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Toward an evidence-based patient-provider communication in rehabilitation: linking communication elements to better rehabilitation outcomes

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Abstract

Background: There is a growing interest in linking aspects of patient-provider communication to rehabilitation outcomes. However, the field lacks a conceptual understanding on: (a) 'how' rehabilitation outcomes can be improved by communication; and (b) through 'which' elements in particular. This article elaborates on the conceptual developments toward informing further practice and research.

Methods: Existing models of communication in healthcare were adapted to rehabilitation, and its outcomes through a comprehensive literature review.

Results: After depicting mediating mechanisms and variables (e.g. therapeutic engagement, adjustment toward disability), this article presents the '4 Rehab Communication Elements' deemed likely to underpin rehabilitation outcomes. The four elements are: (a) knowing the person and building a supportive relationship; (b) effective information exchange and education; (c) shared goal-setting and action planning; and (d) fostering a more positive, yet realistic, cognitive and self-reframing.

Discussion: This article describes an unprecedented, outcomes-oriented approach toward the design of rehabilitation communication, which has resulted in the development of a new intervention model: the '4 Rehab Communication Elements'. Further trials are needed to evaluate the impact of this whole intervention model on rehabilitation outcomes.

Keywords

Patient–physician communication, patient–physician relations, engagement, psychological adaptation, rehabilitation outcomes

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Background

The elements of patient-provider communication consist of both verbal and non-verbal patient-provider interactions and are core determinants of patient-centeredness and consumer experience or satisfaction

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outcomes in a variety of healthcare settings,[1,2] including physical rehabilitation.[3–6] In recent years, there has been increasing interest in studying whether and by how much certain aspects of communication affect health outcomes.

The existing reviews cover empirical studies that show a link between communication with patients and health outcomes across a diverse range of healthcare sectors.[7–9] At the same time, there is increasing evidence that shows patient-provider communication is not only associated with rehabilitation outcomes,[10–13] but can also lead to its improvement.[14,15] However, as the mechanisms underlying the process have yet to be fully defined,[11,13] the science and practice of communicating with patients in rehabilitation cannot advance in a way that systematically improves outcomes.[16–18]

Currently, there are conceptual frameworks for modeling domain knowledge on 'how' and 'which' communication aspects can enhance health outcomes in the field of general healthcare,[9,19] and in cancer care.[20] Yet, such developments seem to be absent in the context of physical rehabilitation. Therefore, this article aims to inform further practice and research by proposing an evidence-based conceptual framework defining:

(a) 'how' communication can affect rehabilitation-specific outcomes (i.e. by which mediating variables/mechanisms);
(b) 'which' communication elements are likely to underpin rehabilitation outcomes.

Methods

Existing communication models in healthcare,[9,19] and their categories (e.g. ultimate outcomes, mediating variables, communication elements) were adapted to rehabilitation, and its outcomes. This process occurred as follows. First, the rehabilitation outcomes were abstracted from the recent PAC-Rehab Quality Framework.[21] Then, the rehabilitation-specific mediating variables and their underpinning communication elements were specified according to a theoretical and evidence-based perspective, which was abstracted from the following comprehensive literature review.

The review was conducted across the fields of health communication, health psychology and rehabilitation. Although a thorough review of literature using a Cochrane-style systematic review process would normally be adopted, it is unsuitable for this review as topics covered are wide and heterogeneous. Therefore, this review focuses on an iterative, non-linear and integrative process – more commonly used when reviewing complex healthcare matters.[22–26] First, searches were carried out using keywords (e.g. patient-provider communication, rehabilitation outcomes, adherence, psychosocial adaptation) across all relevant databases (PubMed, CINAHL, PsycINFO). These database searches were exploratory, and were aimed to feed a comprehensive 'snowballing' process (e.g. citation tracking, author tracking, keyword tracking, hand-searching of reference lists), found to be the most effective search strategy on reviewing complex topics.[27] Second, search iteration using the 'snowballing' strategy to prompt additional databases searches was performed. Subsequent searches and iterations were repeated and extended up to February 2015 until the very end of the peer-review process, so that information published more recently could be added to the final list.[24]

The preliminary selection of references occurred alongside iterative searches,[24] in which related information was continuously abstracted, summarized and mapped by scope[28] into the pre-existing categories of the framework. At this stage, the selection criterion included the availability of theory/evidence, for any given variable, showing an impact on rehabilitation outcomes. This entire process was mainly conducted by the first author. As the relatively open criterion resulted in a continuous discovery of references, two authors iteratively reduced references selected throughout the integrative synthesis stage.[26] This later point is where both authors had a better appreciation of the full scope and breadth of the literature to more accurately select the final references.[24] The criteria for retaining research articles at the final stage (i.e. the ones that did informed the article's results) was limited to information that was more recent, empirically

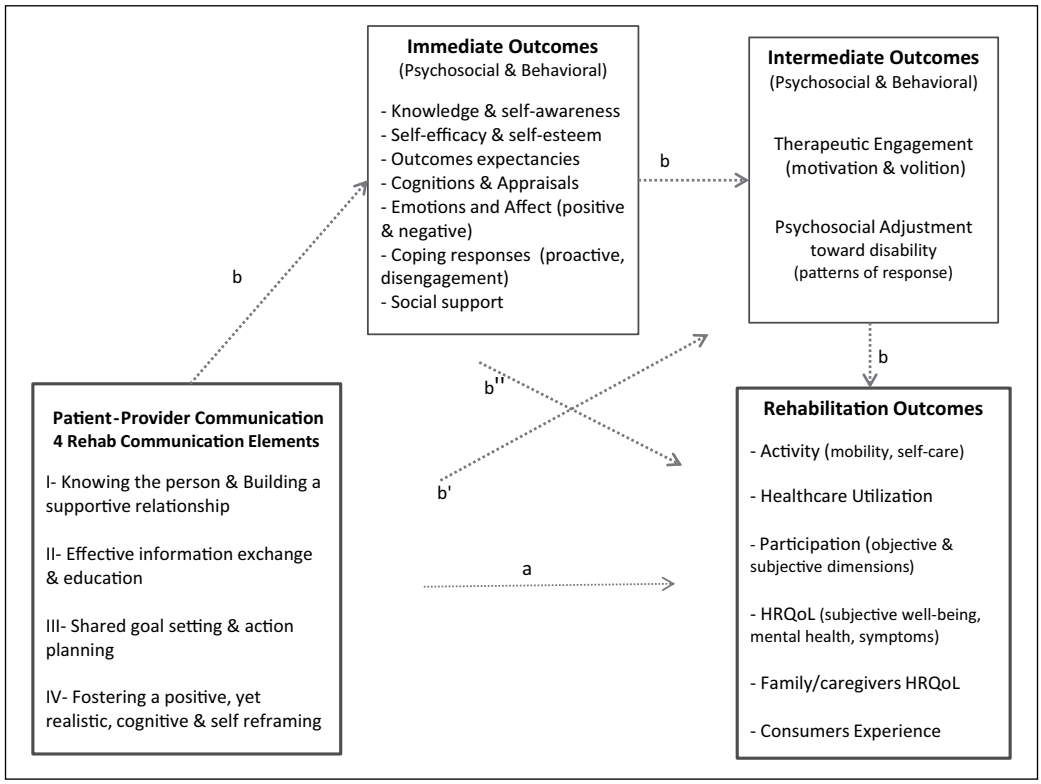

Figure 1. Direct (a) and indirect (b) pathways linking aspects of Patient-Provider Communication (the 4 Rehab Communication Elements) to Rehabilitation Outcomes.
HRQoL: health-related quality of life.

solid, theoretically grounded and when available already systematically reviewed on each topic of the framework.

Results

Figure 1 provides an overview of the framework. This is organized by the following categories: (1) rehabilitation outcomes; (2) intermediate and immediate outcomes; and (3) communication elements. Categories were filled in that order, with mediating outcomes and communication aspects defined according to either a direct or indirect impact on outcomes. The framework elements, and their relationships, are depicted below, with the underlying theory/evidence (total of 99 articles) cited alongside, but further detailed in appendix (available online).

Linking communication to rehabilitation outcomes: Indirect pathways and mediating variables

It is widely known that communication with patients directly affects patient-centeredness and *consumer experience* outcomes (pathway [a] in Figure 1).[3–6] However, this article mainly elaborates on how communication can affect health-related outcomes. Such influence seems to occur rather indirectly, through indirect pathways (pathway [b] in Figure 1) and the following mediating variables.

The mediating role of the patient's therapeutic engagement (e.g. motivation, volition)

Objective rehabilitation outcomes, such as functional *activity* or *healthcare utilization* (e.g. patients'

length-of-stay, other services utilization), account for how much patients engage with care (e.g. attend therapy sessions, commit with exercise, adhere to discharge recommendations).[29–37] Such forms of *therapeutic engagement* can in turn be affected by either clinical factors (e.g. apathy, pain, fatigue, impaired capacity to exercise or follow care instructions),[30–34,38] or lack of patient's *motivation* or *volition* to engage with rehabilitation care.[29,30,33,34,36] Those rehabilitation readiness variables, on the other hand, along with their underlying psychosocial factors, can be shaped by communication aspects, as follows.

First, patient's *motivation* for care varies according to the perceived relevance of rehabilitation goals (i.e. if they seem conducive to key life goals). As such, collaborative communication toward defining relevant, yet feasible, rehabilitation goals (*shared goal-setting*) can arguably increase patient's intrinsic motivation for care.[29,39–43] (pathway [b']).

Second, *motivation* for care can also be affected by patient's *cognitions* (e.g. perceived need for care, outcomes expectancies, self-efficacy).[29,44] With that, communication leading to an effective *patient education* (e.g. enhancing patient's knowledge of prognosis, and thus more accurate outcomes expectancies), or toward a *cognitive reframing* (e.g. changing perceived need and perceived ability to carry out rehabilitation tasks), may enhance patient's motivation for care. Besides, *self-efficacy* cognitions about walking and balancing can directly affect those mobility outcomes.[45,46] As such, communication improving walking- or balanced-related self-efficacy (e.g. reinforcing step-wised progresses) can also directly enhance those rehabilitation outcomes (pathway [b'']).

Third, patient's motivation for care also accounts for the emotional processing of disability,[47,48] which in turn requires *supportive* communication (e.g. active listening, empathetic reassurance of patient's emotions) provided in the context of a trustful *patient–provider relationship*.

Finally, the underlying patient's motivations/intentions need to be translated into concrete, sustained engagement behaviors. The act of translation can be promoted by patient's *volition* (i.e. action-oriented, self-regulatory variables).[29,44] That patient's volition can be fostered by communication toward translating the previous shared goal-setting into *shared action plan* for rehabilitation.[40,49] All the communication elements are depicted in a later section (Figure 1).

The mediating role of the psychosocial adjustment toward disability (different patterns of response)

So far, we have been exploring how communication can enhance objective rehabilitation outcomes, mediated by therapeutic engagement variables. Now, we depict how communication can affect long-term, multi-determined rehabilitation outcomes (e.g. social *participation, health-related quality of life*), mediated by the *psychosocial adjustment toward disability*.

Participation and quality of life outcomes account for objective determinants (e.g. clinical, functional, physical environment), and also for psychosocial/behavioral variables, which include: (1) subjective appraisals of disability and own capacity (e.g. general self-efficacy);[50,51] (2) sense of control and satisfaction (e.g. over own life and community participation);[52] (3) how patients proactively seek social support and participation; [53] and finally (4) how well the person copes with, adapts to or even overcomes residual disabilities.[50,54–57] These responses are then organized into different patterns of adjustment toward disability,[47,48] with varying impacts on outcomes and differential implications for communication with patients.

First, a person can cope with the appraised distress of disability by directing tenacious efforts (e.g. committed care engagement, task-orientation), and high self-efficacy beliefs, toward restoring previous levels of functioning.[47.56,58–61] However, to be adaptive, restoration-oriented endeavors may be directed only to patient's life goals/standards that are re-achievable through the same means.[47,48,58,59]

Indeed, when residual disability occurs, some active accommodation or even the overcoming of losses may be required.[47,48,58,60,62,63] This may include proactive *coping* responses (e.g. problem-solving, seeking social support, using humor) on dealing with

disability,[56,64] and a flexible adjustment of life goals, which will ensure the best match is achieved between subjective aspirations and objective performance.[63,65–67] Ultimately, the person can overcome disability by relying on positive variables (e.g. hope, positive affect, spirituality, purpose in life, own virtues/strengths),[50,54,55,57,68–72] and by (re-)building their own psychosocial resources such as the self-worth, sense of coherence (e.g. identity) or their own social skills.[51,53–55,60–62,70,71,73] Through this 'positive', resource-oriented approach, the person can (re-)find meaning, quality of life and fulfilling participation – in spite of residual disability.[50,53–55,57,69,70,72]

These patterns of adjustment (e.g. tenacious restore-pursuit, flexible adjustment) are not mutually exclusive, and may even coexist and complement one another. The first pattern works toward restoring objective performance regarding life goals that are re-achievable by tenacious rehabilitation efforts, while the second pattern re-adjusts the sense of experience, subjective degree of control and engagement with meaningful alternatives, when residual disabilities occur.[47,48,52,58,59,60,62,63,74] Overall, communication with patients can emphasize both patterns sequentially or simultaneously on different life goals.

By contrast, patient's responses characterized by disengagement and passive-based *coping* strategy (e.g. avoidance, hopelessness, projected hostility, wishful thinking, social reliance, blame, substance abuse) may undermine quality of life and participation outcomes;[56,71,75–77] particularly when associated to negative affect, depression, anxiety, post-traumatic cognitions, magnified appraisals of losses or the catastrophizing of symptoms.[54,55,77–79] When these maladaptive responses occur, rehabilitation practitioners can proceed with an adequate referral to relevant specialties (i.e. psychology/psychiatry), each time such manifestations are identified.[78,80]

Lastly, the family/caregivers need to adjust themselves to the systemic consequences of patient's disability. Often, caregiver responses may directly impact *family/caregivers' quality of life*,[81,82] and indirectly impact patient's quality of life and social participation (e.g. through changes into family dynamics, social support).[83–85] Thus, although the upcoming communication elements primarily refer to the interaction with patients, these can be extended to include pertinent family/caregivers.

The 4 Rehab Communication Elements: Communication designed to improve rehabilitation outcomes

So far, we have been linking separate aspects of communication with patients to ultimate rehabilitation outcomes. These aspects are now depicted by the 4 Rehab Communication Elements (Figure 1).

Knowing the person and building a supportive relationship

A *supportive relationship* refers to a rapport and trustful alliance continuously built in the interaction with patients. This relationship underpins further information exchange, shared decision-making and creates the optimal atmosphere for emotionally supportive interactions – altogether affecting patient's care adherence and outcomes.[10,12–15,86,87]

A therapeutic alliance between providers and patients (including patients with cognitive deficits) can increase over time,[87,88] as long as promoted by person-centered communication.[89] For instance, this communication includes showing respect, eliciting and actively listening to patient's emotions/concerns, followed by empathetic reassurance, and finally the expression of a genuine interest into *knowing the patient as a person* (e.g. understanding the person's story beyond the disability story).[19,89,90]

In addition to promoting better consumers' experience,[3–6] such person-centered and narrative-oriented communication can help the individual feel known and be valued as a person, which can be therapeutic in itself (e.g. on self-worth appraisals).[62,90] Moreover, communication about sensitive topics (e.g. sexual/intimacy issues, often unspoken[91]) are usually better addressed in the context of a safe relationship. Finally, the iterative process of (re-)telling personal stories, within a trustful relationship, can help the person to make sense of the continuum of life events, integrate disability into

the lived experience and help reestablish the sense of coherence and identity – often lost with the advent of disability.[62,73,90]

Lastly, by *knowing the patient as a person* (e.g. his/her values, story, context, preferences), practitioners can gain valuable knowledge of personal factors, which are instrumental for the following tasks.[92,93]

Effective information exchange and education

An *effective information exchange and education* refers to how well practitioners gather information from their patients, which are iteratively complemented by how well information or relevant skills (e.g. self-management, coping with pain[94,95]) are taught to them.[19]

Effective information gathering may include communication strategies, such as using open-ended questions (e.g. regarding patient's concerns, expectations), direct elicitation of factual information (e.g. clinical symptoms) – followed by verbal double check, avoiding premature closure of conversation topics (e.g. on psychosocial issues) and finally reflective listening (e.g. interpreting content listened, then asking for clarification). Using such strategies will enable practitioners to better abstract information from the patient's self-report,[9,19] including patient's knowledge and idiosyncratic beliefs about disability, interventions prognosis or their side effects.[96–98] Altogether, this comprehensive information-gathering feeds an individualized information provision, or patient *education*.[99,100]

Regarding patient *education*, an empathetic reassurance of patient's perspectives shall precede any content to be taught, which when provided, needs to be adapted to the patient's circumstances. Such circumstances may include cognitive impairments, emotional reactions and personal factors (e.g. health literacy, culture).[99,101–103] Additionally, practitioners may provide information on the mechanisms and importance of interventions (e.g. including self-management tasks[95]), followed by checking for the patient's assimilation, which can be done by asking patients to reframe taught content into their own words, or to apply the educated skills to a new situation. A renewed empathetic statement and further clarification, with tailored examples or demonstration, may be provided to reinforce content or skills assimilation.[10,19,37,91,100,101]

Shared goal-setting and action planning

Shared goal-setting refers to a process of bringing practitioners and patients together to openly discuss, and hopefully agree on defining both meaningful and feasible rehabilitation goals. This process is essentially built upon collaborative interactions,[93] sometimes suboptimal in rehabilitation (i.e. goal-setting often falling under provider-led definitions).[104,105]

Collaborative communication toward a shared goal-setting consists of the following stages.[92,93,106] First, a 'shared knowledge' is built upon prior communication tasks (e.g. knowing the person, effective information exchange). Then, the process moves through a 'shared deliberation', in which providers' expertise and patient's preferences meet and come together. When needed, practitioners can elicit the factors underpinning patient's goal-intentions (e.g. psychosocial, personal, contextual), followed by their empathetic reassurance and joint exploration of alternatives (e.g. excluding one-way arguing toward convincing the other) throughout this process.[93] A 'shared mind' (i.e. a common mindset for care goals) hopefully emerges from the shared process of deliberation and from increasingly attuned patient–provider interactions.[93] Finally, that 'shared mind' for patient care will be translated into stepwise rehabilitation goals, which are not only concrete, measurable and ambitious, but also achievable.[41,42] It is, however, worth noting that established goals can still be readjusted over time, according to patient's needs, progresses or lack thereof.[40,60,105]

A shared goal-setting process needs iterative correspondence similar to the method to be used in *shared action planning* so that patient's motivations can be translated into concrete engagement behaviors. This plan will also specify when, how and which major rehabilitation tasks may be performed by patients, as well as providers.[40,44] In addition to tying all agents to an agreed plan, this process sets a benchmark against which engagement behaviors

can later be compared and further self-regulated by patients.[39,44] This process is hopefully facilitated by an ongoing and structured provider's feedback,[37,40,100,105] not only but more likely needed by patients with executive function impairments (e.g. owing to an inability to plan and regulate own engagement behaviors).[38,39]

Finally, a shared action plan may be extended to postdischarge, with collaborative communication focused on prospectively identifying and defining ways to overcome environmental or psychosocial barriers to a sustained care engagement (e.g. with physical activity or self-management tasks affecting rehabilitation outcomes).[35,36,37,49,107]

Fostering a positive, yet realistic, cognitive and self-reframing

This last communication element involves fostering positive, yet realistic, patients' cognitions to a more adaptive: (1) therapeutic engagement and (2) psychosocial adjustment toward disability.

Regarding therapeutic engagement, several cognitions need to be (re-)set at a positive, yet realistic level. For instance, to be motivated, patients need to first hold, or otherwise develop, a 'perceived need' for rehabilitation.[29,36] This is arguably absent when patients lack *self-awareness* of deficits, either through a neurological impairment or an avoidance coping response.[29,108–110] When neurologically impaired (e.g. patient's emotional indifference about performance failures), patient's self-awareness can become *realistic* if promoted through multimodal feedback[108,109] – particularly effective on patients with some disability awareness.[108] Instead, when lack of self-awareness results from avoidance as a coping response (e.g. patient's increasing hostility in face of performance failures), a non-confrontational communication approach may be more appropriate.[110]

Positive 'outcomes expectancies', regarding self-engagement behaviors, may help on active rehabilitation endeavors within patients (e.g. avoiding a passive reliance on rehabilitation treatments/providers).[29,44] Yet, at the same time, expectations need to be *realistic*, otherwise unrealizable expectations may lead to frustration.[111,112] Communication with patients should thus involve empathetic considerations like searching for the roots of expectancies distortions (e.g. idiosyncratic beliefs, either low or excessive perceived control over rehabilitation and its outcomes),[96,97] followed by their logical and step-wised rebuttal. To complicate matters further, there is often a degree of prognostic uncertainty in rehabilitation, which needs to be communicated openly to patients in order for the resultant anxiety to be empathically reassured.[20,112,113] Unfortunately, rehabilitation providers tend to act otherwise and avoid the discomfort in communicating with patients about uncertain prognosis, which, inadvertently, may reinforce or at least maintain unfounded expectations.[111,112]

Finally, varying *self-efficacy* cognitions (e.g. on care engagement, balance, walking, general self-efficacy) also need to be *positive*, yet *realistic*. This can be achieved through communication that emphasizes both previous and ongoing patient's achievements (e.g. rehabilitation milestones being crossed). However, this requires establishing *positive, realistic* and stepwise goals of care at the beginning.

On promoting psychosocial adjustment toward disability, communication with patients can reinforce any restoration-oriented mindsets (i.e. on a tenacious goal-pursuit) whether verbalized or manifested by patient's behaviors. But again, this applies only for tasks where functional recovery is reasonable. Regarding residual disability, communication needs to be emotionally supportive, foster proactive coping strategies (e.g. problem-solving, seeking support) and a cognitive/behavioral management of symptoms (e.g. pain, fatigue).[77,94]

Ultimately, when major life changes are involved, communication with the patient needs to facilitate the reframing of a patient's own life (i.e. *self-reframing*). Concretely, this means a reconceptualization, reprioritization or recalibration of personal life goals, or life standards, in order to promote a *positive*, yet *realistic*, match with the circumstances.[62,65,66] This can be achieved by a guiding communication style, in which providers first elicit and then empathetically explore life alternatives – with the patient, and for the patient's context (e.g. with autonomy-support statements, without pointing a preferred direction to take).[43,110,114–116] Similarly, communication can also

foster a *positive* (e.g. strengths-oriented), yet *realistic* reframing of the life to come. This may include positive variables, such as purpose in life and hope (i.e. setting new life goals, with reasonable paths toward their achievement).[54,55,69] Those variables can be fostered by communication focused on the search for, and reinforcement of, the person's unique strengths, values[72] and resources.[50,53,57,70] Through such actions, communication may then contribute toward a meaningful and fulfilling life *reframing* of the person – above and beyond his/her residual disability.

Discussion

This article presents the four key elements/functions pertaining to communication in rehabilitation: 4 Rehab Communication Elements. These elements were developed according to the ability to underpin a set of mediating variables/mechanisms linking communication to outcomes. This article also describes an unprecedented, outcomes-oriented approach to the design of patient–provider communication in rehabilitation. Another feature of our approach is the aggregation of multiple communication/interactional aspects into a single, unified communication approach to rehabilitation. By contrast, the related literature has been focused on studying the impact of its specific elements in isolation (e.g. the impact of the patient–provider alliance on rehabilitation outcomes).[12–15]

However, this advantage can also be viewed as a limitation. Even though we can expect a synergistic, optimized impact on outcomes through such an integrative approach,[117] we can neither be certain as to how well the 4 Rehab Communication Elements fit together in practice, nor empirically ascertain whether, and by how much, this intervention model collectively impacts on outcomes. Another limitation is the possible lack of representativeness of the references supporting the framework/intervention design, given the methodological approach chosen. As a partial countermeasure to that, whenever possible, we gave preference to the most updated and/or already systematically reviewed information. Lastly, the 4 Rehab Communication Elements were developed as communication functions or tasks pertaining to rehabilitation (i.e. 'what' to be accomplished by communication aspects).[118] Even though we provided some guidance on 'how' to accomplish these functions (e.g. specific communication strategies/techniques), the examples are not exhaustive and important nuances are not considered (e.g. different ways of providing an empathetic reassurance). Nonetheless, the task-approach usually leaves enough room for varying communication techniques to be accommodated (e.g. according to varying theoretical orientations, practitioners' own communication styles) so long as intended communication functions are achieved.[19,118]

Further research may overcome current limitations on the model. For example, expert's review can be sought to further refine, specify or operationalize the 4 Rehab Communication Elements (e.g. production of detailed treatment manuals).[17] Also, patients and practitioners may be inclusively involved in the process, and in evaluating pilot tests of the intervention. Altogether, this commitment to stakeholders' engagement will not only improve the intervention itself (e.g. more valid, sensitive, feasible to apply), but also foster its later adoption, if proven successful.[119] It may be possible to test and improve the effectiveness of the 4 Rehab Communication Elements by incorporating experimental designs. Trials of such complex, talk-based rehabilitation interventions can be difficult, but possible to develop.[94,114,115] This is true when the causal mechanisms (e.g. mediating variables) underpinning intervention choices (e.g. communication elements) can be used to verify the a priori hypothesis,[16,17,18,117] as this article does.

However, many more steps may be required before implementing the 4 Rehab Communication Elements into major trials. These steps may include: (1) adapting the approach to different patients' characteristics (e.g. patients with cognitive/communication impairments,[120,121] people with low health literacy,[102] patients from varying cultures,[103] patients with varying levels of desired involvement into care decisions[122]); (2) defining which communication skills need to be taught as providers tend to be suboptimally trained in rehabilitation,[123] and varying levels of communication skills affect the implementation of the intervention;[124] (3) developing and testing methods for training and monitoring

the 4 Rehab Communication Elements, such that they are readily implemented;[17,94,114,125] (4) studying how much practitioners perceive the communication model relevant for their practice;[124,126] (5) integrating the approach with technical aspects of care (e.g. patient *education* needs to be scientifically sound and well communicated);[4,19,21,127] (6) implementing the approach in a way that does not take time away from treatments;[128] (7) defining how the 4 Rehab Communication Elements can be articulated among inter-disciplinary practitioners; and finally (8) defining how behavioral practitioners (e.g. psychologists) can support rehabilitation team members in the skilled performance of the 4 Rehab Communication Elements.[94,115]

In conclusion, multiple actions may need to be taken in order to advance the science and practice of communication in rehabilitation, at least in a way that systematically improves rehabilitation outcomes. This article elaborates on the need for conceptual foundations and intervention model (i.e. the 4 Rehab Communication Elements), which hopefully will support advances toward more evidence-based, outcomes-oriented communication in rehabilitation.

Clinical messages

- This article describes the 4 Rehab Communication Elements: knowing the person and building a supportive relationship; effective information exchange and education; shared goal-setting and action planning; and fostering a positive, yet realistic, cognitive and self-reframing.
- Trials are needed to evaluate the impact of the intervention model upon rehabilitation outcomes.

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Conflict of interest

The authors declare that there is no conflict of interest.

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