical care patients. Extra staffing may be required for special needs patients or complex cases. Weekend therapy improves health outcomes. Seven-day rehabilitation services are recommended, adjusting staffing ratios accordingly. Stroke patients should receive 45 minutes of rehabilitation daily, while critical care patients require consistent and safe therapy, with service requirements subject to local review. Patient attributable time includes case conferences, ward rounds, report writing, and participation in multidisciplinary team activities. In conclusion, the ratios for Speech and Language Therapy staffing vary between according to pathologies. It is suggested to calculate the staffing according to patients' pathologies. Also, to develop a unique formula for outpatients, and to update the ratios, as the allied rehabilitation professionals have been increasingly included in multidisciplinary teams.
Keywords: Health Management; Health Systems; Human resources; Personnel Staffing and Scheduling; Speech and Language Therapy.

ES Ratios precisos para el cálculo de dotación de fonoaudiología para instituciones de salud: una revisión sistemática

Resumen: Si bien el rol de la fonoaudiología está bien documentado, no existe consenso sobre el método óptimo para estimar la dotación fonoaudiológica en las instituciones sanitarias. El objetivo de este estudio es determinar los ratios precisos para el cálculo de dotación de fonoaudiólogos para las instituciones de salud. Se realizó una revisión sistemática cualitativa, incluyendo evidencia publicada entre 2024 y 2006 en PubMed, Web of Science y SciELO. Se incluyeron las palabras clave "Speech and Language Therapy", "Speech and Language Therapist", "Staff" y "Staffing". De 4.837 documentos revisados, siete fueron seleccionados para análisis. Para el reporte se utilizó la guía PRISMA. Los ratios variaron entre 0,025 y 2,000 fonoaudiólogos a tiempo completo por cada 10 camas clínicas, siendo mayores para pacientes con accidente cerebrovascular, afecciones neurológicas y cuidados críticos. La terapia de fin de semana mejora los resultados de salud. Se recomienda la atención fonoaudiológica los siete días de la semana para pacientes críticos y con accidentes cerebrovasculares. Los primeros necesitan rehabilitación consistente y segura, mientras que los segundos deberían recibir diariamente 45 minutos de terapia. El tiempo atribuible a pacientes incluye revisión de casos, visitas clínicas, informes y la participación en equipos multidisciplinarios. En conclusión, los ratios para el cálculo de profesionales de fonoaudiología varían según patología. Se sugiere su cálculo según las patologías de los pacientes. Además, desarrollar una fórmula única para los ambulatorios y actualizar los ratios, considerando que los profesionales de rehabilitación se han incluido cada vez más en equipos multidisciplinarios.
Palabras clave: Admisión y Programación de Personal; Fonoaudiología; Gestión en Salud; Recursos Humanos; Sistema de Salud;

Summary: Introduction. Methodology. Results. Discussion. Conclusion. References.

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Introduction

Health care providers are required to provide adequate staffing levels to ensure high quality services for patients (World Health Organization, 2021). Multidisciplinary teams in complex units have grown from a conventional medical and nursing model to include allied heath workforces (Cardinal et al., 2020). The role of Speech and Language Therapy (SLT) is widely described in health care policy and in research. Speech and Language Therapists (SLTs) perform an important role in health institutions (HI), such as assessing and managing communication and swallowing disorders; educating health professionals, patients and family/caregivers; and participating in interdisciplinary teams (American Speech-Language-Hearing Association, 2022; Cambridge University Hospital, 2019; Da Costa & Guimarães, 2012; Joubert, 2023; Mayo Clinic College of Medicine and Science, 2022; McGrath & Wallace, 2014; McRae et al., 2019; Royal College of Speech & Language Therapist, 2022). Approximately 39% SLTs in the United States work in healthcare settings (Northeastern University, 2023), while 36% in the United Kingdom are employed in similar settings (Health and Care Professions Council, 2021), including both independent/private healthcare settings and public services. In Chile, there are 11,423 registered SLTs (Superintendencia de Salud, 2024). Of these, 664 SLTs are employed in public hospitals, representing 5.8% of the total (Ministerio de Salud, 2024). In Spain, of the 12,017 registered SLTs (Instituto Nacional de Estadística, 2023), 568 are employed in healthcare settings (4.7%) with 463 working in the public system in hospitals and primary healthcare (3.8%). Only 211 of the 468 public hospitals in Spain have a SLT unit (Salinas, 2023). A multicentre study involving 746 intensive care units across 26 countries reported that SLT consultation was available in 66% of units; however, only 4% had a dedicated SLT on staff (Spronk et al., 2022).

The American Speech-Language-Hearing Association (2024) asserts that SLTs are the most qualified professionals for the comprehensive assessment and management of dysphagia across the lifespan, regardless of aetiology. Their expertise encompasses the evaluation, diagnosis, and implementation of evidence-based interventions to optimise swallowing function and patient outcomes. In hospitalised patients, dysphagia increases the risk of aspiration pneumonia, malnutrition, dehydration, sarcopenia, hospital readmission and, eventually, mortality (Alcalde et al., 2020; Allen et al., 2019; Altman et al., 2010; Attrill et al., 2018; Cohen et al., 2016; Dziewas et al., 2021; Suárez Quesada et al., 2020; Warnecke et al., 2018; Zuercher et al., 2019). Dysphagia has been associated in critic care patients with an increment of the rate of mortality in 9.2% (Schefold et al., 2017). In post-extubation dysphagia patients, delayed initiation of SLT rehabilitation has been linked to persistent dysphagia or death (Hongo et al., 2022). Additionally, dysphagia increases the cost of patient care due to its consequences, such as extra intervention, medical supplies, and drugs (Duncan et al., 2019). Patients who are unable to effectively communicate have three times more chances to experience preventable adverse events, including risk of falls in hospitals (Cardinal et al., 2020). Regarding tracheostomised patients, the presence of a tracheostomy tube is frequently linked to dysphagia and compromised airway protection. Tracheostomy could diminish the ability to generate subglottic air pressure during swallowing, reduce glottic closure, desensitise the larynx, disrupt the coordination between swallowing and respiration, and limit laryngeal elevation (Wiberg et al., 2022). The evidence shows that the correct management of the cuff reduces the risk of aspiration pneumonia and tracheal damage (Dexter & Scott, 2019; Ignatavicius et al., 2018). The Intensive Care Society (2020) in the United Kingdom mentions that the multidisciplinary team, which includes SLTs, should be familiar with the principles of routine care for cuff management, where the decision on the timing of deflation should be made jointly. Whitmore et al. (2020) point out the positive impact of multidisciplinary work in reducing the time to first oral intake, first cannula change, decannulation, hospital stay and complication rates. Furthermore, the expertise of SLTs in laryngeal function and secretion management has been reported to play a beneficial role in the weaning and decannulation process, contributing to improved patient outcomes and a more efficient transition to independent breathing (Wiberg et al., 2022). Nonetheless, it has been shown that dysphagia protocols are absent in 67% of intensive care units, and only a small proportion conduct dysphagia assessments after 48 hours of intubation or tracheostomy (Spronk et al., 2022).

In order to estimate the SLT staffing (SLT-S) required for HI, there is no consensus on the optimal method. The U.K. National Health Service in 2019 expects the presence of SLTs during weekdays for critical patients, although a seven-day service is desirable. In Australia, despite some guidelines that include SLT-S in health settings, it has been reported that in some intensive care units there is insufficient funding and no dedicated full-time positions of SLTs. This results in a lack of daily SLT presence, making caseload management difficult compared to physiotherapy (PT) (Cardinal et al., 2020). In the same line, in the United Kingdom the evidence shows that most of the HI are unable to provide daily SLT sessions, whilst many sites have insufficient staffing levels to ensure a consistent and responsive therapy (Mills et al., 2023). The Chilean Ministry of Health (ChMoH) developed a guideline which includes a formula to calculate the rehabilitation staffing required in public hospitals for the inpatient and outpatient care (IOC), which considers the number of clinical bed (CB) and their types (basic, medium and critical care bed) per HI (Ministerio de Salud, 2019). For SLT, the formula shows that is required a whole-time equivalent Speech and Language Therapist (WTE-SLT) per 13 adult

critical care bed, one per 26 paediatric critical care bed, one per 43 medium care bed, and one per 166 basic care bed, this is, a ratio between .076 and .006 per CB.

The lack of SLT-S increases the costs to the health system (HS) as the dysphagia is not treated (Duncan et al., 2019), which affects directly the patients' health outcomes (P-HO) and quality of life (P-QoL). It is mandatory to determine the appropriate ratios for SLT-S planning. A PICO strategy was used to develop the following research question: What are the most accurate ratios for the calculation of realistic SLT-S for HI? The aim of this project is to determine the accurate ratios for the calculation of SLT-S for HI.

Methodology

Design

A systematic review with a qualitative approach was carried out.

Eligibility criteria

Clinical guidelines, research articles, statement positions and ministry orientations published between 2006 and 2024 were included, in English, Spanish and Portuguese.

Instruments and information sources

A databased in Microsoft Excel v.2019 to register the syntaxes; the software Mendeley v.1.10.1 for document managing; PubMed, Web of Science and SciELO databases; Critical Appraisal Skills Programme Checklist to assess the documents found (2024); and PRISMA 2020 item checklist to report this systematic review (Page et al., 2021).

Searching strategy

The search of evidence was carried out in the databases, using keywords to create the syntaxis. Table 1 shows the keywords used for the seeking evidence, their synonyms and acronyms.

Table 1. Keywords used for the seeking evidence, their synonyms and acronyms.

Key words	Synonyms	Acronyms
Speech and Language Therapy	Speech and Language Pathology Speech, Language and Hearing Sciences	SLT SLP
Speech and Language Therapy staffing		SLT provision
Speech and Language Therapist	Speech and Language Pathologist	-
Staffing	Staff	-
Fonoaudiología	Logopedia Terapia del lenguaje Terapia da linguagem	-
Fonoaudiólogo	Logopeda Terapeuta del lenguaje Terapeuta da fala	-
Ratio		-

Selection and data collection process

First, documents were sought on the databases, creating different syntaxes using the keywords, their synonyms and acronyms. Secondly, filters were applied to select the documents which fitted with the type of evidence declared. Thirdly, the selected documents were downloaded and managed on Mendeley, where duplicated archives were immediately deleted. Then, a first filter was applied to the selected documents, which consisted in the reading of the title and abstract, deleting the archives which were not related to the Keywords: After that, a second filter was applied, where the documents were entirely analysed per reviewer, deleting those which did not fit with the inclusion criteria. Additional documents that met the inclusion criteria were included, as PRISMA recognises the 'identification of studies via other methods' (Page et al., 2021). Thereafter, a resume of the process was carried out using the PRISMA diagram model (Page et al., 2021). Then, an appendix was completed which included the information of the documents analysed. Finally, and qualitative analysis was performed, and the results were reported.

Data items

Information of SLT-S ratios were sought, including ratios per pathology if was applicable. Extra data were registered for analysis, namely by ratios adjudgment, staff provision during weekends, SLTs activities in HS and therapy session details.

Results

The seeking of evidence was carried out in the databases during August 2024. Table 2 shows the searching syntaxis.

Table 2. Evidence found in databases according to the searching syntaxis used.

Database	Syntaxis	N° of evidence
-Pubmed	Speech and Language Therapy AND Staffing OR Staff	6
-Web of Science	Speech and Language Therapy staffing Or Speech and Language Therapist AND Staffing	4,918
-SciELO	Speech and Language Therapy staffing Or Speech and Language Therapist AND Staffing	0

A total of 4,924 documents were found, with 98 duplicates. After screening titles and abstracts by the research group, 4,763 were excluded. 63 documents were assessed for eligibility per reviewer, excluding 61 due to missing ratio data. 11 additional documents, which fitted the inclusion criteria, were identified by the research team via other methods from organisations and citation searching, with six excluded for the same reason. Finally, six reports and one study were selected by the research team for analysis. Data were extracted from the selected documents and thoroughly analysed by the research group. Figure 1 shows a PRISMA diagram with the process of selection of the evidence.

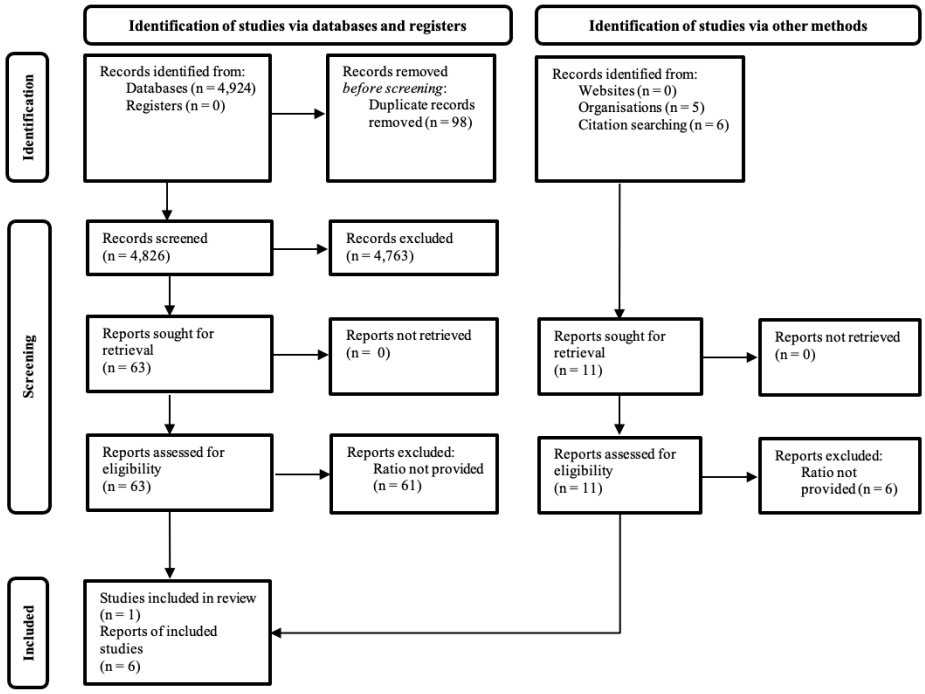

Figure 1. PRISMA diagram with the process of selection of the evidence included.

The documents included were evidence in English from the United Kingdom, Australia, New Zealand and Ireland, dated from 2006 and 2022. Four out of the total were national guidelines, two were position statements, whilst one was observational research. Table 3 details the documents included and their main aim.

Table 3. Documents included and their main aim.

Name	Main aim
Guidelines for Allied Health – Resources Required for the Provision of Quality Rehabilitation Service.	To provide guideline for staffing requirements by each of the represented disciplines in each of the specialities appearing in the rehabilitation patient group.
Standards for the Provision of Inpatient Adult Rehabilitation Medicine Services in Public and Private Hospitals.	To guide Royal Australasian College of Physicians Fellows, government, health service planners and administrators in their decision making about the provision of inpatient adult rehabilitation medicine services in public and private hospitals.
Standards for Medical Assessment and Planning Units in Public and Private Hospitals.	To guide the function and operations of an acute medical assessment and planning unit.
Position Statement: Speech and Language Therapists Working in Adult and Paediatric Critical Care Units.	To inform service planning and improvement in critical care, in relation to speech and language therapy. It is aimed at both speech and language therapists and clinical service managers.
Guidelines for the Provision of Intensive Care Services (GPICS), Version 2.1.	To attempt where possible to incorporate immediate learning from the impact of the pandemic and spread this across all units.
A comparison between reported therapy staffing levels and the department of health therapy staffing guidelines for stroke rehabilitation: a national survey.	To delineate the extent of stroke rehabilitation provided across the whole of England during a patient's first twelve months post-stroke.
National Stroke Strategy 2022-2027.	To meet core quality European Stroke Organisation standards within their acute stroke units.

Ratios

Most of the orientations were given according to the patients' pathology or need of critical care, based on 10 CB. The ratios varied between .025 and 2.000 WTE-SLT (Allied Health in Rehabilitation Consultative Committee, 2007; Intensive Care Society, 2022; McHugh & Swain, 2014; National Clinical Programme for Stroke, 2022; Royal Australasian College of Physicians, 2019; Royal College of Speech & Language Therapists, 2019). Greater ratios were related to strokes, neurologic pathologies, traumatic brain injuries and head injuries, followed by critical care patients. In opposite, lower ratios were linked to amputee, cardiac, pain and arthritis diseases. There was a suggestion which showed an average ratio for inpatient care (IC) of .2 WTE-SLT per 25 CB (Henley et al., 2006). Table 4 presents the ratios for IC mentioned in the evidence selected for the calculation of WTE-SLT. In order to equate and facilitate the analysis, the ratios are shown per each 10 CB. Figure 2 shows the higher WTE-SLT ratio by pathology, per 10 clinical beds.

Table 4. Ratios for inpatient care mentioned in the evidence selected for the calculation of WTE-SLT. Ratios are shown per each 10 clinical beds

	Allied Health in Rehabilitation Consultative Committee. (2007).	Royal Australasian College of Physicians. (2019).	Henley, J., Bennett, C., Williamson, J., & Scott, I. (2006).	Royal College of Speech & Language Therapists. (2019).	Intensive Care Society. (2022).	McHugh, G., & Swain, A. (2014).	National Clinical Programme for Stroke (2022).
Critical care	-	-	-	1.000	1.000	-	-
Spinal injury (specialist)	.250	.250	-	-	-	-	-
Spinal injury (normal)	.100	-	-	-	-	-	-
Head injury	1.500	-	-	-	-	-	-
Amputee	.025	Consultant	-	-	-	-	-
Burns (specialist)	.200	-	-	-	-	-	-
Burns (normal)	.100	-	-	-	-	-	-
Neurology	1.500	1.500	-	-	-	-	-
Orthopaedics	.100	-	-	-	-	-	-
Arthritis	.025	-	-	-	-	-	-
Pain	.025	-	-	-	-	-	-
Cardiac	.025	-	-	-	-	-	-
Pulmonary	.100	-	-	-	-	-	-
Major multiple trauma	.100	.200	-	-	-	-	-
Multiple comorbidities	.500	-	-	-	-	-	-
Stroke	-	1.500	-	-	-	2.000	.800
Traumatic brain injury	-	1.500	-	-	-	-	-
Orthopaedic	-	.100	-	-	-	-	-
Reconditioning and restorative	-	.200	-	-	-	-	-
Average ratio	-	-	.080	-	-	-	-

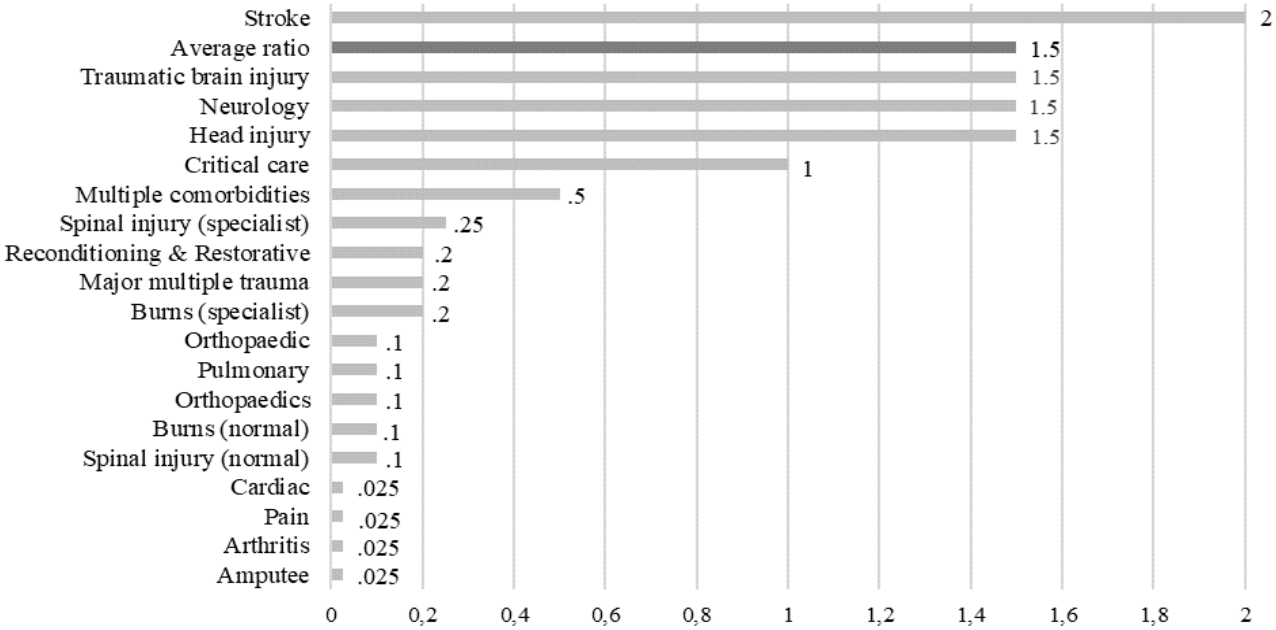

Figure 2. WTE-SLT higher ratio by pathology, per 10 clinical beds.

Staffing numbers adjudgment

In the units that include patients with special needs, extra staffing could be required due to longer therapy times. This, especially in specialist rehabilitation services managing complex caseloads, e.g., dual diagnoses, challenging behaviour, substance misuse, and dementia (Allied Health in Rehabilitation Consultative Committee, 2007). For critical care patients, the evidence suggests that the minimum staffing ratio is designed to ensure high-quality and facilitate a multidisciplinary approach. Also, that a higher WTE-SLT may be necessary based on factors such as local case mix, patient acuity, complexity, new initiatives, or the provision of services beyond five days (Intensive Care Society, 2022; Royal College of Speech & Language Therapists, 2019).

Provision of SLT on weekends

In general terms, weekend therapy is strongly recommended by the evidence, as it improves functional independence, physical activity, quality of life, and can reduce length of stay in some cases (Allied Health in Rehabilitation Consultative Committee, 2007), with rostered shifts to manage peak patient influx (Henley et al., 2006). For critical patients, a seven-day service in critical care being desirable (Intensive Care Society, 2022; Royal College of Speech & Language Therapists, 2019). The ratios for stroke patients are based on a five-days working week. These ratios are needed to be adjusted if services shift to a seven-days staffing model (National Clinical Programme for Stroke, 2022).

Therapy

The evidence mentions that cross-covering between SLT, Occupational Therapy (OT), and PT has proven effective in several units (Henley et al., 2006). Patients who are capable of tolerating rehabilitation therapy (PT, OT and SLT) should receive a minimum of three hours per day, five days a week (Allied Health in Rehabilitation Consultative Committee, 2007). In stroke patients, it is recommended to deliver 45 minutes of each SLT per day, deemed suitable for treatment (McHugh & Swain, 2014). Further, that a consistent, safe, and reliable SLT service is recommended for critical care patients. However, service requirements may vary and should be subject to local review and discussion (Royal College of Speech & Language Therapists, 2019).

Activities and patient attributable time

SLTs can perform many tasks during the WTE. These activities include direct patient contact, team discussions, and strategic involvement (Royal College of Speech & Language Therapists, 2019). For patient attributable time, it is recommended to include activities like case and family conferences, ward rounds, report writing, and travel (Allied Health in Rehabilitation Consultative Committee, 2007). It is stated that SLTs should be key members of the multidisciplinary team, actively participating in ward rounds, tracheostomy teams, clinical governance, audits, research, education, and policy development (Intensive Care Society, 2022). Regular attendance at local education sessions and critical care network meetings is also important (Royal College of Speech & Language Therapists, 2019).

Discussion

The evidence supporting the important role of SLTs in healthcare settings is irrefutable. Especially, considering how the HS has been evolved. Factors such as rising healthcare costs, an ageing population, technological progressions, and breakthroughs in medical knowledge have reshaped the ways in which SLTs contribute to IOC (Theodoros, 2012). SLTs are crucial in assessing and managing both communication and swallowing disorders, and are also involved educating health professionals, patients, and caregivers. Moreover, their active contribution in interdisciplinary teams has become a fundamental component of IC (American Speech-Language-Hearing Association, 2022; Cambridge University Hospital, 2019; Da Costa & Guimarães, 2012; Joubert, 2023; Mayo Clinic College of Medicine and Science, 2022; McGrath & Wallace, 2014; McRae et al., 2019; Royal College of Speech & Language Therapists, 2022). Traditionally, healthcare teams in complex settings followed a conventional model, progressively evolving to the inclusion of a wider range of allied health professionals, such as SLTs (Cardinal et al., 2020). This shift has been predominantly notable in critical care settings, where recent research emphasises the role of SLTs in dysphagia management. (Freeman-Sanderson, 2024). Dysphagia is associated with a range of secondary P-HO complications and even mortality, the rise of healthcare costs, prolongation of hospital stays, medication use and readmissions (Alcalde et al., 2020; Allen et al., 2019; Altman et al., 2010; Attrill et al., 2018; Cohen et al., 2016; Duncan et al., 2019; Dziewas et al., 2021; Suárez Quesada et al., 2020; Schefold et al., 2017; Warnecke et al., 2018; Zuercher et al., 2019). Moreover, communication difficulties increase the risk of preventable adverse events, such as falls, further complicating recovery (Cardinal et al., 2020). The lack of an adequate SLT-S in HI can negatively affect both P-HO and P-QoL. It also leads to higher HI costs and stresses the HS. This underlines the need for an appropriate SLT-S to reduce these risks and improve both clinical and financial outcomes HI. Due to this, it is important that HI can prioritise a correct SLT-S planning. It is striking that, with the information available of the importance of SLTs in critical care settings, there is insufficient funding and no dedicated full-time professionals in some developed countries (Cardinal et al., 2020; Mills et al., 2023), where the median SLT-S ratio per 10 paediatrics and neonatal clinical beds is .3 and, whilst .1 per 10 adult clinical beds.

According to the results, the ratio for IC is between .025 and 2.000 WTE-SLT per 10 clinical beds, which depend mainly on the pathologies that patients experience. Ratios could be greater depending on each HI

context. Also, seven-day service is suggested to improve P-HO and P-QoL. These findings are key for governments and professional societies to review the current ratios included in their protocols, or, to develop updated guidance. Governments should also consider the availability of SLTs per country to estimate whether the existing ratios adequately meet the healthcare needs of the population. In the United States, the SLT ratio per 100,000 inhabitants is 51.1. In Europe, the ratio varies by country: 38.2 in France, 45 in Germany, 33 in Italy, 28 in the United Kingdom, 25 in both the Netherlands and Sweden, 20 in Portugal, and 19.12 in Spain (Consejo General de Colegios de Logopedas de España, 2024). In Argentina, available data is categorised by province, with the lowest and highest ratios per 100,000 inhabitants being 4.54 and 182 SLTs, respectively (Ministerio de Salud de la Nación Argentina, 2023). In Chile, there are 11,423 registered SLTs (Superintendencia de Salud, 2024). Based on the projected population of 19,658,835, this results in an SLT ratio of 58.1 per 100,000 inhabitants. Developing guidelines to estimate the SLT-S required for HI at a national level is essential. However, implementing appropriate staffing to deliver high-quality services in healthcare settings would not be possible if the overall SLT ratio per country is insufficient to meet the population's needs. Moreover, if sufficient positions are not available in healthcare settings, maintaining adequate staffing levels will remain a challenge, regardless of the overall SLT ratio.

There are two main limitations to declare, which are directly linked to the records published, possibly affecting the final interpretation. First, the low number of evidence found was linked exclusively to some countries, namely the United Kingdom, Ireland, Australia, and New Zealand. Secondly, formulas in non-English language and/or from underdeveloped countries were not found, as no published information was available. These limitations may restrict the understanding of the ratios used to calculate SLT-S across different nations. As projections, further research on this line is required, in which new formulas of SLT-S ratios for inpatient care could be developed. Additionally, tailored formulas for SLT-S for outpatient care should be developed, based on the services provided by each healthcare institution. This should take into account local factors and patient needs, rather than relying on the number of available clinical beds.

Conclusion

In conclusion, the ratios for the calculation of SLT-S for IC vary from .025 to 2.000 whole-time equivalent per 10 clinical beds, which depend mainly on the pathologies that patients experience. These ratios for WTE-SLT could vary according to HI local realities and patients' needs. Seven-day service of SLT is strongly recommended by the evidence, in which the cross-covering between SLT, OT, and PT has proven to be successful for the inpatient rehabilitation process. SLTs perform diverse kind of activities during their working hours, which need to be considered by managers.

It is suggested to calculate the SLT-S required according to patients' pathologies. Also, to develop a unique formula for SLT-S for outpatient care, according to the services that each HI gives. This, bearing in mind local variables and patients' needs, and not necessarily number of CB available. Further, to update the SLT-S ratios for IC, which is crucial for each HS, as HI could allocate adequately the human resources. It is suggested to consider a seven-day service of SLT for IC, in order to provide comprehensive care throughout the week and to ensure the continuity of the rehabilitation process. This, taking into consideration the legislation of each country on working hours. It could guarantee proper patient care centred on their pathologies and individual needs, that can improve P-HO and P-QoL. Moreover, it is recommended that the SLT-S ratios contemplate the different activities and tasks that the professionals perform during their regular working hours. Their relevant role in multidisciplinary teams has been gradually risen during the years. It is mandatory to ensure the points previously mentioned to guarantee well-equipped team workforces to meet patient needs.

Authorship contribution

Felipe Gonzalo Rosales Lillo:
- Conceptualización del artículo.
- Metodología.
- Realización de las estadísticas.
- Recogida de datos.
- Redacción primer documento.

Giovanna Monichi Valdenegro:
- Conceptualización del artículo.
- Realización de las estadísticas.
- Recogida de datos.
- Revisión de la primera redacción del documento.

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Appendix 1. Resume of the documents included for analysis.

Document	Country	Type	Ratio proposed	Conclusion	References
Guidelines for Allied Health – Resources Required for the Provision of Quality Rehabilitation Service.	Australia.	Guideline document.	.025 and .2 WTE-SLT[a] per 10 clinical beds, depending on the type of damage. For: **Inpatients:** · Spinal injury (specialist): .25 · Spinal injury (normal): .1 · Head injury: 1.5 · Amputee: .025 · Burns (specialist): .2 · Burns (normal): .1 · Neurology: 1.5 · Orthopaedics: .1 · Arthritis: .025 · Pain: .025 · Cardiac: .025 · Pulmonary: .1 · Major multiple trauma: .1 · Multiple comorbidities: .5 Outpatients: · Spinal injury: .025 · Head injury: 1.0 · Amputee: .025 · Burns: .025 · Neurology: 1.5 · Orthopaedics: .025 · Arthritis: .025 · Pain: .025 · Cardiac: .025 · Pulmonary: .025 · Major multiple trauma: .025 · Multiple comorbidities: .025	The document establishes recommendations for **staff planning** in rehabilitation units and emphasizes the importance of having clear standards to ensure quality healthcare services.	Allied Health in Rehabilitation Consultative Committee. (2007).

Document	Country	Type	Ratio proposed	Conclusion	References
Standards for the Provision of Inpatient Adult Rehabilitation Medicine Services in Public and Private Hospitals.	Australia and New Zealand.	Normative guideline based on consensus.	.1 and 1.5 WTE-SLT[a] per 10 clinical beds, depending on the type of damage: · Amputation consultant (availability of staff on a consultation basis, as required). · Stroke / Neurology: 1.5 · Traumatic Brain Injury: 1.5 · Spinal Cord Dysfunction: .25 · Major Trauma: .2 · Reconditioning and Restorative: .2 · Orthopaedic .1	The document outlines **staffing standards** and promotes patient-centred, tailored rehabilitation care. Patients should receive a minimum of three hours of **therapy services** per day, provided they have the capacity to tolerate this amount. Therapy should be delivered on at least five days per week. **Patient attributable time** includes other patient-related activities such as attending case and family conferences and ward rounds, writing reports and travel. **Staffing levels may need to be adjusted** if the unit cares for patients with special needs, as delivering effective therapy in these cases requires more time. Specialist rehabilitation services, particularly those managing complex caseloads—such as individuals with dual diagnoses, challenging behaviour, substance misuse, or dementia—are likely to require higher levels of allied health staffing. The **provision of therapy on weekends** is strongly recommended as it has been shown to increase functional independence, physical activity, quality of life and in some cases, reduce length of stay.	Royal Australasian College of Physicians. (2019).
Standards for Medical Assessment and Planning Units in Public and Private Hospitals.	New Zealand and Australia.	Position statement based on expert consensus.	.2 WTE-SLT[a] per 25 clinical beds.	The document defines staffing standards, highlights interdisciplinary work, and aims to improve efficiency and patient flow. **Cross-covering** between Speech and Language Therapy, Occupational Therapy, and Physiotherapy has proven highly effective in several units. These allied health services should be available **seven days a week**, with rostered shifts designed to cover peak patient influx periods.	Henley, J., Bennett, C., Williamson, J., & Scott, I. (2006).
Position Statement: Speech and Language Therapists Working in Adult and Paediatric Critical Care Units.	United Kingdom.	Position statement based on national guidelines.	1.0 WTE-SLT[a] per 10 critical care bed.	The ratio is based on UK national critical care guidelines, highlighting the importance of **early intervention and multidisciplinary collaboration**. The **ratio can be increased** depending on local patient complexity and service requirements. The **activities** include direct patient contact time, team discussions and strategic involvement. It is recommended to deliver a consistent, safe and reliable speech and language **therapy service** to critical care patients. Service requirements may vary, so this recommendation should be reviewed and discussed locally. A minimum of a five-day speech and language therapy service is expected, with a **seven-day service** in critical care being highly desirable. Regular attendance of local education sessions and critical care network meetings are important **activities**.	Royal College of Speech & Language Therapists. (2019).
Guidelines for the Provision of Intensive Care Services (GPICS), Version 2.1.	United Kingdom.	National guideline document.	1.0 WTE-SLT[a] per 10 critical care bed.	The recommended minimum staffing ratio aims **to ensure high-quality care** in critical units and **promote a multidisciplinary approach**. A **higher level of WTE-SLT** may be needed based on factors such as the local case mix, patient acuity, complexity, new initiatives, or the provision of a service that exceeds five days a week. Speech and Language Therapy should be offered at least five days a week, with a **preference for providing services seven days a week**. Speech and Language Therapists should be an **essential part of the multidisciplinary team in the critical care unit**, actively participating in multidisciplinary ward rounds, tracheostomy teams, clinical governance groups, as well as in audit, research, education, and policy development.	Intensive Care Society. (2022).

Document	Country	Type	Ratio proposed	Conclusion	References
A comparison between reported therapy staffing levels and the department of health therapy staffing guidelines for stroke rehabilitation: a national survey.	United Kingdom.	Observational cross-sectional study.	2.0 WTE-SLT[a] per 10 stroke rehabilitation beds.	To deliver the recommended 45 minutes of **therapy service** daily to stroke patients who are considered suitable for treatment.	McHugh, G., & Swain, A. (2014).
National Stroke Strategy 2022-2027.	Ireland.	National guideline document.	.8 WTE-SLT[a] per 10 acute stroke rehabilitation beds.	The ratio given are based on five days working week. It will need to be increased as and when provision services changes to a **seven-day staffing model**.	National Clinical Programme for Stroke (2022).

a: Whole-time equivalent of Speech and Language Therapist