

MAPPING META-THERAPY INTERVENTIONS ONTO THE REHABILITATION TREATMENT

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Mapping Meta-Therapy in Voice Interventions onto the Rehabilitation Treatment Specification System

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ABSTRACT

Meta-therapy refers to the clinical dialogue via which direct and indirect voice treatments are introduced and discussed, and which helps build a useful conceptual framework for voice therapy. Meta-therapy was idiosyncratically defined in previous work. However, the current colloquial narrative of meta-therapy is not standardized or specific enough to be reliably taught, rigorously studied, or clinically delivered with high fidelity. Therefore, this article uses a standard framework (the Rehabilitation Treatment Specification System or RTSS) to further articulate and operationalize meta-therapy in vocal rehabilitation. Meta-therapy's conceptual framework generally aligns with the RTSS's treatment theory and associated concepts; e.g., the treatment component and its underlying ingredients, mechanisms of action, and target. Because the treatment theories in meta-therapy most frequently involve mechanisms of action related to information processing, they primarily map onto the RTSS's Representations treatment components. The treatment targets in meta-therapy are often focused on changes in the patient's cognitions, knowledge, beliefs, attitudes, intentions, and/or awareness regarding voice-related modifications. The ingredients in meta-therapy are frequently clinician actions con-

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veying information with the goal of appropriately shaping the patient's mental representations, and are delivered with verbal cues, stories, analogies, etc. This manuscript provides specific examples of how meta-therapy is applied in clinical voice practice. Considerations for future investigation of meta-therapy are proposed.

KEYWORDS: meta-therapy, Rehabilitation Treatment Specification System, voice therapy, treatment theory, expectations

Learning Outcomes: As a result of this activity, the reader will be able to (1) describe the treatment theory and self-referential features of meta-therapy; (2) explain how meta-therapy relates to the Rehabilitation Treatment Specification System; (3) describe three targets of meta-therapy.

Research in voice therapy has compared some of the following categories: service delivery models,¹⁻⁴ duration of voice therapy sessions,^{5,6} number of voice therapy sessions,⁶⁻¹⁰ and type of voice therapy programs.¹¹⁻¹⁴ Across these categories of inquiry, similar outcomes are shown regardless of the variations in therapy. Perhaps one element behind this consistency is meta-therapy. Meta-therapy in voice treatments is believed to be one core determinant of successfully changing vocal behavior that transcends therapy type, duration of session, number of sessions, and delivery model. Specifically, meta-therapy is the conversation during voice therapy that shapes the therapeutic process and patient response to that process.^{15,16} The qualitative and quantitative aspects of meta-therapy are likely most different when comparing treatment delivered by experienced versus novice clinicians, and practically more similar when comparing treatment across multiple experienced clinicians. Essentially, it is thought that master clinicians have developed well-used dialogues that focus and guide their patients' perspectives, building a conceptual framework for *what we are doing here in voice therapy*.¹⁵⁻²⁰ These dialogues have also been referred to as the *Language of voice therapy*, the *How of voice therapy*, and an important component part of the *It factor*.²¹⁻²⁴ Collectively, such dialogues have the power to overcome the inaccurate expectations that patients often bring into the therapy setting, and which often serve as barriers to success.

Unfortunately, the current colloquial narrative of meta-therapy is probably not specific enough to allow rigorous research studies, replicate or adopt in clinical care, or impart to other clinicians and students during training/education.²¹⁻²³ Oftentimes, traditional treatment narratives contain all of the intervention's essential information, but lack critical elements that make the narrative interpretable and/or useable by others.^{24,25} These missing critical elements include: (1) standardly defined and operationalized terminology, (2) explicit identification of the clinical actions that are believed to be responsible for the treatment's effects, and (3) connecting the individual (or groups) of clinician action(s) to their respective clinically meaningful changes in patient functioning.^{26,27} These three elements are essential because they enable clinicians to (1) clearly understand the treatment description, (2) know what actions they must enact to provide the treatment, and (3) test whether or not their actions were clinically successful, respectively.

The aim of this paper is to explicitly identify, and then standardly operationalize, the clinician actions, modified patient functions, and key constructs ostensibly responsible for the effects of meta-therapy. Meta-therapy will be characterized through the lens of a standardized, cross-disciplinary framework for identifying the critical aspects of all rehabilitation interventions called the Rehabilitation Treatment Specification System (RTSS).^{28,29} (The Manual for Rehabilitation Treatment Specification is available at <https://acrm.org/>

acrm-communities/rehabilitation-treatment-specification/manual-for-rehabilitation-treatment-specification/ and describes the RTSS specification process in detail. All terms that have definitions in the open-access Manual will be underlined when first used.).

META-THERAPY AS TREATMENT THEORY

As the prefix “meta-“ denotes (e.g., “situated behind or beyond” and applied to such fields as meta-physics, meta-psychology, and meta-philosophy), meta-therapy pertains to aspects of voice treatments that might be “beyond” the immediately observable.³⁰ In other words, some meta-aspects of voice treatment are purely rational (i.e., ideas or theories), existing only in the clinician’s mind.³¹ Previous offerings on meta-therapy stated that voice treatment should address the patient’s “conceptual framework about what we are doing here in voice therapy,” and highlighted the fact that the framework a clinician helps a patient to build is a direct extension of the conceptual framework built for that clinician in the course of their own training and experience.^{15–20} Essentially, conceptual frameworks are based upon basic ontological assumptions.³² Ontologies represent some subject area or domain—voice interventions in this case—as a set of concepts and

the relationships among those concepts. Because ontologies identify the relevant concepts of a context or domain, they direct individuals (i.e., the patient and clinician) toward what should be attended to and what should be ignored during the course of voice therapy. Therefore, ontologies essentially shape how patients view their voice and how their voice interacts with the world around them. Additionally, ontologies shape how clinicians view the treatment they deliver and how they should interact with the patient.

The “conceptual framework” of meta-therapy (that is hoped to be imparted to the patient) has a parallel in the RTSS, as the RTSS is based on the clinician’s treatment theory. A treatment theory is defined as a “conceptual system that predicts the effects of the ingredients used on their targets, specifying the law(s) of the relationship between ingredients and changes in targets.” As shown in Fig. 1, all RTSS-based treatment theories are made up of a 3-part treatment component: ingredient(s) (clinician action(s) that directly changes a patient function), target (a singular patient function that is directly changed by the ingredient(s) delivered), and the mechanism(s) of action (how the ingredient(s) is expected to directly affect the target). These three concepts within a treatment component have a causal relationship because, once the clinician delivers an ingredient, it begins a cascade

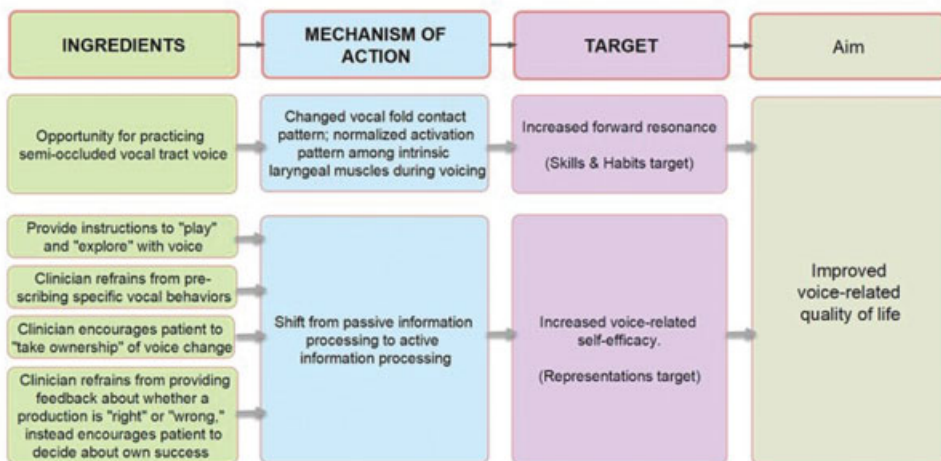


Figure 1 Three-part treatment component structure of the Rehabilitation Treatment Specification System. Examples of clinical Ingredients, Mechanisms of Action, and Targets are given in service to one specific clinical Aim.

of changes in patient functioning (i.e., mechanisms of action) that end in the desired modification of a single patient function (i.e., the target).

If the aim of measuring something in a research study is to better understand how an ingredient affects a target, this approach is aligned with the RTSS concept of “mechanisms of action” (reasons why we think an ingredient will affect a target). For example, a clinician may *provide opportunities for the patient to practice voicing using a semi-occluded vocal tract* (ingredient) in hopes that it will *increase forward resonance* (target). Many other patient functions may be modified by this ingredient and (in this example) are in the mechanisms of action; e.g., vocal fold contact patterns during phonation,³³ impedance matching between the source and the filter,³⁴ or normalized thyroarytenoid-cricothyroid muscle activation.³⁴ While changes in vocal fold contact, impedance matching, and intrinsic laryngeal muscle activation are hypothesized to occur, they are not (in this example) measured during routine treatment. Rather, they are only assumed to have changed in a specific way because of changes (e.g., vocal, resonant, physical) that are detectable to the clinician and/or patient. Additionally, increases in forward resonance must occur for the practice to be considered successful. If changes to vocal fold contact, impedance, or muscle activation occur without increased forward resonance (target), the ingredient (practice) is considered to have not worked. As illustrated in Fig. 1, the RTSS defines treatment aims as changes in patient functioning that are indirectly affected by ingredients’ effect of targets. For example, increased resonance in voicing (target) may help improve the patients voice-related quality of life (aim). Thus, the effects of ingredients on aims are indirect and achieved only through their influence on intermediate targets.

As the terms “treatment theory” or “ontology” or “conceptual framework” denote, this meta-aspect of voice treatment directs the clinician and patient toward what should be observed during treatment and how those observations should be described/measured. While some voice treatment ingredients may be entirely measurable without theoretical context (e.g., the act of providing the patient with a *personal*

*amplification device*³⁵), many ingredients need a theoretical context to know how they should be measured (e.g., repetitive voicing could be a *resistance exercise* to increase strength/endurance of a voice-related muscle or *opportunities to practice* a vocal skill). Targets of voice treatment, like all behavioral interventions, also often need a theory to be identified with clarity.

In states of non-specific theory, the patient will remain unclear about (or will be forced to come up with) their own conceptual model about what constitutes successfully modified voicing, what they should be doing during/outside the treatment sessions, and what their role is in the treatment process. Suppose a clinician provided a patient an amplification device; what is the purpose of providing the device? The target of the amplification device may be obvious as “increased sound intensity” when the context is a patient with bilateral vocal fold paralysis and pathologically reduced vocal intensity. However, the target of the amplification device may be less obvious when the context is a teacher with bilateral vocal fold nodules. Is the desired target passive increases in the teacher’s loudness, or reduced excessive loudness, or decreased vocal fatigue throughout their workday, or something else? The treatment theories contained in meta-therapy may be a potential antidote to the risk of patients being left to conjure their own conceptual models. In essence, many times (but not all the time) an observer must know the clinician’s treatment theory to observe treatment and correctly identify the aspects of therapy that are provided.

Treatment theories must be testable through observation/measurement, as they pre-determine how a treatment can be evaluated for efficacy (i.e., performance of an intervention under ideal and controlled circumstances) or effectiveness (i.e., performance under ‘real-world’ conditions). Specifically, treatment theories identify which aspects of the treatment session are to be considered ingredients and targets, and the relationship between the two (the mechanism of action). When lacking a treatment theory, the clinician’s “treatment” would be non-specific and risk being “cookbook” (e.g., “lip trills will generally help your voice”) and not testable (e.g., questions like “why will lip trills help?” and “what specifically will lip trills change

in the voice” are not answerable). Without a treatment theory, the connection between changes (or lack of changes) in voice measures after voice therapy become circular. For example, a clinician could simply measure everything possible about the voice (e.g., fundamental frequency, sound pressure level, jitter, shimmer, cepstral peak prominence, etc.) without establishing a connection to the treatment. Then the clinician could use whichever measures changed as “proof” that the therapy “worked,” regardless of the relationship between the measured changes and the ingredients provided. In sum, the use of the prefix “meta” stems in part from the fact that meta-therapy describes theoretical elements of (or “beyond”) vocal rehabilitation, which require empirical observation for support or falsification.

META-THERAPY AS SELF-REFERENTIAL

The prefix “meta” is also self-referential. Applying this sense of the term, meta-therapy can be expressed as “[therapy] about voice {therapy}” or “[treatment] about voice {treatment}.” Here, the [square] and {curly} brackets denote [meta] and {non-meta} treatment aspects. Previous writings on meta-therapy state that it involves a clinical dialogue that supports the patient’s understanding of the therapeutic approach.^{15–17} That clinical dialogue serves as a substrate that helps the patient build a conceptual framework about “what we are doing here in therapy.” There appear to be five self-referential goals of meta-therapy, which involve modified cognitions, knowledge, beliefs, attitudes, intentions, and/or awareness about (1) the process of vocal improvement during treatment (e.g., failure is part of the process, progress is not linear); (2) the patient’s role in treatment (e.g., patients are active participants); (3) the role of self-efficacy in treatment (e.g., patients believe that they can control their respiration, voice, etc.); (4) how the patient’s relationship between their voice and sense of identity can affect treatment (e.g., the “new” therapeutically established voice might not feel readily compatible with their view of themselves); and (5) how affective states can influence treatment (e.g., recognize when voice changes are

related to stressful situations and become able to interrupt unhelpful patterns).

As previously stated, the RTSS defines the smallest meaningful unit of the term “treatment” as a three-part treatment component (e.g., ingredients, mechanism(s) of action, and target) based on treatment theory. The RTSS states that there are generally three types of treatment components reflecting three main types of mechanisms of action: (1) Organ Functions, (2) Skills and Habits, and (3) Representations. *Organ Functions* treatment components change the efficiency of (or replace) organs or organ systems; e.g., applying pressure on muscle to decrease activation; exercises to increase endurance; place a tracheoesophageal prosthesis to replace the voice source. *Skills and Habits* treatment components improve mental (e.g., memory, language) or behavioral abilities and support the formation of habits; e.g., providing opportunities to practice voicing to decrease breathy voice quality. *Representations* treatment components change mental representations such as thoughts, feelings, and volitional behavior; e.g., written instructions to increase knowledge or motivational information to increase the likelihood that the patient will perform an exercise as prescribed. (Fig. 2)

Meta-therapy as a self-referential concept does not appear to map onto the *Organ Functions* (e.g., resistance training to effect resistance training) or *Skills and Habits* (e.g., practice to effect practice) treatment components. Also, the five self-referential goals of meta-therapy (see Figure 2) all pertain to changes in the patient’s mental representations. Therefore, meta-therapy as a self-reference most clearly aligns with *Representations* treatment components. These treatment components include the provision of information (ingredients) in hopes of modifying the patient’s mental representations about treatment (targets); e.g., cognitions, knowledge, beliefs, attitudes, intentions, and/or awareness to perform volitional behaviors. These shifts in mental representations occur along a continuum of requiring no overt action (e.g., knowledge for knowledge’s sake) to requiring overt action (e.g., increased motivation to practice therapeutic voicing in daily life). The RTSS labels the “action” side of this continuum as volition; where

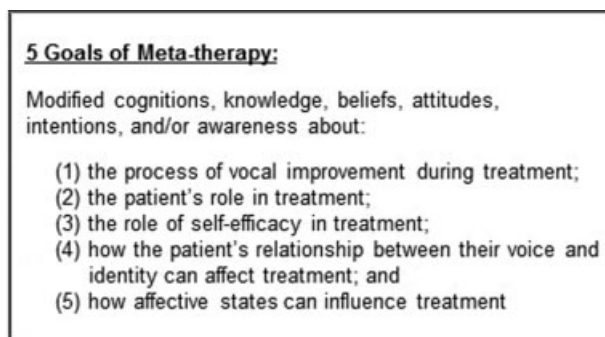


Figure 2 Summary list of five goals of meta-therapy.

volition is roughly equated with effort expended by the patient.

Now, if we replace the self-referential definition of meta-therapy (“[treatment] about {treatment}”) with the RTSS terms, this phrase becomes “[Representations treatment component] about {insert Organ Functions, Skills and Habits, or Representations treatment component}.” To further break this down, the phrase would become “[providing informational ingredient(s) to change the patient’s cognitions, knowledge, beliefs, attitudes, intentions, and/or awareness] about {insert Organ Functions, Skills and Habits, or Representations treatment component}.” In fact, applying the RTSS framework, the five self-referential goals of meta-therapy can be tied to three main types of targets: (1) increasing the accuracy (and/or amount) of knowledge about what is going to happen in voice therapy, (2) changing patient beliefs or attitudes about their voice that may “facilitate” or “get in the way” of therapeutic progress, and (3) increasing the probability that the patient will perform therapeutic activities as directed outside of the therapy session (i.e., “volition”). Notably, the third target type can be related to the concept and work of voice therapy adherence. Previous work on adherence to voice therapy echoes some of the themes described herein,³⁶ in a manner somewhat suggestive of patients’ attunement to the value of meta-therapy.

Here, some examples of meta-therapy should be useful to consider. Table 1 illustrates examples of meta-therapy generated by co-

authors Helou, Gartner-Schmidt, Hapner, and Schneider. These examples are highly condensed versions of clinical narratives, analogies, “spiels,” and other variants on clinical dialogue that are commonly employed by these clinicians with voice therapy patients. While informational ingredients might be simply provided in a purely didactic manner (e.g., explaining to a patient in physiological terms why excessive laryngeal muscle tension prevents optimal voice use), there is evidence that couching this information in an analogy or metaphor could improve information retrieval³⁷ (e.g., discussing how voicing with excessive laryngeal muscle tension “is like driving a car with the brakes on”; credit to van Mersbergen³⁸ for this analogy). The examples in Table 1 will also be useful references for the following section, which discusses meta-therapy’s focus on issues beyond vocal outcomes per se.

META-THERAPY AS BEYOND MODIFIED VOICING

Previous offerings about meta-therapy in voice treatments discuss how it encompasses the patient’s psychological relationship with their voice,^{15–20} noting that a shift in this relationship can facilitate and underlie observed vocal improvements. Multiple aspects of how the patient views and interacts with their voice have been noted by master clinicians as likely mediating therapeutically desirable changes in voicing, even interfering with showing up for appointments and/or completing the entire prescribed course of voice treatment.^{12,36,39,40}

Table 1 Goals and Examples of Meta-therapy. Boxes Marked X Indicate Goals of Meta-therapy that Might be Addressed for Each Item

Example statement or dialogue-based theme	Meta-therapy goals				
	1	2	3	4	5
1. "We are learning some exercises that you will practice, but really what we are doing is building new patterns that you can use in everyday life; creating vocal choices; helping you find new ways of connecting with your voice."	X	X			X
2. "Voice therapy is more about you developing awareness about the sound and feel of your voice than me teaching you any exercise or technique."	X	X	X		
3. "Voice therapy is about guiding you to explore where <i>you</i> feel the sounds. I am going to consistently ask you two questions after we do different vocal tasks: Do you feel a difference? Do you hear a difference? You will have to figure the answers out for yourself, with some gentle guidance by me."	X	X	X		
4. "Just like those <i>Paint by Numbers</i> activities, your goal is to learn how to <i>Voice by Feel</i> ."		X			
5. "In voice therapy, we are working to teach your brain new sensations and new patterns. At first, it will require conscious awareness. That can be frustrating but just like learning to type or ride a bike, as the muscle memory for these new sensations and patterns becomes more habitual, you will not need to be so conscious of what you do."	X				
6. Naming the old/default voice and then naming the new/therapy/target voice can be a useful practice. For example, "Way to go, you just found your 'Smooth Voice' on your own! Wrap it up, put a bow on it, put it in your pocket, take it home with you, and find it again when you need it. If you can do it once, which you just did, then you can do it again."		X	X		
7. Probe the patient's narrative around decision-making. If they say "I had to yell," clinician might respond with "did you <i>have</i> to yell or did you <i>choose</i> to yell?"		X	X		
8. Language reveals ownership. If a speaker says, "my voice gets rough...", clinician might encourage them to change their language by adding a second part to their complaint, e.g., "my voice gets rough <i>when I don't use my airflow, when it's stuck in my throat, etc.</i> "		X	X	X	
9. Acknowledging the natural variability in vocal quality during physical fatigue, emotional turmoil, cognitive demand, and other affective states can be useful in promoting patience and grace (that the patient affords themself.)					X
10. "I am the facilitator, but you have to be the implementer. My goal is to make you your own voice therapist. I won't always be saying whether a production was good or not good, or right or wrong. The goal is for you to learn to sense the response that meets your goal (e.g., less effort or a buzzy feel), then get better and better at producing the response you need in the moment."	X	X			X

Note: The five goals of meta-therapy are modified cognitions, knowledge, beliefs, attitudes, intentions, and/or awareness about: (1) the process of vocal improvement during treatment; (2) the patient's role in treatment; (3) the role of self-efficacy in treatment; (4) how the patient's relationship between their voice and identity can affect treatment; and (5) how affective states can influence treatment.

Further, it is known that psychological aspects such as stress, affect, and self-efficacy can play out in vocal subsystems and in voice itself.^{41–46} These relationships between the patient's psyche and their voice might extend into impacting the patient's sense of agency (a term which encompasses self-efficacy, locus of control, and other related constructs) toward their voice and voice difficulties. For instance, Gillespie and Verdolini Abbott showed that patients' sense of self-efficacy is related to whether the clinician discusses the origin of their voice disorder in terms of vocal abuse/misuse versus phonotrauma/muscle tension.⁴⁷ In short, it seems apparent that variations in the clinical dialogue (e.g., word choice, terminology, analogies) have the potential to impact outcomes, above and beyond the specific contributions of classical direct and indirect therapy techniques (e.g., opportunities to practice flow phonation and providing vocal hygiene information, respectively).

The patient's psychological relationship with their voice can be addressed in various ways during voice therapy. According to the RTSS, the clinician's treatment theory will dictate how to describe the critical clinician actions (i.e., ingredients), as well as the effects of those actions, on patient functioning (i.e., mechanisms of action, target, or an aim). To concretely illustrate how these aspects of meta-therapy are operationalized depending upon the clinician's treatment theory, consider the ingredient *negative practice*.³⁹ Once the patient repetitively alternates between their baseline voice and their improved voice with as much accuracy as possible, a chain of modified patient functions begin. First, neural activation occurs in the central sensorimotor system; then the peripheral nervous system activates muscles in the head, neck, and respiratory system; then voicing and speech are produced; then feedback contributes to the modification of mental representations like self-efficacy. Among this complex chain of patient functions, some modified function must observably and measurably change so that the clinician action ("negative practice" ingredient) could be considered successful (i.e., effective). This modified function would be the "target." For example, the clinician could measure the "success" of the ingredient *opportunities to practice switching between baseline voicing*

and improved voicing as the target *accurate and quick switching between normal and disordered overall voice quality* (a skill or habit). The practice ingredient's dosage would be measured according to the number of practice repetitions and progression measured according to the level of difficulty (e.g., automatic speech, reading, spontaneous speech). Another ingredient, *provide feedback on performance*, would probably also be present with dosing measured by the number of times the feedback was provided. In this case, the target and ingredients identified are not considered "beyond modified voicing" aspects of meta-therapy.

In the previous paragraph, the treatment theory regarding *negative practice* was centered on the premise that alternating between "baseline dysphonia" and "minimal-to-no dysphonia" would improve the patient's vocal skill set and awareness. However, it is possible for a clinician to have a different treatment theory regarding *negative practice*. For example, perhaps the patient is one who frequently notes that they "can't change their voice," complains that "I never know what's going to come out of my mouth when I open it to say something," and generally feels a low degree of control over their voice. Then, the activity of *negative practice* could be employed by the clinician as an information ingredient; i.e., *provide information about vocal control* from the patient themselves. Instead of measuring the accuracy of switching between various vocal productions (i.e., the target of a practice ingredient), the clinician would measure any changes in *the patient's voice-related self-efficacy* (i.e., the target of an information ingredient). While changes in voicing constitute a modified patient function, this would be in the mechanisms of action for the self-efficacy target, since changes in voicing will not necessarily produce improvements in voice-related self-efficacy. But modified voicing is generally necessary for changes in voice-related self-efficacy to occur. And finally, the success of negative practice (in this example) hinges on whether or not the patient increased his/her voice-related self-efficacy. In this example, negative practice is an aspect of meta-therapy: changing the patient's beliefs or attitudes about their ability to control their own voice (i.e., self-efficacy).

DISCUSSION

We used the RTSS to further articulate and operationalize meta-therapy in vocal rehabilitation. Specifically, meta-therapy's conceptual framework of voice therapy was shown to generally align with the RTSS's treatment theory and associated concepts; e.g., the treatment component and its underlying ingredients, mechanisms of action, and target. These meta-therapy treatment theories primarily mapped onto the RTSS's treatment category of Representations treatment components. And, the treatment targets in meta-therapy were often focused on changes in the patient's knowledge, affect, and beliefs regarding the therapeutic process. Finally, the ingredients in meta-therapy mainly consisted of clinician actions that conveyed information about the patient's mental representations and were delivered with verbal cues, stories, analogies, etc.

Table 1 presented a limited compilation of meta-therapy goals and dialogue-based examples, all sourced from the first four co-authors' clinical experience. The reader might have noted that this material was not laid within the RTSS framework. More progress must be made in the theoretical articulation of meta-therapy before its finer points can be clearly mapped onto the RTSS. That is, a major limitation of meta-therapy in its current form is that it cannot readily be operationalized or standardized. For the meta-therapy goals and associated examples presented in Table 1 to adhere to the RTSS framework, they would need to be rephrased in terms of which patient functions are hypothesized to change directly (i.e., target and mechanisms of action) or indirectly (i.e., aim) from a single (or multiple) clinician action(s). One way of trying to identify a target within a goal is to ask questions such as "What change in the patient would tell me if the treatment ingredient was successful?" or "What am I hoping to clinically achieve by providing this treatment ingredient?" Once the clinician identifies the target (e.g., *increased knowledge of the relationship between voice and identity*), all patient functions proximal (i.e., closer to basic physiology, like central nervous system activation) to the target fall within the mechanisms of action. Further, all patient functions distal (i.e., closer to activities and participation in daily life, like modified locus

of control or improved voice-related quality of life) to the target are viewed as aims.

Consider the ingredient wherein the clinician says "voice therapy is all about guiding you to explore where you feel the sounds." Does the clinician expect the patient to learn this fact and simply recall it in their own words? If so, then the target could be "increased accuracy of knowledge regarding the voice therapy approach." However, perhaps the clinician never asks the patient to repeat this back, and instead is trying to plant a seed that might foster growth in that patient's voice therapy experience. In that scenario, what purpose might this phrase provide? Perhaps it is used as a cue to increase the patient's attention and effort (i.e., volition) to the vocal practice, or their general interpretation of events in the therapy setting. Then, the clinician's statement would be considered a volition ingredient added to the other ingredients of *provide opportunities to practice voicing* and *provide feedback on vocal performance* for the target of *improved voicing*.

The RTSS requires that ingredients, targets, and aims are measurable (i.e., capable of being observed) in routine clinical care. In this context, many of the goals of meta-therapy as currently written may be too generally stated to know how to measure them. Of course, some exceptions exist, such as self-efficacy, which is expected to shift as a function of meta-therapy and is highly measurable. But many of the goals in Table 1 imply a changed patient function from "inappropriate" to "appropriate," but what is specifically meant by "appropriate" was not mentioned. Without more specifically operationalizing "appropriateness," one clinician relying on another clinician's notes for a patient's next session would not explicitly know how to continue the patient's plan of care.

While the meta-therapy examples listed in Table 1 could adhere to an exact phrasing that serves as a measurable ingredient (e.g., how many times is this phrase provided), it is currently unclear which and how many other phrases are paraphrasing the same informational ingredient (i.e., you are an active participant of this therapy) and thus should be categorized together. To be more specific, are the following phrases simply variations of the same informational ingredient?: "helping you find new ways to connect to your voice" and "voice therapy is

all about guiding you to explore where you feel the sounds” and “I’m basically a giant mirror... you will have to figure this out with some gentle guidance from me.” And, how does the clinician know when to increase or decrease the dose (number of times) or intensity (number of times per time period) of these ingredients? These outstanding questions will need to be resolved to more thoroughly characterize meta-therapy in RTSS terms.

FUTURE DIRECTIONS

In the process of articulating and advancing the concept of meta-therapy in this manuscript, additional characteristics and functions of meta-therapy were illuminated. We will summarize them briefly here with the expectation that they will be explored in the future. First, we propose that meta-therapy might serve a purpose akin to vocal stimulability testing,^{48,49} but from a more psychological or representational perspective. We have spent much time discussing meta-therapy and its ability to facilitate the patients’ understanding of themselves, the process of vocal change, and so on. However, meta-therapy might also serve to facilitate the clinician’s understanding of what voice-related mental representations need modifying, as well as which informational ingredients have the best potential for success with an individual patient. When meta-therapy is applied with a patient, the patient sends back information that serves as feedback about whether the clinician is providing information in the right manner, in the right place, in the right amount, at the right time. Information sent back from the patient can be obvious or subtle, fleeting or lasting, seemingly random or patterned. This complex material is precisely the type of information that human brains are wired to calculate: eye contact, nervous laughter, body posture, ease of movement, voice quality, speech rate, and so on. In short, how a patient responds to meta-therapy is essentially representational (to apply an RTSS term) stimulability testing that can guide the clinician to the next thing they need to say or do. In voice therapy, clinicians talk colloquially about “the hook” as the way to motivate a person to “buy in” to voice therapy. This feedback from the patient to the clinician’s

meta-therapeutic dialogue is actively shaping the clinician’s understanding of what “the hook” needs to be for that person in the context of the moment and their life. And, building on that notion, when patient feedback emerges from meta-therapy as a diagnostic probe, it serves as adjunctive diagnostic information so that the clinician can root out potential origins of their vocal impairments. Even if the vocal impairments are purely biomechanical in nature, the barriers to resolving them might yet be grounded in any number of representational mental states, perhaps stemming from negative affective states, conditioned stress responses, trauma, and so on. Thus, we propose that one broad aspect of meta-therapy is to essentially serve as “representational stimulability” mechanisms within a session, guiding clinicians to say and do the next best thing for the patient’s long- and short-term success.

Another consideration, which we wish to propose briefly yet reserve for future elaboration, pertains to differences in outcomes between clinicians ostensibly delivering the same therapeutic approach. Some might refer to this as the “therapist effect” or simply reduce it to stylistic differences. For example, the timing of meta-therapy ingredients by the clinician is likely to shape the way the patient receives it, much akin to the timing of a joke, the delivery of criticism, or a request for a favor. The notion that subtle stylistic differences such as timing accounts for some variance in outcomes when comparing “super-shrinks” versus “pseudo-shrinks” has been previously established.^{50,51} Also, multiple fields of treatment that rely upon behavior change have widely accepted that the patient’s perception of the clinician’s warmth, empathy, and trust is a key driver of patient outcomes. For example, high degrees of clinician empathy may help establish the trust required for a patient to share information about their voice disorder and related personal issues. Psychology researchers studying the “therapist effect” have examined empathy and warmth as ingredients, and seek to measure the “therapeutic alliance.”^{52–55} These different features that a clinician might bring to the table could reasonably be viewed as stylistic in nature, thus begging the question of where one draws a line between style and skill.

On the surface, it may appear that the success of meta-therapy might hinge on some features that are not readily encoded in the RTSS or taught programmatically. However, it is also possible and perhaps more likely the case that the features of meta-therapy are not yet specific enough in theory to fit the rules set forth by the RTSS. There is good reason for this lack of specificity. The clinical dialogue between clinician and patient is unquestionably complex, challenging to articulate, and simultaneously influenced by countless factors that are known, partially known, and fully unknown to one or both individuals. Further, meta-therapy likely unfolds differently as a function of numerous clinician and patient characteristics. For instance, gender identity, age, culture, and myriad other features of the individuals involved will come to bear on the clinical dialogue, perhaps even shifting from day to day as a function of environmental changes and current events. In theory, each of the above considerations could be systematically explored by applying a linguistic and supralinguistic analysis of the clinical dialogue that experienced versus novice clinicians share with their patients. Ideally, such a study would also explore outcomes between both groups to confirm whether, how, and to what extent experienced clinicians are in fact more effective and/or efficient in helping their patients achieve their goals. These and other questions about meta-therapy should be reserved for future efforts in which the dialogue and delivery manner of meta-therapy by expert clinicians is systematically investigated.

CONCLUSION

This paper aims to further characterize and define meta-therapy, a newly described and distinct sub-element of voice therapy that can be mapped onto the Rehabilitation Treatment Specification System (RTSS). Meta-therapy maps onto the RTSS framework at multiple levels, yet requires further characterization and investigation before it can be clearly operationalized. Inasmuch as meta-therapy is a clinical dialogue that is centered on a treatment theory and involves modifying a patient's cognitions, knowledge, beliefs, attitudes, intentions, and/or awareness, it seems

clear that meta-therapy is a clinical entity that pervades speech-language pathology and other fields of allied health. Thus, future investigations should systematically parse and operationalize the various elements of meta-therapy, using the robust structure of the RTSS to guide the process.

DISCLOSURES

- Helou is a salaried employee of the University of Pittsburgh School of Health and Rehabilitation Sciences. She receives honoraria and royalties for speaking engagements on the topic of voice therapy and meta-therapy. She has a contractual engagement with and receives royalties from MedBridge, Inc.
- Gartner-Schmidt is a salaried employee of the University of Pittsburgh School of Medicine. She receives royalties from MedBridge, Inc., is a consultant on R01 DC015906-01A1 for *Optimization and Therapeutic Translation of Semi-Occluded Vocal Tract Techniques*, and is adjunct professor, receiving annual honoraria, St. Mary's College, Notre Dame, IN.
- Hapner is a salaried employee of the University of Alabama, Birmingham. She receives honoraria and royalties for speaking engagements on the topic of voice therapy and meta-therapy. She has a contractual engagement with MedBridge, Inc. as a consultant for the voice curriculum and for her work as an instructor on several topics on dysphonia that include discussions of meta-therapy. She is the co-author of the book, *Voice Therapy Clinical Case Studies* with Plural Publishing with several references to meta therapy within its case studies.
- Schneider is a salaried employee of the University of California San Francisco. She receives honoraria for planning of continuing education course and speaking engagements on the topic of voice evaluation and therapy. She receives royalties from MedBridge, Inc. for her work on education courses including Auditory Perceptual Voice Evaluation, Resonant Voice Tips and Tricks, and two courses on Singing Voice Evaluation and Treatment. She is the Professional Development Manager for the American Speech-Language and Hearing Association

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CONFLICT OF INTEREST

None declared

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