

Artículo de Revisión

Structure of the therapeutic objectives in speech-language pathology interventions for service users with vocal needs: an exploratory systematic review

Jaime Crisosto ^{a,*} and Arturo Flores ^a

^a Laboratory of Exercise and Rehabilitation Sciences, School of Speech-Language Pathology, Faculty of Rehabilitation Sciences, Universidad Andres Bello, Santiago 7591538, Chile

ABSTRACT

This review aims to identify and describe the structure of the therapeutic objectives found in research carried out in the last five years on vocal therapy. A strategic search was performed using three databases: PubMed, ScienceDirect, and Web Of Science, from which 3,974 results were obtained. Following a thorough analysis, 12 articles that met the inclusion criteria were selected. A tendency was found among the studies to omit the description of objectives and to refer exclusively to therapy procedures. The qualitative analysis of the objectives revealed an absence of a standardized structure and a lack of differentiation between levels of objectives, which results in a high degree of heterogeneity. Regarding the role of the service user, it is presented as rather secondary and passive. On the other hand, insufficient attention is paid to establishing achievement criteria and to the operationalization of contents included in the voice therapy plan. Due to the lack of operationalization, the description of therapy contents from a conceptual point of view hinders a specific measurement of the performance on therapeutic tasks. It is concluded that there is no common structure for the formulation of therapy objectives in voice therapy.

Keywords:

Voice therapy; Therapy planning; Goals; Vocology; Voice

Estructura de los objetivos terapéuticos en la intervención fonoaudiológica de usuarios con necesidades vocales: una revisión sistemática exploratoria

RESUMEN

Esta revisión tiene como finalidad identificar y describir la estructura de los objetivos terapéuticos incluidos en aquellas investigaciones que explicitan una intervención fonoaudiológica vocal durante los últimos cinco años. La búsqueda estratégica se lleva a cabo en las bases de datos PubMed, ScienceDirect y Web Of Science y se obtienen 3.974 registros, de los cuales 12 artículos cumplen con todas las condiciones declaradas en los criterios de inclusión. La tendencia mayoritaria en la literatura del área es la omisión de los objetivos terapéuticos y la alusión solo a los procedimientos empleados. En el análisis cualitativo de los objetivos hallados, se evidencia la ausencia de una estructura textual estándar y falta de diferenciación entre los tipos de objetivos, lo que provoca un alto grado de heterogeneidad en su redacción. En relación con la noción de usuario, su rol es más bien secundario y pasivo. Existe insuficiente atención a la determinación de criterios de logro y una escasa operacionalización de los contenidos a abordar en la intervención fonoaudiológica. La enunciación de los contenidos de intervención desde su naturaleza conceptual impide una medición concreta asociada a la tarea terapéutica propuesta debido a su pobre operacionalización. Se concluye que no existe una estructura común en la formulación de objetivos terapéuticos para la intervención vocal.

Palabras clave:

Terapia vocal; Planificación terapéutica; Objetivos; Fonoaudiología; Voz

*Corresponding Author: Jaime Crisosto

Email: jaime.crisosto@unab.cl

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INTRODUCTION

Within the rehabilitation sciences, therapy objectives are understood as frameworks for addressing specific functions that will help the service user to improve their level of performance. This is achieved through particular clinical procedures guided by a health care professional (van Stan et al., 2021). It is generally accepted that objectives should be measurable and that their development should involve an active participation of the client. However, there is currently no single form to structure them (Levack et al., 2015), nor sufficient clarity regarding the methods used to measure them. An example of this issue is the SMART philosophy, which states that objectives should be specific, measurable, achievable, relevant, and time-limited (Levack & Siegert, 2015). Despite being considered a standard strategy for goal-setting in rehabilitation sciences, this approach has received numerous criticisms (Hersh, Sherratt, et al., 2012; Hersh, Worrall, et al., 2012). Furthermore, there is an ongoing debate regarding the role of the patients in this process (Rosewilliam et al., 2011).

Due to the above, the structure of the therapy goals in speech-language pathology generates disagreement between professionals with different training, different perspectives regarding the approach to therapy, who come from diverse work environments, and who work with different types of service users. This could hinder the communication between speech-language pathologists (SLP) regarding the organization of therapy plans, even within interdisciplinary healthcare teams.

In the current literature general proposals can be found that allow adapting the intervention process according to various conceptual frameworks. Nevertheless, the importance that those proposals give to the creation of therapy objectives is low. An example of this is the study by Ma et al. (2007), where the approach is organized according to the categories established by the ICF (World Health Organization [WHO], 2001), but in which no suggestions are provided regarding the structure of the objectives or of the treatment plan itself. Another example is found in the proposal by van Stan et al. (2015), who offer the use of a specific taxonomy for voice therapy, that responds to the internal logic of methods and techniques used in speech-language pathology interventions. Based on this taxonomy, the procedures that the SLP can use are categorized. However, this study does not provide any recommendation regarding a treatment plan or the formulation of objectives. For this reason, we consider it necessary to count with theoretical tools that enable a process of treatment planning with proper scientific rigor. This will allow incorporating the various therapeutic principles proposed by the specialized literature into clinical practice.

It should be noted that, in the field of voice therapy, the structure of the objectives varies according to the rehabilitation philosophy selected by the SLP. Concerning this fact, Crisosto (2021) states that in the physiological approach, the objectives mainly consider the subsystems involved in voice production. An example would be: “to improve the balance between the processes of voice production: breathing, phonation, and resonance”, while an objective belonging to the symptomatological or eclectic orientations would consider the service user and/or the intervention parameters, as such: “that the user achieves adequate respiratory parameters during phonation”, or “that the user achieves adequate vocal parameters”. In addition, when setting an objective, the therapeutic framework should be taken into consideration, including the approach (direct or indirect) or method of intervention (extrinsic, intrinsic, or extrinsic-intrinsic), for example (van Stan et al., 2015). Nonetheless, the degree of dependency of the objective’s structure on these characteristics is variable, and has not been explored in the specialized literature.

There is relative agreement that the aspects that are deemed insufficient or disturbed during the voice evaluation should be included in the goal-setting stage. These aspects should be addressed during the intervention according to the hierarchy criterium selected by the therapist, in line with the information provided by the client (Crisosto, 2021).

There is also relative consensus that the objectives should be formulated at three levels: general, specific, and operational (Crisosto, 2021). Regarding the general objective in speech-language pathology, Landis et al. (2004, p. 4) state that the inclusion of measurable achievement criteria is not required, since the function of this objective is to indicate what the user is expected to achieve globally by the end of the treatment. To that effect, the general objective should be oriented towards the Activity and Participation level proposed by the ICF (WHO, 2001), and it should consider the contexts in which the affected function is relevant for the user and for the rehabilitation process (American Speech-Language-Hearing Association [ASHA], 2020). On the other hand, Crisosto (2021) considers that the formulation of a general objective depends on the user’s condition and on their prognosis, hence, the results of the ORL assessment and the analysis of barriers and facilitators in the user’s context should be taken into consideration.

Specific objectives allow achieving the general objective, and establish actions for this purpose (Aspeé, 2015). Their function is to break down the general objective into different areas of action, which in voice therapy correspond to intervention contents such as the subsystems of voice production, in addition to aspects of

the user's vocal hygiene. Specific objectives enable the organization of the treatment plan, since they create a panorama of the different needs and demands of the client.

For their part, operational objectives are posed as short-term goals which materialize in specific tasks for the user to perform, in order to achieve a particular result. The performance on those tasks is evaluated according to achievement criteria. The SMART philosophy (Angeli et al., 2018, 2019; Bailey, 2017; Bowman et al., 2015; Fu et al., 2020; Prescott et al., 2019; Řasová et al., 2020) considers that operational objectives should be specific, measurable, achievable, relevant, and time-limited (Ogbeiwi, 2017). Thus, it is possible to monitor the degree of progress in relation to the general objective.

ASHA (2020) proposes a different structure for the formulation of objectives. This structure does not include a general objective to aim the intervention efforts at or to be associated with a particular vocal task, nor does it distribute the specific objectives according to subsystems or habits. Instead, ASHA presents two taxonomic levels for the creation of objectives, one long-term and the other short-term, with the fundamental difference between both levels being a time criterion. The long-term goal is centered on the user achieving adequate performance on a particular activity, with certain achievement criteria set between them and the SLP. In this sense, it allows orienting the intervention towards specific tasks of every-day life, which facilitates an understanding of the purpose of therapy and could improve the level of adherence of the client. On the other hand, short-term objectives are varied and they reflect achievements both in the context of the intervention itself and in the social context of the user.

Considering the above, the purpose of this study is to analyze the structure of the operational objective(s) in voice rehabilitation processes described in research carried out in the last five years. This information will allow professionals in the field to count on a theoretical framework for the formulation of therapy objectives, and will provide them with tools to improve their interventions. Additionally, it will help optimize the development of voice interventions, adding rigorous scientific criteria to the treatment planning process.

The research question guiding this study is "What is the structure of the objectives formulated by speech-language pathologists for the intervention of service users with vocal needs?". To answer this question, a review of the specialized literature of the last five years is carried out.

MATERIALS AND METHODS

An exploratory systematic review was performed with the aim to identify the structure of the therapeutic objectives in research carried out in the last five years on voice therapy. In line with the research design, a working hypothesis was not proposed (Manchado Garabito et al., 2009).

Inclusion and Exclusion Criteria

The following inclusion criteria were applied for the selection of articles:

- a) Studies describing interventions carried out by a speech-language pathologist.
- b) Studies that describe speech-language pathology interventions on users with vocal pathology and/or discomfort, for which a therapeutic objective was formulated.
- c) Articles published between January 2017 and May 2021.
- d) Articles written in Spanish or English.
- e) Research published in scientific magazines (not letters or book chapters, for example).

Exclusion criteria were also applied, hence the following are not included:

- a) Research on the effects of isolated techniques on users with a healthy voice.
- b) Studies that propose a structure for therapy or goal formulation, that do not describe an empirical SLP intervention.
- c) Studies on group therapy.
- d) Research on therapy for users with total laryngectomy.
- e) Studies that include indirect strategies of intervention.

Exclusion criterion (a) was adopted to discard studies on the effectivity of procedures which, when used with clients with a healthy voice, cannot be associated with specific treatment objectives. Criterion (b) was considered with the purpose of only including empirical approaches. Criterion (c) was included because the structure of therapy differs between individual and group sessions, and this could influence the formulation of objectives. Criterion (d) was added with to exclude procedures that seek the production of esophageal voice, since they differ from interventions that aim at voice rehabilitation. Finally, criterion (e) was adopted in order to center the review on therapy contents other than vocal hygiene or counseling, meaning that the selection would only include interventions where exercises, techniques, and/or voice therapy programs are used.

Concept of “Therapeutic Objective”

For the purpose of this study, “therapeutic objective” is understood as any written structure, regardless of verbal tense or mode, that meets at least the following requirements:

- a) It explicitly declares a purpose. In other words, it establishes a particular direction for the therapeutic actions, aimed at achieving a specific rehabilitation goal.
- b) It explicitly declares a procedure through which the stated purpose can be achieved. That is to say, it indicates a therapeutic method, strategy, or technique through which the intervention is delivered.
- c) The notion of “user” is included in the description of the therapeutic objective. The denominations “client”, “patient”, and “person” were also considered as meeting this requirement, according to what is used by the authors of each article. For some of the articles, it was enough that this was made explicit in any section of the paragraph, and that there was a relation between the person (user) and the action.

These requirements concerning the nature of the objectives is based on the theoretical notions of Wade (2009), on the ABCD method for setting objectives (Goff et al., 2015), on some of the conditions proposed by Förster & Rojas-Barahona (2017, pp. 43-74), and on the proposal by Crisosto (2021) for the adaptation of the SMART method for voice therapy objectives.

Search Strategy and Databases

Three databases were consulted: Pubmed, ScienceDirect, and Web Of Science (WOS). The search terms were written in English. The search path used for PubMed followed the site’s syntax: ((((((“voice therapy”) OR (“vocal therapy”)) OR (“voice rehabilitation”)) OR (“vocal rehabilitation”)) OR (“voice intervention”)) OR (“vocal intervention”)) AND (((aim) OR (objective)) OR (target)) OR (goal)). Regarding ScienceDirect, the search path was: (((“voice therapy”) OR (“vocal therapy”)) OR (“voice rehabilitation”)) OR (“vocal rehabilitation”)) OR (“voice intervention”)) AND (((aim) OR (objective)) OR (target)) OR (goal)). In this case, a second search had to be carried out using the path: (“vocal intervention”) AND (((aim) OR (objective)) OR (target)) OR (goal))), since the website only admits up to eight boolean operators per search, leaving “voice intervention” out the first time. For WOS, the strategy was as follows: (((“voice therapy”) OR (“vocal therapy”)) OR (“voice rehabilitation”)) OR (“vocal rehabilitation”)) OR (“voice intervention”) OR (“vocal intervention”)) AND ((aim) OR (objective) OR (target) OR (goal))). The limits for the year of

publication were set manually, using the filter option in each of the databases.

RESULTS

The strategic search retrieved 2,812 articles from PubMed, 851 from ScienceDirect, and 311 from WOS, adding a total of 3,974. In each platform the filter ‘Journal Article’ was used to exclude any other type of document, such as editorials, letters, and book reviews.

The results retrieved as bibliographic references were downloaded, and subsequently uploaded to the Rayyan platform to be analyzed (Ouzzani et al., 2016). Duplicates and triplicates were eliminated, adding a total of 530. Consequently, there were 3,444 articles left for the title and abstract analysis, after which 3,117 were discarded. The remaining 326 were downloaded as full-text and subject to an in-depth review, in order to determine the presence of therapeutic objectives. Thirteen articles could not be accessed, while 301 were excluded from the final analysis due to various factors mentioned in Figure 1. The final selection included 12 articles that met the required conditions.

Thirteen therapeutic objectives were extracted from the final 12 studies. These objectives are presented in Table 1.

Subsequently, the articles were submitted to an organization process using content analysis, finally distributing them in a qualitative matrix based on the three requirements previously described: (a) purpose, (b) procedure or means to reach the purpose, and (c) notion of the user (Table 2).

ANALYSIS

When comparing the objectives, a lack of a single presentation format was observed. The information is organized below according to the aspects considered relevant and which reflect this heterogeneity: presence of a notion of the user, use of verbal forms (personal or impersonal) in the formulation of objectives, presence of a hierarchy for the objectives, explicit mention of the purpose of the objectives, and reference to achievement criteria.

Notion of the User

All the objectives presented a notion of the user, since this condition was set as an inclusion criteria. However, in some cases this notion is present through an ellipsis (Ubrig et al., 2019; Yibrehu et al., 2020), meaning that the user is not explicitly

mentioned, since they were mentioned in a previous section of the text. This includes the cases where the user is mentioned using a different denomination (student, participant, patient, etc.) within the text but not as part of the direct wording of the objective. In other words, the notion of user is included within the paragraph, but not specifically in the objective itself. The foregoing shows that the role of the user is rather circumstantial and secondary when it comes to developing the objectives. This secondary role was also observed during the screening and selection process, where 137 articles were excluded for describing a vocal intervention without associating the activities to objectives. The lack of objectives evidences a standardized practice of speech therapy that is not user-centered.

On the other hand, in objectives where this notion is included, the user is not at the center (Formánek et al., 2020; Quinn & Swain, 2018; Ribeiro et al., 2018; Sielska-Badurek et al., 2017), but rather maintains a passive role, while the activities are mainly guided by the therapist.

In some of the studies the notion of user is defined by the characteristics of the therapeutic approach, as occurs in Ribeiro et al. (2018), Lu et al. (2017), and in the first objective of Quinn & Swain (2018) (see Table 1 for further detail). In other words, the qualities of the intervention, rather than the role the user adopts during the approach, are described.

Use of Impersonal Verb Forms for the Objectives

The grammatical structure of each objective analyzed presents the verb in the infinitive, impersonal form, without explicitly naming the subject. This makes it difficult to identify the person responsible for the execution of the activity. An exception is found in the study by Quinn & Swain (2018), who directly name the user with his first name, 'Alex'.

Figure 1. Flow diagram adapted from the PRISMA 2020 format, presenting the process of screening and selection of the articles.

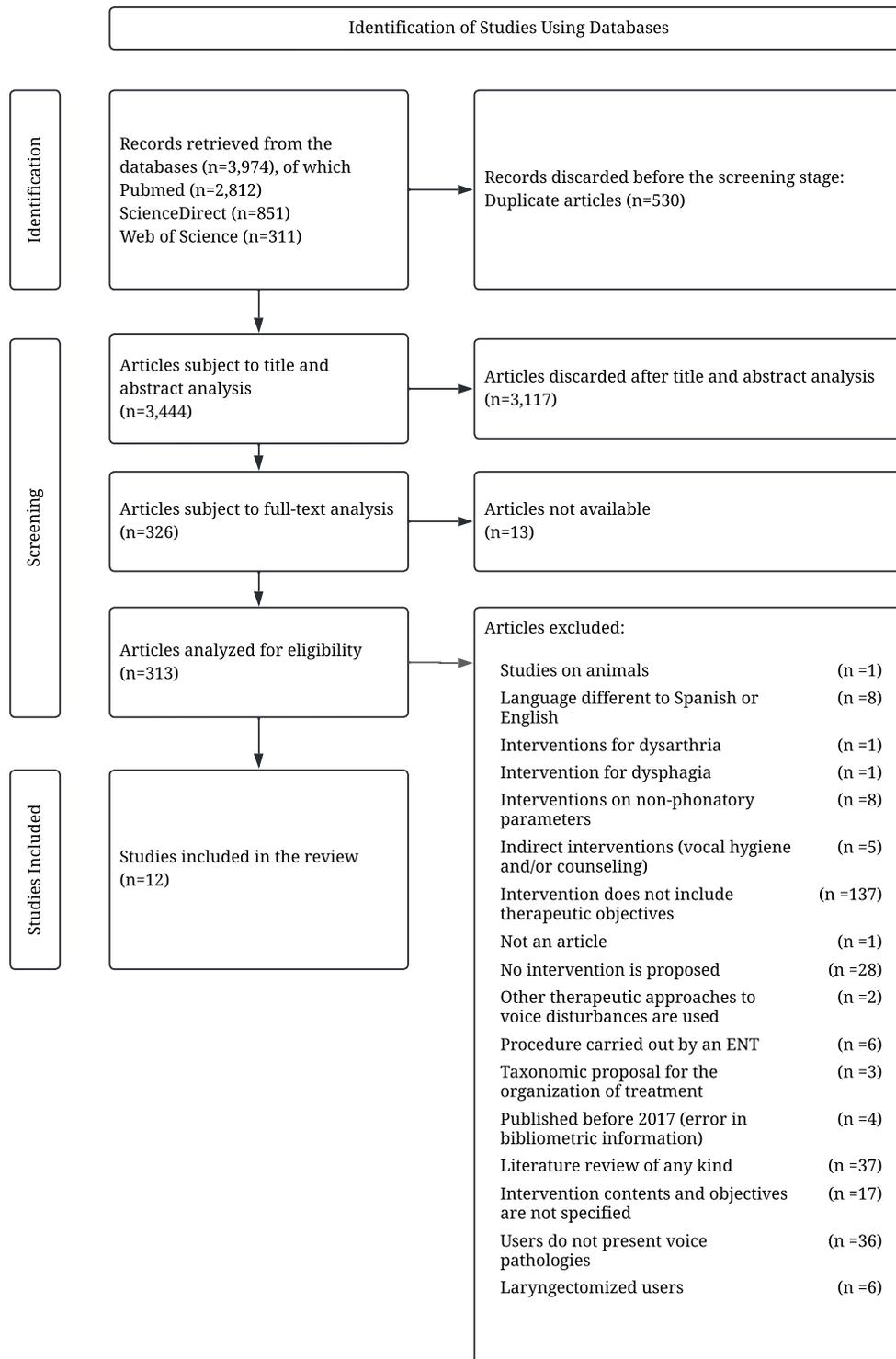


Table 1. Articles included according to results.

Nº	Authors	Name of the Article	Year	Journal / DOI	Objective found in the publication	Translation Notes
1	Barcelos, C. Silveira, P. Guedes, R. Gonçalves, A. Slobodtiov L. Carrara-de Angelis, E.	Multidimensional effects of voice therapy in patients affected by unilateral vocal fold paralysis due to cancer	2017	DOI: https://doi.org/10.1016/j.bjorl.2017.07.012 Associação Brasileira de Otorrinolaringologia e Cirurgia Cervico-Facial.	“Patients who used falsetto register compensation were oriented to bring out the chest voice by moving the larynx to lower position in the neck (manually or using techniques such as deep inhalation and yawning).”	No notes.
2	Lu, D. Chen, F. Yang, H. Yu, R. Zhou, Q. Zhang, X. Ren, J. Zheng, Y. Zhang, X. Zou, J. Wang, H. Liu, J.	Changes After Voice Therapy in Acoustic Voice Analysis of Chinese Patients With Voice Disorders	2017	DOI: https://dx.doi.org/10.1016/j.jvoice.2017.05.005 Journal of Voice	“Humming is a well-known vocal therapy technique for producing a resonant voice. The participants produced the sound /m:/ followed by gliding the pitch to the most comfortable and natural level.”	No notes.
3	Sielska-Badurek, E. Osuch- Wójcikiewicz, E. Soból, M. Kazanecka, E. Niemczyk, K.	Singers’ Vocal Function Knowledge Levels, Sensorimotor Self-awareness of Vocal Tract, and Impact of Functional Voice Rehabilitation on the Vocal Function Knowledge and Self-awareness of Vocal Tract	2017	DOI: https://doi.org/10.1016/j.jvoice.2016.01.011 Journal of Voice	“The patient was made aware and taught that the lower circumference of the chest should remain expanded (in inhalation position) during singing, with simultaneous movements slightly inward of the abdominal wall just before phonation, accent, or high pitches”	No notes.
4	Fabron, E. Silvério, K. Berretin-Felix, G. Andrade, E. Salles, P. Moreira, P. Brasolotto, A.	Voice therapy for the elderly with progression of intensity, frequency, and phonation time: case reports.	2018	DOI: https://doi.org/10.1590/2317-1782/20182017224 Communication Disorders, Audiology and Swallowing	“The participant should sustain phonation of a vowel for 60% of the MPT of the baseline value until good vocal performance is achieved, and then move on to 70 and 80% of MPT”	No notes.

5	Quinn, S. Swain, N.	Efficacy of intensive voice feminization therapy in a transgender young offender.	2018	DOI: https://doi.org/10.1016/j.jcomdis.2018.02.001 Journal of Communication Disorders	Objective 1: “Stemple’s Vocal Function Exercises (sustained /i/ at a comfortable pitch, pitch glides on the word ‘knoll’, and sustained notes C-D-E-F-G on the word ‘knoll’) were used to help Alex increase their comfortable speaking pitch range and raise their speaking fundamental frequency” Objective 2: “Alex was prompted to use gentle onsets and soft articulatory contacts in order to produce softer, more feminine sounding speech.”	The musical notes were translated to European notation when translating the objectives to Spanish for analysis.
6	Ribeiro, V. de Oliveira, A. Vitor, J. Ramos, A. Brasolotto, A. Silverio, K.	Effectiveness of Voice Therapy Associated With Electromyographic Biofeedback in Women With Behavioral Dysphonia: Randomized Placebo-Controlled Double-Blind Clinical Trial	2018	DOI: https://doi.org/10.1016/j.jvoice.2017.12.015 Journal of Voice	“The Voice Therapy Program (VTP) was developed for the rehabilitation of individuals with behavioral dysphonia and has as general objectives to equalize phonation, to improve knowledge, and to provide strategies for the participant to improve vocal health, production, and behavior.”	No notes.
7	Tower, J. Acton, L. Wolf, J. Wilson, W. Young, N.	Effects of Vocal Training on Students’ Voices in a Professional Drama School	2019	DOI: https://doi.org/10.1177/2473974X19866384 American Academy of Otolaryngology-Head and Neck Surgery	“The students explored resonance and were encouraged to develop a greater capacity for vocal range and expressivity”	No notes.
8	Ubrig, M. Tsuji, R. Weber, R. Menezes, M. Barrichelo, V. da Cunha, M. Tsuji, D. Goffi-Gomez, M.	The Influence of Auditory Feedback and Vocal Rehabilitation on Prelingual Hearing-Impaired Individuals Post Cochlear Implant	2019	DOI: https://doi.org/10.1016/j.jvoice.2018.07.004 Journal of Voice	“The general objectives of the proposed voice therapy program were to enhance their self-perception of their own voice production, loudness control, and pitch control; to improve pneumo-phono-articulatory coordination during voice and speech production; to improve overall voice production; to reduce vocal strain,	The objective was considered user-centered, due to the use of the third person plural possessive pronoun “their”, which refers the users. This is included in Table 2.

				when present; and to adjust the resonance and maximize the articulation pattern aiming at increasing vocal projection.”	“Pneumo-phono articulatory coordination” was translated to “coordinación fonorrespiratoria” when analyzing the objective in Spanish.
9	Formánek, M. Walderová, R. Baníková, S. Chmelová, I. Formánková, D. Zeleník, K. Komínek, P	Effect of voice therapy with or without transcutaneous electrical stimulation on recovery of injured macroscopically intact recurrent laryngeal nerve after thyroid surgery.	2020 DOI: https://doi.org/10.1007/s00405-020-05806-1 European Archives of Oto-Rhino-Laryngology	“Exercise for glottis closure correction was applied. The patient was instructed to pronounce with pushing syllables “ha”, “he”, “hy”, “ho”, “hu”, which was accompanied by thoraco-petal upper limbs flexing”.	The syllables that were used for the described intervention were translated into their phonetic equivalents in Spanish when analyzing the objective.
10	Yibrehu, B. Georgakopoulos, B. Mudd, P. Rana, S. Bauman, N.	Outcomes of Paradoxical Vocal Cord Motion Diagnosed in Childhood	2020 DOI: https://doi.org/10.1177/0003489420931894 Annals of Otology, Rhinology & Laryngology	<i>“Improving control of your vocal cords by first watching how they move on a screen during a scope procedure in your doctor’s office”.</i>	The objective is considered user-centered, due to the use of the possessive pronoun, second person singular “your”, which refers to the user. This is included in Table 2.
11	Ruoppolo, G. Mariani, L. Quagliari, S. Longo, L. Pescerelli, P. Cilfone, A. Cocchi, C. Marcotullio, D. Greco, A. De Vincentiis, M.	Unilateral vocal fold paralysis post-thyroidectomy: does early intervention allow for better voice recovery?	2021 DOI: https://doi.org/10.26355/eurrev_202102_24820 Eur Rev Med Pharmacol Sci	<i>“The recovery of the pneumo-phonic coordination and reinforcement of the expiratory airflow. In the presence of a breathy voice, this was obtained through the production of vocalic syllables during phonatory tasks, by using central vowels (/i/, /e/), in a falsetto voice. If a patient pathologically displayed a falsetto voice, all the tasks were executed with a more low-pitched phonation and hard attack vocalizations.”</i>	For the analysis of this objective in Spanish, /i/ and /e/ are translated as central vowels, although in Spanish the central vowel is /a/.

12	Wenke, R. Coman, L. Walton, C. Madill, C. Theodoros, D. Bishop, C. Stabler, P. Lawrie, M. O'Neill, J. Gray, H. Cardell, E.	Effectiveness of Intensive Voice Therapy Versus Weekly Therapy for Muscle Tension Dysphonia: A Noninferiority Randomized Controlled Trial With Nested Focus Group	2021	DOI: https://doi.org/10.1016/j.jvoice.2021.02.011 Journal of Voice.	<i>“This therapy focused on the participant producing a resonant voice, described as a voice pattern that involves feedback through sensing oral vibration sensations in the alveolar ridge and facial plates, through a hierarchy of prescribed voice and speech tasks progressing from producing sounds /m/ and /n/, followed by syllables (e.g., mee, mar, mor, moo), words, phrases and sentences.”</i>	The syllables that were used for the described intervention were translated into their phonetic equivalents in Spanish when analyzing the objective.
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Table 2. Matrix for the analysis of therapeutic goals.

N°	Source	Thematic Analysis	
		Category	Extracts from the Text
1	Barcelos et al. (2017)	Notion of the user	“Patients who used falsetto register compensation (...)”
		Procedure	“(…) by moving the larynx to lower position in the neck (manually or using techniques such as deep inhalation and yawning).”
		Purpose	“(…) were oriented to bring out the chest voice (...)”
2	Lu et al. (2017)	Notion of the user	“(…) The participants (...)”
		Procedure	“(…) produced the sound /m:/ followed by gliding the pitch to the most comfortable and natural level.”
		Purpose	“Humming is a well-known vocal therapy technique for producing a resonant voice (...)”
3	Sielska-Badurek et al. (2017)	Notion of the user	“The patient (...)”
		Procedure	“(…) was made aware and taught that the lower circumference of the chest should remain expanded (in inhalation position) (...), with simultaneous movements slightly inward of the abdominal wall just before phonation, accent, or high pitches.”
		Purpose	“(…) during singing (...)”
4	Fabron et al. (2018)	Notion of the user	“The participant (...)”
		Procedure	“(…) should sustain phonation of a vowel for 60% of the MPT of the baseline value (...) and then move on to 70 and 80% of MPT.”
		Purpose	“(…) until good vocal performance is achieved (...)”
5	Quinn & Swain (2018)	Notion of the user	“Alex (...)”
		Procedure	“(…) was prompted to use gentle onsets and soft articulatory contacts (...)”
		Purpose	“(…) in order to produce softer, more feminine sounding speech.”

6	Quinn & Swain (2018)	Notion of the user	“were used to help Alex”
		Procedure	“Stemple’s Vocal Function Exercises (sustained /i/ at a comfortable pitch, pitch glides on the word ‘knoll’, and sustained notes C-D-E-F-G on the word ‘knoll’) (...)”
		Purpose	“(...) to help Alex increase their comfortable speaking pitch range and raise their speaking fundamental frequency”
7	Ribeiro et al. (2018)	Notion of the user	“(...)for the participant (...)”
		Procedure	“(...) to equalize phonation, to improve knowledge, and to provide strategies (...)”
		Purpose	“(...) to improve vocal health, production, and behavior.”
8	Tower et al. (2019)	Notion of the user	“The students (...)”
		Procedure	“(...) explored resonance (...)”
		Purpose	“(...) to develop a greater capacity for vocal range and expressivity”
9	Ubrig et al. (2019)	Notion of the user	“their self-perception of their own voice production”
		Procedure	“(...) to adjust the resonance and maximize the articulation pattern (...)”
		Purpose	“(...) aiming at increasing vocal projection.”
10	Formánek et al. (2020)	Notion of the user	“The patient (...)”
		Procedure	“(...) was instructed to pronounce with pushing syllables “ha”, “he”, “hy”, “ho”, “hu”, which was accompanied by thoraco-petal upper limbs flexing.”
		Purpose	“Exercise for glottis closure correction was applied. (...)”
11	Yibrehu et al. (2020)	Notion of the user	“(...) your vocal cords (...)”
		Procedure	“(...) by first watching how they move on a screen during a scope procedure in your doctor’s office”

		Purpose	“Improving control of your vocal cords (...)”
12	Ruoppolo et al. (2021)	Notion of the user	“(...) If a patient pathologically displayed a falsetto voice (...)”
		Procedure	“In the presence of a breathy voice, this was obtained through the production of vocalic syllables during phonatory tasks, by using central vowels (/i/, /e/), in a falsetto voice., (...) all the tasks were executed with a more low-pitched phonation and hard attack vocalizations.
		Purpose	“The recovery of the pneumo-phonics coordination and reinforcement of the expiratory airflow. (...)”
13	Wenke et al. (2021)	Notion of the user	“(...) the participant(...)”
		Procedure	“(...) through a hierarchy of prescribed voice and speech tasks progressing from producing sounds /m/ and /n/, followed by syllables (e.g., mee, mar, mor, moo), words, phrases and sentences.”
		Purpose	“This therapy focused on (...) producing a resonant voice, described as a voice pattern that involves feedback through sensing oral vibration sensations in the alveolar ridge and facial plates (...)”

Regarding the Hierarchization of Objectives

None of the reviewed articles showed a distinction between types of objectives, meaning that the hierarchical of general, specific, and operational objectives proposed by certain authors was not present (Aspeé, 2015; Crisosto, 2021; Farías, 2007, pp. 123-124). Similarly, no reference was found to the short-term/long-term categorization that other authors and organizations propose (ASHA, 2020; Castillo-Allendes & Fouillieux, 2021). The differentiation between types of objectives is relevant for the structure of the treatment plan and, ultimately, for how the user's needs are approached.

Ubrig et al. (2019) present an objective that, although named as a general objective, includes a description of the intervention contents in its formulation, which rather corresponds to the structure of an operational objective. In order to comply with the structure proposed by this study, the objective would need to include more information. Furthermore, the fact that the authors state that their research contains a general objective reveals that they might not have used an adequate taxonomy, based on therapeutic interventions. A similar situation was found in Ribeiro et al. (2018), where the "general objective" contains a structure incompatible with the concept of this type of objective.

Purpose of the Therapeutic Objective

For some of the objectives found, the ability that needs improving is defined imprecisely. This lack of precision is variable and continuous among the studies, with some objectives being more vague than others, and it is evidenced, for example, in Ribeiro et al. (2018), who write: "(the intervention) has as its general objective to balance the voice", or Yibrehu et al. (2020), who propose "(the intervention seeks) to improve the control of your vocal cords". Moreover, these objectives lack achievement criteria that allow measuring the user's performance.

In eight of the 13 objectives that were analyzed, the purpose was mildly imprecise, as can be seen in the objectives "(the intervention seeks) to produce softer speech" (Quinn & Swain, 2018), "(the treatment focused on) the participant producing a resonant voice" (Wenke et al., 2021), or "(the intervention aims) at increasing vocal projection" (Ubrig et al., 2019). In these cases, the purpose could be operationalized in several ways. For example, a "softer speech", could be either interpreted as a weaker vocal intensity, a slightly higher pitch, a lower articulatory pressure, a particular type of prosody, a phonation mode that tends towards breathiness, all of these possibilities combined, or just some of them. Each one of these possibilities, all part of speech, can be measured through a different method. Thus, pitch variation

can be assessed both perceptually and acoustically, the first relying on the perception of the therapist, the user, a third person, family, all, or some of them. As for the latter, pitch variation could be expressed in semitones, in Hertz, or in Barks, for example. As can be seen, the degree of indeterminacy of these objectives is high.

On the other hand, four of the proposed objectives aim towards multiple purposes. This is observed, for example, in: "(the intervention seeks) to produce a softer, more feminine-sounding speech", in "(the intervention seeks) to increase their comfortable pitch range and the fundamental frequency of their speaking voice" (both in Quinn & Swain, 2018), in "(the intervention seeks for the user) to improve their vocal health, production and behaviors" (Ribeiro et al., 2018), in "(the intervention seeks) to develop a greater vocal range and expressiveness" (Tower et al., 2019), or in "(the intervention seeks) to recover the pneumo-phonetic coordination and to reinforce the expiratory air flow" (Ruoppolo et al., 2021).

Finally, in Formánek et al. (2020) the purpose is "to correct the glottal closure". However, this type of objective, which aims at a physiological change, should be measured accordingly.

Regarding the Achievement Criteria

Only one of the 13 objectives is accompanied by an achievement criterion. Fabron et al. (2018) declares "(the quantitative achievement criterion will be) 60% of the maximum phonation duration's (MPD) baseline value until reaching an adequate vocal performance, subsequently progressing to 70% and 80% of the MPD". In this case, the use of a baseline is proposed, which can be determined during the initial evaluation or at the beginning of the activity. According to this criterion, once the baseline level is reached the complexity increases, the therapist and the service user work on the generalization of achievements, or, in the case of not reaching the objective, the activity is restructured.

DISCUSSION

This study was developed to examine the structure of the therapeutic objectives for voice therapy found in the specialized literature of the last five years. The main results show a high degree of heterogeneity among objectives, which demonstrates a lack of consistent criteria for their formulation.

Regarding the Notion of User

The notion of user shows high variability between studies, and in most cases it is not detectable as a part of the objective. It is a common mistake to propose the objective from what the SLP wants to achieve “with” the user, without determining the behavior that the user themselves should achieve.

As stated by Anderson (2005), Förster & Rojas-Barahona (2017, pp. 43-47), and Goff et al. (2015), every objective aimed at learning a skill should follow the structure subject-verb-object, where the subject represents the individual who is learning the specific skill. In this sense, a structural analysis of the objective should evidence an active role of the user during the course of therapy.

Omitting the notion of user when writing the objectives is a common practice, consequence of the homogenization of health care, which takes the person out of the center of the intervention (Lemus et al., 2017). This undermines the user’s autonomy and the consideration that the therapist has towards their values, beliefs, and preferences (Bados López & García Grau, 2009; Bovend’Eerd et al., 2009; Lemus et al., 2017; March Cerdà, 2015). In contrast, the rights-based approach and the comprehensive health care model position the user in a participatory role, with an intervention that is user-centered and where health care is conceived in a global, participatory, and continuous manner, delivering tools that promote the user’s self-care, freedom, and autonomy (Ministry of Health, Chile [MINSAL], 2013; World Health Organization [OMS], 2017).

Various authors (Bados López & García Grau, 2009; Hersh, Worrall, et al., 2012; Locke & Latham, 2006; Ogbeiwi, 2017, 2018) stress that, when establishing objectives, it is necessary that the description of the behaviors or skills to be taught, improved, eliminated, or reduced, as well as the strategies used for that goal, is based on the user’s needs, which would avoid a generic treatment plan. Additionally, the decision process should ideally contemplate an active participation of the user. Thus, treatment planning is considered a dynamic process, framed by the needs of the user (Crisosto, 2021; Rosewilliam et al., 2011; Sugavanam et al., 2013). Carrying out an intervention that considers only the purpose of the techniques or methods, without considering the characteristics, abilities, and needs of the user, could threaten the success of the intervention.

Regarding the Hierarchy of Objectives

Treatment planning requires proposing a list of objectives categorized according to different specificity levels, which allows

organizing the approach to voice therapy. However, in none of the articles analyzed is there a hierarchy of objectives, and in consequence the levels of specificity also show inconsistencies.

This lack of a hierarchy could lead to unclear priorities during the intervention, to a less coherent treatment plan, and to the SLP struggling to select techniques and strategies of intervention (Bados López & García Grau, 2009, p. 29). In turn, this could affect the user’s performance and their adherence to therapy, given that the treatment would not consider the relevance, severity, or functionality of the evaluation findings, or the patient’s characteristics and abilities.

In addition, the lack of defined levels may lead to confusion between the activity (the mechanism through which a goal will be attained) and the therapeutic purpose (what is sought to be achieved through the activity), or result in objectives that are not linked to a notion of the user, their needs, or their context. This type of error is common in some approaches that base the formulation of objectives on the SMART philosophy (Doran, 1981; Wade, 2009), since they usually do not relate to the participation level or link the activities to specific objectives, even if this method is sometimes described as a user-centered approach. This has been previously reported by Rosewilliam et al. (2011). Moreover, there is some disagreement regarding what each letter of the acronym SMART represents (Ogbeiwi, 2018).

Regarding the Purpose of the Objective

In most of the cases the purpose of the objective is vague, or there are multiple purposes per objective, which hinders the measurement of results. The presence of several purposes for one objective makes it difficult to establish coherent achievement criteria and requires the use of various measurement methods, threatening the specificity of the objective.

Regarding the Operational Structure of the Objectives

Evans (2012), Hersh, Sherratt, et al. (2012), and McPherson et al. (2015) agree that the SMART strategy does not propose a structure for the objectives or provides operationalization mechanisms for the therapy planning process. Instead, it merely provides a framework for the general organization of treatment, focusing on its nature rather than on its form. It is this disadvantage that justifies the need to propose other conceptual frameworks, such as SMARTER (Hersh, Sherratt, et al., 2012; Macleod, 2012) or MEANING (McPherson et al., 2015), developed specifically for the context of clinical practice, and complementing what is proposed by those who support the

SMART approach (Center for Disease Control and Prevention [CDC], 2008; Turner-Stokes, 2009).

None of the objectives analyzed during this review is explicitly linked to any of the aforementioned methods, which would explain the heterogeneity of structures.

Regarding the Achievement Criteria

Only one of the objectives that were analyzed (Fabron et al., 2018) is accompanied by an achievement criterion. This indicates a general absence of measurable therapeutic goals and a structural weakness, as it does not allow determining when an objective is achieved. As a consequence, there is a risk of over-intervening or worse, under-intervening.

Regarding the Articles not Included in the Review

The main cause of exclusion during the full-text review stage was the absence of therapeutic objectives (Figure 1), even when a vocal intervention process was described. The tendency among the articles was to present a list of isolated speech therapy procedures, usually succinctly. In this regard, it is noteworthy that the absence of therapeutic objectives prevents adjusting the techniques to the user's characteristics, to the achievement criterion, and to the purpose, causing the intervention to be limited to isolated effects of specific tasks, and making it impossible to analyze the results in the context of a deliberate plan, with effects known in advance.

CONCLUSIONS

This literature review characterized the structure of operational objectives found in research on voice therapy carried out during the last five years. The results reveal a lack of agreement regarding the structure of the objectives of speech therapy when working with users with vocal needs. The studies rather show a high degree of heterogeneity in their formulation, which confirms either a great level of discrepancy in the conceptual frameworks used for therapy planning, or the absence of a framework. Furthermore, the general tendency among the studies is to omit the objectives and mention only the procedures. In addition, insufficient attention is paid to establishing achievement criteria and to the operationalization of intervention contents, resulting in objectives of a conceptual nature that hinder the possibility of measuring the tasks in a concrete way. The above translates into an urgency to find a common conceptual framework for researchers and therapists, that allows consistent communication and that coherently articulates therapeutic actions.

In future research, the perspective and opinions of clinicians regarding treatment planning should be considered and contrasted with the recommendations present in the literature. This will make it possible to analyze the structure of the objectives in the context of clinical practice and in relation to the vocal needs of the users, and to observe whether there are unifying patterns between intervention plans in the clinical context. In this sense, the analysis of therapeutic objectives in a clinical context could unveil the multiplicity of factors that influence their formulation, which would make it possible to increase the complexity of current models.

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