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Original Article

Theoretical proposal for therapy planning in vocal practice: an ICF model application

Jaime Crisosto [a, b, *]

[a] *School of Speech and Language Therapy, Faculty of Rehabilitation Sciences, Andres Bello University, Chile.*
[b] *Department of Spanish Language, Universidad de Concepción, Chile.*

ABSTRACT

The present proposal aims to unify the criteria used in the Speech Therapy planning process in the area of vocal rehabilitation, considering the ICF model promoted by the World Health Organization. A framework is offered that considers the organization of therapeutic contents under a hierarchical criterion, following the therapeutic approach that the Speech Therapist determines, as well as guidelines around the formulation of objectives and characteristics that these must present to respect the SMART format suggested by the literature. In addition, the importance of the client's contextual factors is indicated, in the establishment of activities of generalization/transference of clinical achievements as a binding stage between the levels of "Function / Structure" and "Participation / Activity". It is expected that this proposal will generate a professional discussion that leads to establishing adequate parameters of therapeutic organization, both for academic purposes and clinical practice.

Keywords:
Therapy planning; goals; speech therapy; voice; ICF; SMART

Propuesta teórica de planificación terapéutica en el área de voz: aplicación del modelo de la CIF

RESUMEN

La presente propuesta tiene como objetivo unificar ciertos criterios utilizados en el proceso de planificación terapéutica fonoaudiológica en el área de voz considerando el modelo del CIF promovido por la Organización Mundial de la Salud. Se ofrece un marco que considera la organización de los contenidos terapéuticos bajo un adecuado criterio de jerarquización en concordancia con las orientaciones terapéuticas que el/la fonoaudiólogo/a determine, así como lineamientos en torno a la formulación de objetivos y características que estos deben poseer de manera que respeten el formato SMART sugerido por la literatura. Además, se indica la importancia de los factores contextuales del/la usuario/a en el establecimiento de actividades de generalización/transferencia de los logros clínicos como etapa vinculante entre los niveles de "Función / Estructura" y "Participación / Actividad". Se espera que esta propuesta logre generar una discusión profesional que propenda a establecer parámetros adecuados de organización terapéutica tanto para efectos académicos como para el ejercicio clínico.

Palabras clave:
Planificación Terapéutica, Objetivos; Fonoaudiología; Voz; CIF; SMART

**Corresponding author:* Jaime Crisosto
Email: jaimecrisosto@gmail.com

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INTRODUCTION

Therapeutic planning is a tool that defines the guidelines to follow in intervention, and in addition allows an adequate structuring of the rehabilitation process, according to the results that are obtained (Bovend'Eerdt et al., 2009). General aspects of planning are mentioned in the literature (Behlau et al., 2010; Farías, 2007, 2016; Landis et al., 2004; Stemple, 2019), but so far no framework establishes specific guidelines on how this task should be approached in the field of voice rehabilitation. Undoubtedly, this lack of specificity occurs because the therapeutic possibilities are varied and depend on the conditions of the client, on the skills and training of the therapist, the conditions of the center, and financial restrictions that limit the frequency of sessions, etc., which makes it difficult to perform this task.

As a consequence, the development of therapeutic goals has been a challenging task in the different areas of Speech Therapy. One of the great challenges has been to frame the intervention in a proposal that considers the International Classification of Functioning, Disability, and Health - ICF, hereinafter - (World Health Organization [WHO], 2001). This is essential, since including the ICF model serves as a reference for WHO policies and recommendations. In addition, this classification has been accepted by the UN and currently serves as a reference framework for specialized agencies such as the UN Statistics Division (UNSTAT), the UN Educational, Scientific and Cultural Organization (UNESCO), and the International Labor Organization (ILO) (Fernández-López et al., 2009).

Proposals for a format of therapy planning in this line are scarce, lack definition and are frequently found in gray literature, which cannot be seriously considered for academic and/or clinical practice, or propose a structure of objectives that is poorly adapted to our national reality (ASHA, 2020a; Landis et al., 2004; Lignugaris/Kraft et al., 2001; Moore, 2018). Guided by these conditions, this article aims to provide a framework that brings together necessary conditions for the formulation of a well-structured therapy plan.

METHOD

The objective of this work is to provide a framework of discussion for therapy planning, integrating the ICF's model guidelines, which has not been done in the voice rehabilitation area of Speech Therapy. According to the classification of Grant & Booth (2009), the methodological structure of this article corresponds to a critical review. A summary of specialized literature on the subject is presented, describing its characteristics. The proposal includes different degrees of analysis and innovation. The most significant proposals in the field are made explicit, and the evaluation of the articles is made based on their contribution to the discipline. The structure is narrative - conceptual.

DEVELOPMENT OF THE PROPOSAL

In order to provide context for this study, it should be noted that the ICF (OMS, 2001) classifies functioning and disability associated with health conditions through the organization of health activities, based on the biopsychosocial model. Here, a disability is understood as a situation, a process, and the result of the interaction between the person's health status and contextual factors, which can serve as barriers or facilitators. It is understood that disability not only involves deficiencies in bodily functions and structures but that these, in interaction with contextual factors, can lead to activity limitations and participation restrictions. Thus, functioning and disability are understood as a continuum.

This proposal considers that the therapeutic planning process consists of stages and/or tasks that help establish adequate guidelines for the vocal intervention process. Although the organization in phases does not have a chronological structure, an orderly implementation is suggested. This does not mean that the Speech Therapist cannot return to a previous stage to review, remember, restructure or reevaluate a given aspect. However, it allows the process to be carried out methodically.

The proposal is divided into two stages. The first contains the elements that guide the therapeutic planning process (and therefore, the Speech Therapy intervention itself); here the setting within which the therapist will organize their actions is selected. This stage is called Therapeutic Framework. In the second stage, the objectives are formulated and the intervention is structured according to the ICF model (WHO, 2001). This stage is called Therapeutic Organization. Both are co-dependent and the division responds to theoretical rather than practical reasons. An overview of the general process and its stages is shown in Table 1.

Table 1. Stages of therapeutic planning.

Stage 1: Therapeutic Framework
Determination of parameters to intervene.
Determination of a hierarchy criterion
Determination of the rehabilitation philosophy.

Determination of the therapeutic approach.
Determination of the intervention method.
Stage II: Therapeutic Organization
Analysis of Contextual Factors.
Environmental Factors.
Personal Factors.
Analysis of the Participation/Activity Level.
Formulation of the General Objective.
Analysis of the Function/Structure Level.
Formulation of Specific Objectives.
Formulation of Operational Objectives.
Binding Level of Generalization / Transference.

Each of the stages is described in detail below.

Stage I: Therapeutic Framework

In this stage, the parameters based on which the therapeutic planning process will be organized are set. These initial adjustments will allow an orderly and coherent process to be carried out with the client's needs (characterized during the evaluation process) and the characteristics of the therapist. The phases are described as follows:

Determination of parameters to intervene

The therapeutic contents must be made clear. Additionally, the priority or urgency with which they will be addressed must be determined, using the hierarchy criterion selected by the therapist, and including the contributions of the client, an aspect that is addressed in the following section.

The classical sequence or "old vocal therapy" (Farías, 2016) stipulates addressing elements of education and vocal hygiene with the user, then non-verbal parameters (muscle tone, breathing, and posture), and finally the vocal parameters. Said sequence presents a more or less well-structured logic based on the fact that some voice disorders are physical, and that it is the vocal misuse or overuse that triggers functional-muscular disturbances which may lead -or not- to organic damage in the vocal folds. However, it is necessary to understand that it is not possible to work on bodily aspects without a vocal approach, except for what could happen with the hygienic orientation. Vocal parameters must be transversely intervened during the course of therapy. Furthermore, the approach of non-verbal parameters cannot be independent of the intervention of vocal parameters, due to the characteristics of sensorimotor learning (Stemple, 2019). However, in certain therapeutic approaches, it is possible to emphasize physical parameters during the first sessions, especially in users with functional and/or mixed dysphonia with a physical disorder that needs to be corrected in order to enable an adequate transference to spontaneous speech. After this, it would be necessary to continue with an exclusively vocal approach, although the organization of the generalization process is still not entirely clear (Desjardins & Bonilha, 2019).

Physiological or "contemporary" programs of vocal therapy (Behlau et al., 2010) are a series of approaches that follow the physiological philosophy of rehabilitation, as described by Stemple (1993) and that were collected by Van Stan et al. (2015) under the label of "voice therapy programs". As evidenced by the American Speech-Language-Hearing Association [ASHA] (2020b), some of the physiological programs include non-verbal parameters in the therapeutic approach, generally in the early stages of therapy. For example, Resonant Voice Therapy (Verdolini, 2000; Verdolini et al., 1998) incorporates initial self-guided muscle stretching and an approach to breathing based on the activation of the abdominal-diaphragmatic belt (Stemple et al., 2010). Another example is the Accent Method (Kotby et al., 1993; Malki et al., 2008; Smith & Thyme, 1976), a therapeutic program that begins with exercises focused on proprioception and emphasis on diaphragmatic activation, and continues with vocal tasks only when the objectives regarding respiratory dynamics are achieved. It is important to mention that just as there are methods that include non-vocal parameters, proposals such as Lee-Silverman Voice Therapy - LSVT (Ramig et al., 1995), Confidential Voice Therapy (Colton et al., 1995), and the Phonatory Resistance Training Exercises program - PhoRTE (Ziegler & Hapner, 2013) do not traditionally consider them, but rather they include these parameters in activities that encompass all subsystems at the same time. Other programs such as Laryngeal Manual Therapy (Mathieson et al., 2009), Manual Circumlaryngeal Therapy (Aronson, 1990), or the Expiratory Muscle Strength Training Program – EMST (Pitts et al., 2009) strongly focus on non-vocal aspects, which could be complemented with programs or exercises that strictly address vocal parameters.

It is also relevant to indicate that, according to Stemple (2019), physiological programs recognize only breathing, phonation, and resonance as subsystems of voice production, excluding other aspects that could be relevant in the production and maintenance of a vocal pathology such as, for example, body posture (Franco et al., 2014; Hoit, 1995; Moradi et al., 2014; Staes et al., 2011) or the psycho-emotional experience of the individual (Lima Barbosa et al., 2020). Consequently, the incorporation of these therapeutic

contents requires certain flexibility, skill, and creativity on the part of the therapist.

In physiological programs, the progression from one therapeutic content to another is more or less fixed. In contrast, for other approaches the time of intervention, the number of exercises per content, and how to intervene each one will depend on the clinical judgment of the therapist.

It is noteworthy that it is not always necessary to address all non-verbal parameters in a user with vocal pathology. This will be determined by the voice assessment, where the evaluator may find normal characteristics in one or more subsystems, or for example receive a referral from the ENT specialist of a user with organic dysphonia for pre-surgical therapy, where some of the physical parameters are not of great urgency and could be relegated to a later stage (Behlau et al., 2010). For this reason, and although it may seem a truism, the determination of the contents must always be guided by the findings of the evaluation, and is a process whose responsibility lies with the clinical team.

Determination of a hierarchy criterion

Even though it has not been possible to trace the theoretical basis for hierarchy criteria, but only to appreciate their presence in the vast gray literature available on various websites, in Chile three criteria have traditionally been considered which seem to come from the area of child-adolescent Speech Therapy and not specifically from the field of voice. This could put its application in conflict with the specific purposes of the area. Accordingly, this proposal recognizes that:

The symptomatic criterion hierarchizes the contents of therapy according to the relevance of the signs or symptoms that the user presents, that is, the most obvious signs or symptoms are intervened first, followed by those which are not as notorious to the therapist and/or the user.

The functional criterion hierarchizes the contents according to the functional limitation of the symptoms referred by the user, that is, the signs or symptoms that represent a greater limitation in daily life are prioritized, and then those that do not affect the functioning of the individual as much.

In the child-adolescent area there is another criterion, the developmental one, whose application is not possible in the area of voice because it involves the organization of therapeutic contents in accordance with the chronological appearance of skills throughout development, which is not observed in vocal behavior.

The therapist may notice that the hierarchy responds to both symptomatic and functional criteria, which is why a third criterion is proposed, symptomatic-functional, which addresses both the systematic reduction of the user's symptoms as well as the progressive functionality of their voice in a sustained manner. It might be that the majority of the therapeutic hierarchies in the area of voice correspond to this criterion, considering that the most noticeable symptoms are also those that generate the greatest functional impairment on the user.

At this point in the therapeutic planning process, there should be a selection of contents to be addressed, organized using a particular criterion.

Determination of the orientation or philosophy of rehabilitation

Initially, (Stemple, 1993) proposes five therapeutic approaches that have been widely disseminated throughout specialized literature: symptomatic, psychological, etiological, physiological, and eclectic. Farías (2007) adds a sixth approach, the cognitive approach based on the works of Beck (2004) and Gasparini et al. (2003).

Based on the works of Thomas & Stemple (2007), Farías (2016) supports the idea of reducing these orientations to only three: hygienic, symptomatic, and physiological. She also indicates that the etiological and psychological components are present (or should be) in a crosscutting manner in all the therapeutic approaches to voice rehabilitation. It is the responsibility of the therapist to include these two aspects in order to ensure an adequate therapeutic response by the user, in other words, to always attend to the cause of the dysphonia and consider the psycho-emotional experiences of the client, a process that should consider the available cognitive resources as adjuvants.

In general terms, hygienic therapy addresses phonotraumatic behaviors as its main intervention tool; symptomatic therapy will attempt to modify the symptoms present; physiologic therapy will focus on the restoration of the functional balance of the respiratory, phonatory, and resonance subsystems.

This proposal coincides with the three “simplified” orientations of Thomas & Stemple, (2007) and Farías (2016), given that they effectively reflect the work carried out in voice rehabilitation, although it becomes necessary to expand on two aspects:

First, hygienic therapy - understood as actions aimed at avoiding vocal abuse or misuse through guidelines and counseling - is never considered a therapeutic approach on its own, and therefore it will always be necessary to complement it with the other two

approaches: symptomatic or physiological. It is possible to consider this approach as a preventive action, but not in the context of therapy.

Secondly, it is necessary to reintroduce the eclectic orientation, since it represents the line of work of Speech Therapists who include symptomatic and physiological strategies in their therapy, a decision that reflects the needs of the user and characteristics of the therapist.

Considering the above, this proposal considers that the orientations are: hygienic (exclusively for prevention activities, or isolated therapeutic strategies focused on the management of phonotraumatic behaviors), symptomatic, physiological, and eclectic.

Determination of the therapeutic approach

According to Van Stan et al. (2015) and ASHA (2020b), it is possible to identify two therapeutic approaches. The direct approach corresponds to any intervention that modifies vocal behavior through motor performance, somatosensory feedback, and auditory feedback (Guenther et al., 2006). According to Stemple (2019), any intervention whose objective is to improve the balance of the subsystems that produce the voice is included in this approach. A common mistake is to consider the intervention of phonation as the direct approach, and the non-phonatory parameters as indirect, the latter understood as subsystems that cooperate in the production of the voice, and whose organic base is external to the larynx.

The proposal by Van Stan et al. (2015) considers a subdivision of possible interventions where a direct approach is used. In general terms, the (a) auditory, (b) somatosensory, (c) vocal function, (d) respiratory, and (e) musculoskeletal approaches are considered the categories of this approach, each with certain characteristics and corresponding procedures. For each session, it is suggested that the categories used be made explicit, in order to allow an evaluation of the therapist's choices regarding the therapeutic mechanisms, and thus modify the approach or complement it with another category to achieve the objectives. It should be noted that one therapeutic task could incorporate aspects of the five categories at the same time, that is, that a certain exercise contemplates the respiratory, musculoskeletal, vocal function, and other aspects. This will depend on the needs of the user and the therapeutic planning.

The indirect approach, on the other hand, modifies the cognitive, behavioral, psychological, and physical factors that affect the voice (Roy et al., 2001; Thomas & Stemple, 2007). Two categories of the indirect approach are described:

User education, a process that addresses the theoretical aspects of the physiology of vocal production and the impact of the pathology on the voice, providing information related to vocal hygiene.

Counseling, a process that allows the identification and implementation of management and modification strategies for psychosocial factors that negatively affect voice production.

As with the direct approach, indirect categories also have their own tools. This proposal considers the explanation of the mechanisms used under this approach to be relevant. It is recommended to review the authors' proposal for a greater level of detail.

Determination of the intervention method

Therapeutic methods are intervention frameworks through which the therapist carries out therapy on the user.

The methods defined in this proposal are three; extrinsic, intrinsic, and extrinsic-intrinsic, the latter including characteristics from both. This distribution follows the proposal of Van Stan et al. (2015).

Through choosing the methods, the therapist recognizes that during the therapeutic process there can be internal (intrinsic) feedback from the user, generated when they perform the required tasks and which could become part of the planned activity, even in the absence of external (extrinsic) feedback from the Speech therapist (Hart et al., 2014). Self-regulation in a therapeutic context is necessary for an adequate transference of the clinical achievements to daily life, which is why it would be expected that the method selected by the therapist is first extrinsic, then transition to extrinsic-intrinsic and finally intrinsic, when the client is able to self-regulate more efficiently. The transition from one method to the next is left to the therapist’s clinical judgment, since it depends on the conditions and personal factors of each user, their context, diagnosis, clinical center conditions, etc.

Just as approaches have “tools” through which they materialize, methods have “structures” through which they are made explicit. It is recommended to indicate which intervention methods are used session to session, to monitor the transition from extrinsic to intrinsic and be able to project therapeutic spacing, by reducing the weekly dose, for example, or to plan activities that integrate generalization tasks.

Stage II: Therapeutic Organization

The ICF model (Fig. 1) proposes the integration of the biomedical and social models of disability, and for this, it adopts the biopsychosocial model as a conceptual framework within which the user's needs are analyzed. On the other hand, recognizing environmental and personal factors as relevant allows describing how these can be a key element in understanding disability and the functioning of individuals, and how changes and social measures can be adopted to reduce their impact when it turns out to be negative (Ayuso-Mateos et al., 2006; Querejeta González, 2004).

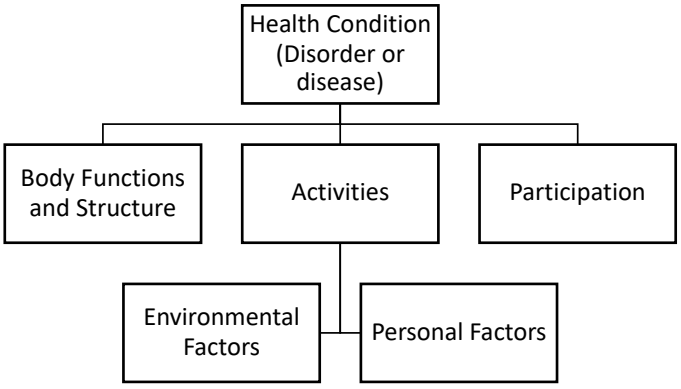

Figure 1. Diagram showing the components of the International Classification of Functioning, Disability, and Health, ICF.

For the stage of Therapeutic Organization, ASHA (2020a), indicates that the therapist should take into consideration the ICF criteria during the objectives formulation process. For this effect, three essential questions are proposed as guidelines to the planning process, posed according to the components of the model. For the area of voice, these are:

a. Which impairments affect function the most, based on the individual's clinical assessment and self-report?

b. How does the user's vocal impairment affect the fulfillment of daily life roles (occupational, social, recreational)?

c. What environmental and personal characteristics help or hinder the user's participation in activities or situations?

As can be seen by these questions, ASHA's proposal merges the levels of Activity and Participation into a single section: the performance of the user in daily vocal tasks and their reincorporation into the family, social, and/or labor sphere are considered as the underlying element that should guide the intervention.

In addition, these questions have an impact on the clinician's decisions regarding the voice evaluation, because they require information not only about voice quality, but also about the possible family, social, and/or work roles that the user performs (or performed until the appearance of the vocal pathology), and how the vocal impairment impacts on these activities.

Having a structured plan under the ICF model maximizes the functional impact that the intervention may have, optimizing the potential of the user to participate in meaningful activities and facilitating the participation of the individual and their family in the process of rehabilitation (ASHA, 2020b).

The stage of Therapeutic Organization is presented and described step by step in Figure 2. It should be noted that the symbol ↻ highlights the importance of goal setting as a dynamic process.

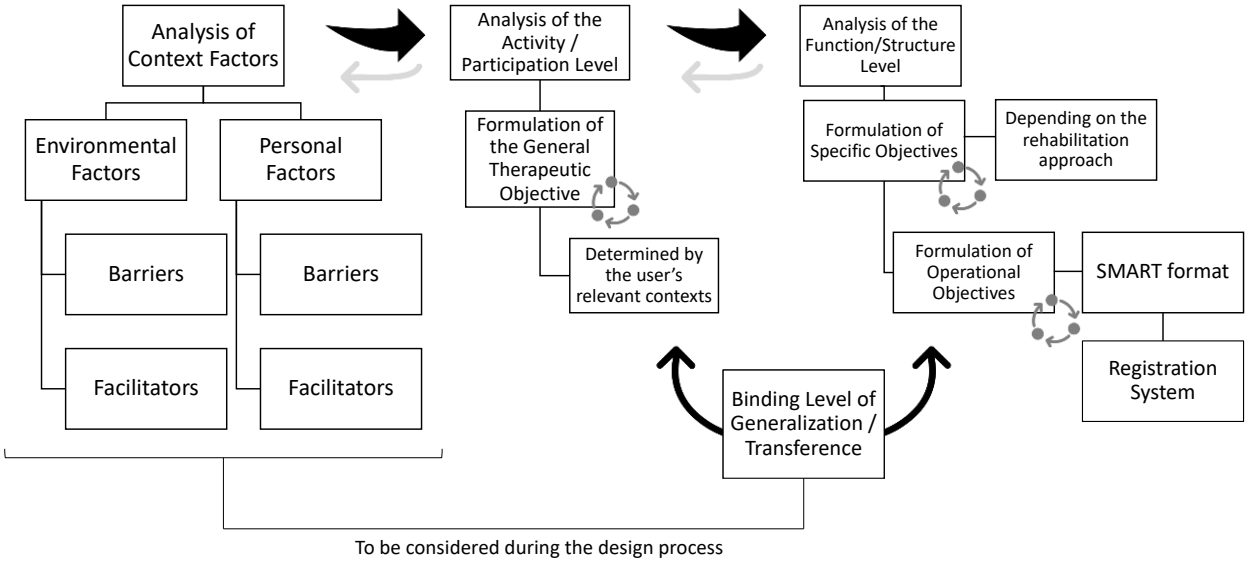

Figure 2. Therapeutic Organization Stage.

Analysis of Contextual Factors

The contextual factors of the user with dysphonia refer to all those extrinsic (environmental) or intrinsic (personal) aspects that shape the context of an individual's life and, as such, affect the functioning of that person (Servicio Nacional de Discapacidad, 2017). Initially, it will be necessary to organize relevant information regarding contextual factors that may facilitate or hinder the therapeutic process.

The World Health Organization [WHO] (2013a) indicates that contextual factors within which people live and develop substantially influence their functioning. If this influence is positive, the individual's performance will be above expected. On the contrary, if the influence is negative, their performance will be below the expected level. Thus, when a contextual factor improves performance, it is considered a facilitator; on the other hand, when it hinders it, it is considered a barrier. Even if the contextual factors between two users are the same, it is presumed that they could affect different people in different ways, just like it is presumed that within the population different levels of ability can be found *(*Fernández-López et al., 2009; *Servicio Nacional de Discapacidad*, 2017). This emphasizes the need to have a Speech Therapy evaluation process oriented not only to the level of function/structure but also to participation and activity (Ma et al., 2007).

Consideration of these factors will make it possible to provide the support necessary to ensure therapeutic success, or to establish a prognosis that responds not only to the medical condition in an isolated way but also situated in a context, considering the user in their environment. This analysis will later make it possible to plan activities that help transfer the achievements from a therapeutic context to daily life with greater probabilities of success due to their relevance (Fernández-López et al., 2009).

Environmental factors

They are defined as the physical, social, and attitudinal environment in which a person lives. The ICF Checklist (World Health Organization [WHO], 2013b) proposes a list of environmental factors that can be considered barriers or facilitators to different degrees. It is suggested to review this proposal for more detail. Among those that may be relevant for the area of voice rehabilitation are a noisy environment, climate, family support network, support network of friends, support from

the health system, individual attitudes of various actors, social practices and ideologies, access to services, etc. However, the detection of environmental factors relevant to the user must be guided by the Speech Therapy evaluation process. The National Disability Service [*Servicio Nacional de Discapacidad*] (2017) based on the II National Disability Study in Chile, assesses each of the factors under the indicators "significantly facilitates", "slightly facilitates", "neither facilitates nor hinders ", "slightly hinders", and "significantly Hinders", which is useful for analysis.

Personal factors

WHO (2013a, 2013b) considers that sociodemographic factors such as gender, age, ethnicity, age, lifestyle, education, profession, and sexual orientation can determine the particular functioning of an individual. However, it warns of the need to consider these factors as inserted in a sociocultural context, as communities necessarily influence the weight these characteristics may have. On the other hand, psychological factors such as motivation, responsibility, therapeutic adherence, the relationship between user and therapist, etc., should also be defined in this section. Due to the nature and variability of these factors, it is unlikely to have a thorough list, which is why the Speech Therapist should be competent in the user's environment, to identify early and effectively possible barriers or facilitators on a personal level.

Analysis of the Participation / Activity Level

Activities are defined as actions and tasks performed by individuals, while Participation refers to their involvement in everyday life situations (WHO, 2013a).

With the analysis of contextual factors finished, the Speech Therapist is in a position to formulate the general intervention objective. As can be seen in Fig. 2, in addition to advancing between stages (which is indicated by the large upper arrow), it is also possible to return to a previous phase (indicated by the small lower arrow) so the information collected and the therapeutic approaches are reviewed, restructured, put into perspective, discussed with the user and/or the family, etc., which allows the planning process itself (in addition to the evaluation and voice intervention) to be dynamic and respond appropriately to the needs of the user.

General Therapeutic Objective Formulation

According to Landis et al. (2004), the general objective for Speech Therapy does not need to be stated using measurable achievement criteria, but rather to indicate what the user is expected to achieve when the therapeutic process finalizes. Differences in long-term and short-term goal setting are common in clinical practices in the United States (ASHA, 2020a). These long and short-term objectives may coincide with the Chilean Speech Therapy notion of specific and operational objectives, respectively. In addition, it is necessary to include a general objective that responds to the conditions detected in the level of Participation / Activity, and that includes the relevant contexts for the user in their everyday life.

The formulation of the general objective will depend on the health condition of the user and the rehabilitation prognosis, taking into consideration the ENT diagnosis and the Analysis of Contextual Factors. This will determine the strategy with which the therapeutic intervention will be carried out.

For those users with a good prognosis, a diagnosis of functional dysphonia (muscle tension dysphonia, puberphonia of non-endocrinological etiology, psychogenic dysphonia, etc.) or mixed dysphonia with possible therapeutic resolution (small vocal nodules, acute vocal nodules, etc.), in a context where the individual is motivated with voice therapy, and responsible (among other facilitating contextual factors) and where, therefore, the restoration of normal voice conditions is possible (Gonzalez & Donoso, 2000), the general objective for voice rehabilitation can be formulated as follows:

> *The user will achieve a normal voice which allows them to functionally communicate in their work, school, social, and/or family context.*

It is up to the therapist to select the relevant contexts of the user. It is essential to analyze the medical condition taking into consideration the context. For example, a client with an ENT diagnose of type IIA Muscle Tension Dysphonia (MTD – IIA), who lives far from the clinical center where the therapy is carried out, does not have the necessary motivation to follow vocal hygiene instructions, and shows little impact on a functional level (measured by the Voice Handicap Index – 30) (Jacobson et al., 1997), will not have a good vocal prognosis, which will force the SLP to reconsider the possibility of full vocal recovery, and thus modify the general objective if it was previously focused on restitution, especially if the phonotraumatic behaviors are sustained over time. It is possible that the revision of therapeutic maximums does not occur at the beginning of the process but during its development, given that a stronger rapport will allow to observe and understand the user better. This is evidence of the need for a dynamic planning process, which responds to changes that the therapist observes during therapy.

Now, if the objective is to compensate for the vocal condition of the user (Farías, 2007), in the presence of a mixed dysphonia that may be resistant to voice therapy because the lesion exhibits little possibility of reabsorption, in a user with organic dysphonia where contextual factors restrict access to laryngeal surgery, or in an individual with functional dysphonia who presents a series of contextual factors that cast doubt on the possibility of therapeutic evolution, the general objective could be stated as follows:

> *The user will improve the quality of their voice in such a way that it allows them to functionally communicate in their work, school, social, and/or family context.*

An assistance objective will be formulated if the Speech Therapist contemplates teaching an alaryngeal emission, using esophageal voice techniques, or through the support of technological devices. This will occur in the case of total laryngectomy users, or even in some cases of psychogenic dysphonia secondary to a major psychiatric disorder, where emission could be achieved by contacting the vestibular bands (Behlau et al., 2010). In this case, the general objective could be stated as follows:

> *The user will be able to communicate functionally in their work, school, social, and/or family context.*

In the case of users who receive voice habilitation in the absence of pathology, a vocal enhancement objective will be formulated. This objective might present high variability, due to the multiple needs that may have to be covered by the Speech Therapist. One proposal is the following:

> *The user will develop functional vocal skills oriented to their (singing, teaching, acting, declamation, etc.).*

It is necessary to consider that users who have a bad prognosis, as well as the environment they live in, will require to adapt to the new vocal conditions. This becomes clearer in the case of laryngectomized clients, whose vocal condition is very different before and after surgical intervention. However, it is possible that users with less severe vocal pathologies who have an insufficient therapeutic response also need to go through the process of accepting and recognizing their new voice. This process, called psychosocial adaptation (Gonzalez & Donoso, 2000), which is classic in the area of adult and elderly rehabilitation and that requires professional support, must be included as part of vocal rehabilitation, and therefore as a second general objective in cases that demand it, and considering the actors in the user's relevant contexts:

> *The user and (the community, family, co-workers, friends, etc.) will achieve a psychosocial adaptation related to the vocal condition.*

Analysis of Function / Structure Level

According to the ICF (WHO, 2001), at this subdivision it is necessary to operate at a psychological and physical level, recognizing both somatic and psychological functions and body structures (Ayuso-Mateos et al., 2006). Sprafka (2006) indicates, under the principles of osteopathic medical practice, that a rational therapeutic intervention should be based on the knowledge of the unity of body, self-regulatory mechanisms, and the interrelation between structure and function. Vocal rehabilitation often aims at recovering the latter two, without being able to disaggregate the procedures for one or the other. Functional dysphonias present an alteration in function without a structural disorder, so it is relatively simple to indicate that the therapeutic approach is oriented to function. However, it becomes less clear when analyzing mixed or organic dysphonia, since it is not only the function that is rehabilitated but it is also expected to observe changes in the laryngeal structure after vocal rehabilitation (reabsorption of lesions, decreased tissue stiffness, reduced inflammation, etc.), although this change is not always possible due to the biological conditions of the vocal folds. At this level, the formulation of specific and operational objectives will be carried out in addition to the design of a registry system, with the following structure:

Formulation of Specific Objectives

Specific objectives are those that allow the achievement of the general objective and state actions for that purpose (Aspeé, 2015). In this proposal, contrary to what is observed in others (Landis et al., 2004; Lignugaris/Kraft et al., 2001), it is proposed that the specific objectives are between long-term (general) and short-term (operational) objectives, and its nature considers a decomposition of the general objective into sublevels that allow a more organized approach.

These objectives are considered to be more or less invariable in vocal therapy planning, addressing educational and counseling contents, non-vocal and vocal parameters. This sequencing responds to the hierarchy that should have chosen previously.

a. *The user will know the anatophysiologic processes involved in the production of the voice.*
b. *The user will achieve adequate vocal hygiene habits.*
c. *The user will achieve an adequate body posture during voice production.*

d. The user will achieve adequate muscle tone during voice production.
e. The user will achieve an adequate respiratory mechanism during voice production.
f. The user will achieve adequate vocal parameters.

The specific objectives will be formulated depending on the approach selected; objectives a and b correspond to the indirect approach, while objectives c, d, e, and f to the direct approach. These will be proposed to the extent that the user's needs so determine.

Although this structure could be considered for a therapy program using the hygienic, hygienic-symptomatic or eclectic orientations, physiological therapy based on the many existing therapeutic programs poses a challenge, since it is oriented to restore the balance of the subsystems of voice production simultaneously (Stemple, 1993, 2005, 2019).

Some stances might argue that the objectives proposed in Stemple et al. (1994) could be useful as specific goals under a physiologic orientation, namely: (a) to improve the balance between the subsystems of voice production: Breath, phonation, and resonance, (b) to improve the strength, balance, tone, and endurance of the laryngeal muscles, and (c) to develop a healthy vocal fold mucosa. Such reflection is problematic because there must be a link between operational and specific objectives; thus, if the therapeutic objectives are divided by subsystem or by any other criterion, as in the proposal of the aforementioned authors, it does not make sense that the intervention implies addressing them all simultaneously. Furthermore, in the authors' proposal, it is observed that the phonation process present in objective a, is closely related to objectives b and c.

Consequently, to avoid redundancy in the therapeutic planning process, and to respect the guidelines of physiological orientation programs (Guzmán, 2012), it is enough to set a single specific objective such as the following:

> *The user will improve the balance between the subsystems of voice production: breath, phonation, and resonance.*

However, Education and counseling goals need to be added if addressed.

Finally, if it has been decided to use the general objective of psychosocial adaptation, it is appropriate to disaggregate into specific objectives for each of the contexts or groups of people relevant to the user.

Formulation of operational objectives

Operational objectives are proposed as short-term goals and they define tasks that the user should perform, and that will be evaluated based on achievement criteria.

The decision of which parameters will be intervened should be specific to each client, and it varies depending on the assessment findings. Every aspect evaluated and considered as inadequate or disturbed must be included when setting objectives, and should be sequenced according to the hierarchy criterion selected by the therapist, in agreement with the information provided by the client.

The Centers for Disease Control and Prevention (CDC) in the United States recommend using the SMART methodology (Doran, 1981) for setting intervention objectives. This model is considered the gold standard because it provides clear and specific guidelines for the planning stage as well as for the execution of actions (Centers for Disease Control and Prevention [CDC], 2008; Turner-Stokes, 2009). For this review, it was decided to integrate this model when setting operational objectives, even when the methodological description does not establish which objectives it can be used for. In addition, the model adjusts to goal-setting adequately considering the logic of the ICF model (Bovend'Eerdt et al., 2009). Currently, the SMART proposal has been integrated into Speech Therapy as well as other rehabilitation sciences at an international level (Angeli et al., 2018, 2019; Bailey, 2017; Bowman et al., 2015; Fu et al., 2020; Hersh et al., 2012; Prescott et al., 2019; Řasová et al., 2020).

The proposal here discussed adapts this format to therapeutic conditions of the voice field. The SMART model derives from an acronym, whose characteristics (Ogbeiwi, 2017) and application are discussed below:

a. *Specific*. In the area of voice, the operational objective must indicate what the desired result is, how it will be developed, what the achievement criterion will be, and how it will be measured, with the highest possible level of specificity. It must contain all the information necessary to be specific enough and to be measured independently from other objectives in the therapy plan. The outcome pursued through the exercise should not be proposed in physiological terms which cannot be measured *in situ* (for example "to improve the mucosal wave", "to achieve an adequate glottal closure", "to achieve the reabsorption of the mass lesion"), but rather through perceptual and/or instrumental effects which are measurable in the context of therapy ("to decrease the level of vocal hoarseness", "to decrease breathiness", "to decrease jitter in a 0.5%", for example). Furthermore, the objective

should not include more than one task, or be similar to the specific objective from which it derives; operational objectives, as the name describes, must operationalize what the specific aim proposes.

b. *Measurable*. A measurement strategy must be proposed for the objective. This point may be subject to interpretation, since the measurement of voice therapy efficacy is still a polemic subject (Desjardins et al., 2017). During the voice therapy session, it is impractical to carry out objective and/or instrumental assessments after each exercise searching to quantify achievements, which is why the majority of objectives that point to vocal parameters (or even non-vocal) will have an achievement criterion that is subjective-perceptual (auditory, visual, tactile and/or proprioceptive, from the therapist and the user). This qualitative measurement method is useful when it is not possible to quantify achievement, for example, decreased hoarseness or increased vocal flexibility (Bovend'Eerdt et al., 2009). This does not imply that it is not useful to carry out periodic instrumental re-assessments to quantify changes that a user has achieved, which is relevant above all in a physiological approach, but the nature of the achievements at an operational level prevents an immediate quantitative measurement. Other parameters, however, such as the decrease in pitch during emission or the number of vocal breaks, are quantifiable characteristics that can be measured *in situ*. In those objectives where a percentage achievement criterion can be set, the literature is yet to define the ideal, consequently it is still in discussion, even when the inherited tradition of Van Riper proposes 80% (Fuller & Fienup, 2018; McDougale et al., 2020; Moore, 2018). It is worth mentioning that the achievement of a goal should not be confused with the number of times a task is carried out during a session.

c. *Attainable*. The level of difficulty of the objective must be coherent with the performance of the user which was observed during evaluation. In addition, it must aim at transference of the skills to relevant activities of everyday life. It is recommended not to plan a certain number of repetitions for the vocal tasks, since the exploration itself will guide the number of repetitions, the facilitators provided to the user, and the need to dismiss a technique or exercise due to personal characteristics discovered during the session.

d. *Relevant*. The parameter must be important to be included in the therapeutic intervention. Furthermore, this aspect establishes that the objective should be possible to achieve using the therapeutic resources available and in a determined window of time. This is what makes it important to see therapeutic planning as independent for each user. Relevance should be determined by the therapist and/or the user. Just like in the previous point, the objective must aim towards generalization in relevant contexts.

e. *Time-bound*. The objectives for voice therapy will be set session to session, being this the time frame. This does not mean that they cannot be addressed again in subsequent sessions if they are not achieved.

If the achievement criterion is quantitative, the registry system should record the number of repetitions, duration, frequency, etc., to perform in a given task, and a cutoff percentage where the objective will be considered as achieved, as well as the performance of the user in said activity. This percentage is usually set at 80%, but it can be modified according to the performance of the patient or in special conditions. Furthermore, it is possible to establish graded percentage criteria for the achievement of the objective (Fuller & Fienup, 2018; McDougale et al., 2020; Moore, 2018).

If the achievement criterion is qualitative, the user's performance should be qualitatively recorded, considering the perceptual evaluation by the therapist and/or the user. It should be considered that the number of repetitions of an exercise may not be related to the achievement of the objective, so recording only the number of repetitions may result in considering as achieved objectives that are not (Bovend'Eerdt et al., 2009).

Binding level of Generalization / Transference

By observing what is stated in the specific and operational objectives and comparing it with the general objective, it is possible to notice the dichotomy between "Function / Structure" and "Participation / Activity". For this reason, it becomes necessary to propose a linking level that allows the skills achieved in a therapeutic context to be generalized to daily life, through a process of transference. The proposal of generalization activities is not new; however, it has not been considered within the Speech Therapy practice as a level "of passage" between the two levels of ICF.

Precisely for this purpose, a Binding Level of Generalization/Transference is proposed, so that the therapeutic activities can be applied in contexts relevant for the user. This does not escape the dynamics of therapeutic planning. The activities planned on this level must also be recorded in the session registry and have therapeutic objectives associated. However, it should be noted that at this level the user is no longer asked to carry out a particular exercise or technique, but rather works on a phonatory task in their natural context. Farías (2016) points out that for example, if the user likes singing, it is possible

to apply the skills in songs that they propose; if they coordinate teams, role-playing of a meeting can be performed, and if they are a teacher, they could be asked to read stories aloud to the children for 15 to 20 minutes. Only when therapeutic techniques are linked to the level of "Participation / Activity" will they be beneficial for the user.

It should be noted that for planning activities at this level, and depending on the logic behind the intervention, it is required that the user has achieved a certain level of performance in the execution of vocal tasks, so it is advisable to consider this only when some operational objectives have already been achieved. However, it is possible to start working on the Activity and Participation level from the early stages of the intervention, in order to promote results. It is essential to consider the user's contextual barriers and facilitators to design an appropriate therapeutic experience.

CONCLUSIONS

This proposal aims to organize a series of therapeutic actions within the framework of the ICF model, by delivering theoretical guidelines that facilitate the Speech Therapists' intervention when working with users with vocal difficulties. However, this should be understood as a work in progress, since the proposal is open to modifications and is presented here for the sole purpose of generating discussion and debate among professionals in the area. It is not meant to serve as an inflexible framework in which all therapeutic actions take place. It is also acknowledged that all vocal interventions are situated in a context, determined by multiple factors (characteristics of the user, the therapist, the clinical center, availability of time, material resources, etc.) and, therefore, it is an impossible task to account for all the particular realities to which vocal therapy might have to be adapted, possibly leaving the most particular ones out of this framework.

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