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How do interventions designed to improve provider-patient communication work? Illustrative applications of a framework for communication

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Abstract

In this broad overview for the Conference: "State of the Science in Cancer Care", we review a conceptual framework of physician-patient communication and use the framework to inform the application of theory regarding communication and patient preferences in clinical practice. Using a selection of research, we illustrate how problematic issues in communication can be represented by the framework. We further illustrate how interventions designed to improve communication or to elicit patients' preferences in a medical encounter may have their desired effect, or may be optimally evaluated.

"Provider-patient communication" and "patient preferences" are two widely researched topics, particularly as applied to oncology [1–3]. Physicians and nurses are generally interested in the effective provision of information to patients [4], and the technology of an ever-expanding internet has facilitated an explosion of information availability. Not surprising, the medical literature on communication and patient preferences is also rapidly growing, thus, summarizing the "state of the science" for those unfamiliar with the literatures is a daunting task. A Medline search on the keyword "shared decision making", for example, results in the pattern of publications illustrated in Figure 1 — a steadily expanding literature with over 100 publications annually since 2006.

To help those unfamiliar with these literatures understand their current essence, we start with a conceptual framework of physician-patient communication. Theory can be a helpful tool when trying to understand complex human behaviors [5] because it provides a basis for a systematic approach to the issues, specifies components deemed important to the behaviors in question, makes explicit the relationships amongst the components, and helps make assumptions explicit. Theory-guided study design, and study interpretation, can improve interventions designed to improve communication, by both guiding the illustration of whether a particular intervention is effective, and by explicating how that intervention has had an effect [6]. Thus, the purpose of this paper is to utilize the framework to illustrate previously described problems in communication, and, using selected examples, to show how interventions such as communication strategies, decision aids and patient-reported outcomes (PROs) can potentially positively influence the quality of communication.

The patient-provider communication framework

We begin by briefly summarizing the conceptual framework for patient-physician communication [7]. Although it is fully appreciated that communication usually involves multiple participants, and is iterative over time, the basis of this framework is simplified to focus on a dyad of participants (health care provider and patient) in a single encounter. The framework identifies the important, or kernel, components that

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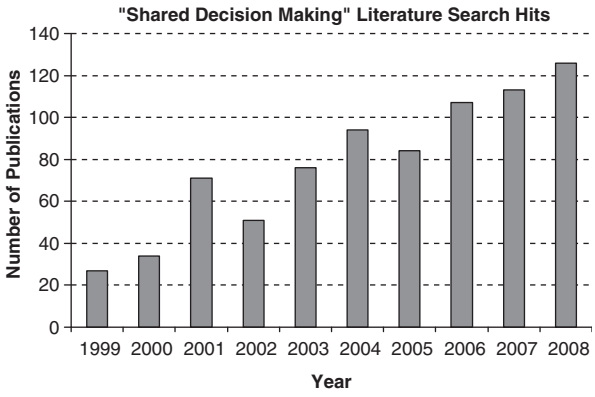

Figure 1. Bars depict the number of citation in medline indexed with "shared decision making" over time.

underlie communication between the participants, and specifies the interrelationships among the components. Guided by such a framework, one can generate hypotheses about mechanisms that underlie particular empirical research findings, which in turn—if supported—can suggest ways to further enhance patient care through the use of effective interventions.

As illustrated in Figure 2, the Framework consists of four components. First, the participants' communication *goals* represent what he/she wants to accomplish in the encounter. Second, each participant's five key attributes: their *needs, beliefs, values, skills*, and *emotions* serve to interact in the setting of the communication goals. The *needs* of a participant, in particular, underlie the goals; they include both those that are fundamental to human functioning (e.g., need for cure/survival) and those that are secondary (e.g. social, psychological and self-actualization needs). The *beliefs* of a participant represent her understanding of her world, including the specifics of her situation and what she considers to be fact (knowledge). The *values* of a participant include principles or standards that are fundamental to the participant's functioning. The *skills* are the elements that underlie the person's ability to communicate (both in delivering and receiving messages effectively). *Emotions* include both those with positive (e.g. joy) and negative (e.g. anger) valence, including those of a transient or stable (dispositional) nature. The attributes in focus in this model all share the characteristic of being susceptible to intervention.

The third component of the framework is the communication *process* which includes each person both conveying messages and receiving messages. The messages can be verbal, non-verbal or silent. Silence can be both explicit, such as not answering a question, or implicit, such as avoiding a particular topic. The communication process is extended in time with messages typically being conveyed, then received—although there can be many concurrent messages—and with one communication act influenced by those in the past, and with an impact on following acts.

Finally, the fourth component of the framework is the *environment* in which the communication occurs. The environment includes both the immediate physical setting and the broader context, including social, cultural, legal, and other elements. These latter aspects are identified as external factors that affect the communication process through their impact on the participants' attributes.

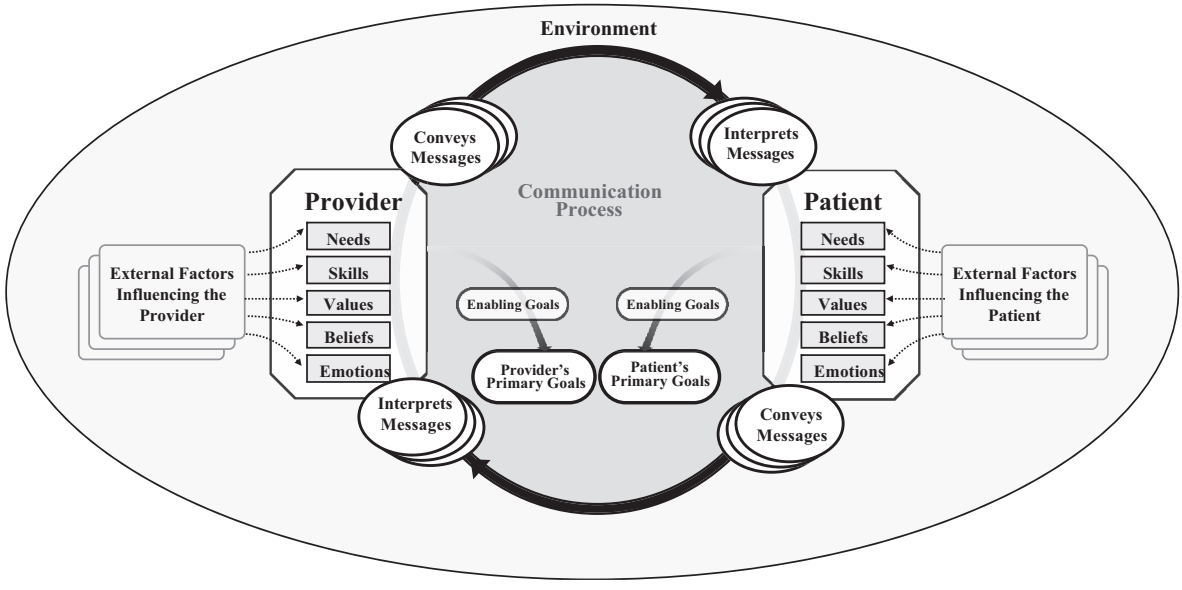

Figure 2. Framework for provider-patient communication.

The framework applied to provider-patient communication

In this section we illustrate components of the framework by applying it to previously identified deficiencies in communication. Our intent in this exercise is clearly not to be comprehensive in relating the Framework to all previously described communication problems, but rather, to use selected examples from the literature to illustrate components of the framework and how they might be applied. We refer the reader to other systematic reviews of communication (e.g., Hack [1], Thorne [8], Fallowfield [9,10]) for further detail regarding known communication issues.

As mentioned above, one attribute of each participant is their *needs,* and these are often primary determinants of the goal(s) for a particular encounter. The patient's *needs* may include what he requires for information/knowledge (e.g., prognosis, treatment options, adverse effects of treatment, financial support opportunities, and so on), and/or other needs, such as emotional support, need for respect or autonomy, and others. The provider's *needs* may be clinical (e.g., symptom elicitation, diagnostic, therapeutic planning), supportive (e.g., provide information, determine patient's preferences), or other (manage time within the encounter, or other practical issues). Often the needs of the patient and provider are congruent, but also they may be in conflict. Moreover, needs are often complex and vary considerably between individuals. Consider, for example, a patient's need for information about his current clinical condition—the majority of studies reveal that most patients wish to know their diagnosis (for example, 98% did so in Jenkins et al. [11]) but fewer wish to know their prognosis; Kaplowitz found that while approximately 80% of patients desire information on prognosis in qualitative terms, only 50% wished to receive a quantitative prognosis [12]. Likewise, detailed assessments of the information needs of early stage prostate cancer have revealed marked heterogeneity in the needs of the patients [13] and similarly large heterogeneity of information priorities in both urologists and in radiation oncologists, the two physician groups involved in care of these patients [4].

Given the complexity of addressing information needs that arises from heterogeneity both in provider and patient, it is clear that paternalistic or 'one-size-fits-all' approaches to communication by providers will inevitably compromise the quality of communication. As suggested by Figure 2, an iterative exchange is required for the clinician to elicit and/or understand the patient's current *beliefs*, his *needs* for information and preferences for communication; the clinician also requires the *skills* to be able to understand and then communicate this information to successfully achieve the *goals* of the encounter. Suboptimal processes at any of these steps may compromise the quality of the consultation.

With regard to patient preferences, a frequently studied attribute of the patient is a particular *need* — his desired role (also called 'role preference') in participating in developing a treatment plan or making a treatment decision. The majority of studies that have measured patient preferences for involvement in decision-making have found that a collaborative role, or shared decision making, is preferred most often by patients in a variety of settings [14–16]. It would be incorrect for the clinician to generalize such group data to the individual level, and assume that such a role is almost always preferred, since many studies have found that over 30% of patients prefer to remain passive, deferring to their physicians on treatment-related matters [14,17,18]. While some associations between role-preference and specific patient characteristics have been well described (e.g., older age, lower educational attainment), the variance explained by these characteristics is not high, thus, they cannot be reliably used to predict an individual's preferred decision-making role. Because there are also many patients who wish to maintain control over the decision making process, preferring active involvement in matters of treatment selection, clinicians have to determine the preferred role of each patient. However, patients' decisional role preferences are not often well identified by clinicians, and many patients do not achieve their desired role [14–16], ultimately resulting in patient regret [19] or anxiety [15]. The discordance may be because clinicians lack the *skills* to determine a patient's desired role in decision making, or because they may hold inaccurate *beliefs* about a patient's assumed role preference, or may have *values* that do not promote a shared decision role. Similarly, the discordance may result from patients' lack of *skills* in expressing their preferences or their presumed *beliefs* about limitations on their decision-role options.

The framework applied to interventions for improving provider-patient communication

The literature makes clear that there is room for substantive improvement in patient-provider communication, since patients often misunderstand the intent of their treatment, the risks of the proposed treatment, or report being dissatisfied [1]. Less clear, however, are the reasons underlying these findings. For example, if physician communication is seen to be less than adequate, to what extent is this due to attitudes such as paternalism (a combination of their *values* and *beliefs*) or to deficient communication *skills*?

The extant literature does include studies of specific interventions designed to improve communication and incorporation of patient preferences. But, how do these interventions actually influence the communication process? In this section we illustrate how the framework components can help to identify potential mechanisms of action for selected interventions. As mentioned above, the framework identifies kernel attributes of the participants, but to apply it to a specific context, more detail is often required. Existing theories focussed on distinct components can be used to provide some detail; for example, the Segue Framework can identify the particular communication *skills* relevant to the provider [20], as Maslow's hierarchy can be used to provide details of *needs* [21]. Because interactions between components are virtually limitless, one would need to focus on particular situations to impose limits on the detail by specifying relevant elements of either or both participants' attributes and external factors, and how they might operate and interact, in that situation. Keeping the whole framework in mind, however, will help guide consideration of components that may not initially seem to be important in the context under consideration.

Communication training for clinicians

Recognizing that many patients leave their consultations with insufficient understanding of their situations, interventions aimed at improving physician's skills at communication have been developed. This literature was reviewed by Fallowfield and Jenkins [9], and the reader is directed to their excellent work for further detail. Clearly, the target in the communication framework for this type of intervention is physician's *skills*. Evidence shows that communication skills can be taught to practicing physicians, and it is possible to have meaningful impact that endures in practice. A randomized trial from 34 cancer centres in the UK showed that carefully designed interventions to improve physician's skills can result in changes in communication behavior, such as doctors hearing directions and summarizing information more often. [22] To a lesser extent, these interventions may influence physician's *beliefs* regarding the most appropriate way to share information, and ultimately, when communication is improved, change physician's *beliefs* about the patient's perspective through the communication iterations. Similar interventions have been directed toward nurses, with positive results [23].

Decision aids

Decision aids have been most frequently studied in situations where medical decision making is known to be preference sensitive, wherein the "best" choice for a patient is one which is sensitive to her preferences regarding the nature of the treatment option, treatments respective benefits and risks, or other issues relevant to her choice [24]. It is reasoned that better integration of a patient's preferences into the decision process will result in a higher-quality decision, where quality is defined as the degree to which decisions are based on current scientific evidence and are consistent with the patient's own values and preferences [25]. In recognition of evidence that many decisions resulting from standard counselling fall short of meeting these requirements, decision aids have been developed to enhance the shared decision making process. Decision aids are tools that translate existing evidence into a form that is intended to be easily comprehended by patients, providing a minimum set of information on the options, and their respective benefits, and risks [26], so the patients can become informed in a way that is less influenced by misinformation from the lay press or by potential biases of the care providers. As such, the aids are intended to reduce decisional conflict (uncertainty about which course of action to take when the choice involves risk), potential loss and regret, or challenge to personal values. Many aids include either active or implicit methods to help the patient clarify his or her personal values regarding the provided information, and arrive at a decision that is most consistent with her preferences.

A recent Cochrane review of patient decision aids identified 23 randomized trials accruing patients in a cancer setting, as summarised recently by Stacey and colleagues [27]. Persons randomized to decision aids were, on average, more likely to participate in decision making, and achieve higher quality decisions [27].

As shown in Figure 3, decision aids have potential influence on many elements of the communication encounter. For patients, a decision aid provides information and values clarification in a way that may compensate for deficiencies in patient's own *skills* needed to acquire this information, thereby providing the patient with the information he requires, in turn influencing his *beliefs* such that they are more appropriately and fully informed with the knowledge needed to make a quality decision. The exercise may also help patients clarify their *values* regarding the decision options. Taken together, these actions are designed to better meet the patient's *needs*, and if decisional conflict is reduced, address the patient's *emotions*. In terms of the provider's attributes, a decision aid may compensate for a provider's deficient *skills* in communication, or biases *(beliefs)* about a particular treatment option. In sum, a decision aid is designed to improve the messages the patients receive,

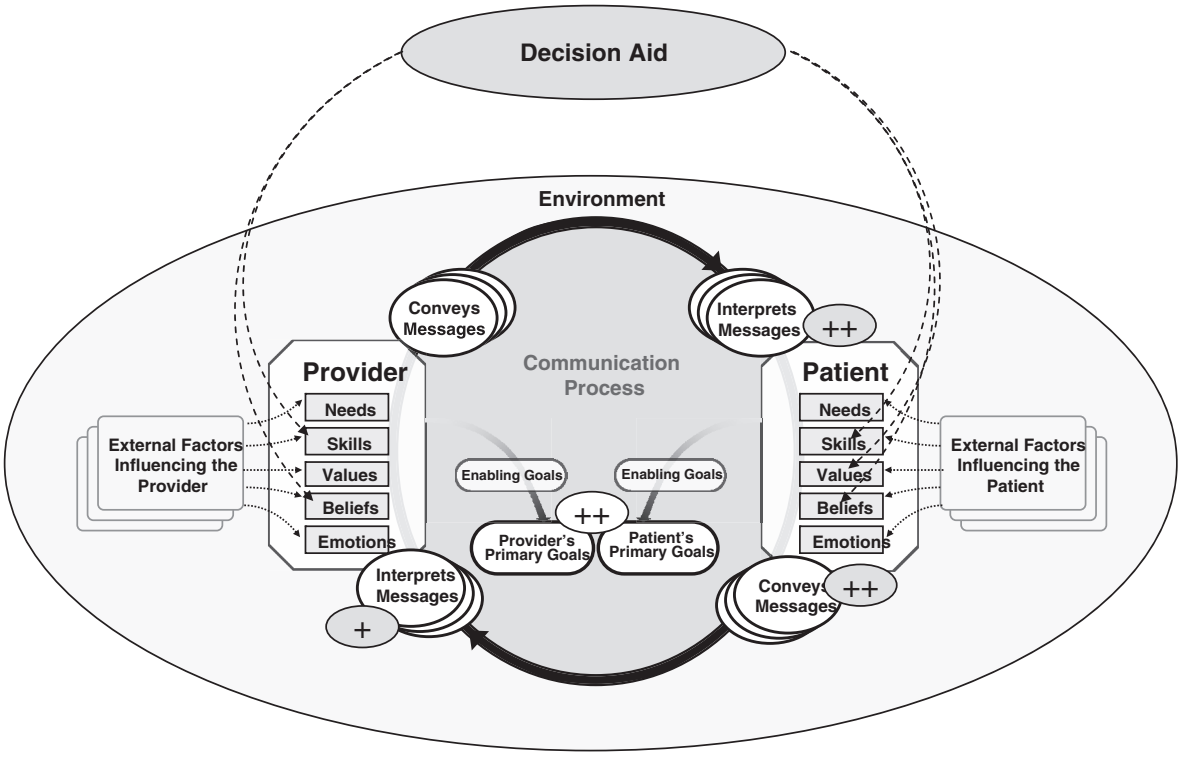

Figure 3. The potential influence of a decision aid on communication. Dashed arrows represent main influences. "++" indicates resultant improved patient understanding of information and expression of preferences.

and to facilitate patient's communication of those preferences to the provider (Figure 3). To the extent that the decision aid is shared with the provider, the provider may be better able to interpret messages from the patient, particularly where the decision aid is administered by the provider in a setting of the consultation [28].

Patient-Reported Outcomes (PROs) and Quality of Life (QOL) Outcomes in clinical practice

The assessment of patients' quality of life using patient-reported outcomes (PROs) has been a long-standing research interest in oncology, particularly as an outcome of clinical trials [29,30]. More recently these instruments have been used to obtain information on patients' status as part of routine clinical practice [6]. The general motivation for this approach is to provide systematically collected and validated PRO information to clinicians, which may help identify patients' concerns, screen for significant symptoms, and improve communication with the clinician. Velikova [31] compared three groups of patients in a randomized controlled trial to study measures of both process and resultant outcomes in the clinical use of PROs. In the Intervention group, patients filled out QoL questionnaires just before visiting with the doctor, and their responses were shared with the physician. In the Attention-control group, patients filled out the QoL questionnaires but the information was not provided to the doctor; in the Control group, patients did not fill out the questionnaires. In this study, both the Intervention and Attention-control groups had better symptom control than did the Control group.

Figure 4 illustrates potential pathways through which PROs influence the communication process. Guided by the framework, we suggest that filling out the QoL forms (the act common to both groups with better symptom control) improves patients' *skills* at describing their symptoms, i.e. skills related to identifying and classifying their symptoms. This, in turn, resulted in the patient being more effective at conveying messages about her health state, facilitating interpretation by the doctor, thus informing the doctor's *beliefs* about the patient's health state. We note that the improved-skill hypothesis provides a potential explanation for Velikova's findings that although there was no difference among the three groups in the amount of time spent addressing issues in the consultation with the doctor, there was better symptom control in both the intervention and attention-control groups; the improved skills could make the patients' messages to the doctor more effective resulting in the physicians having a better

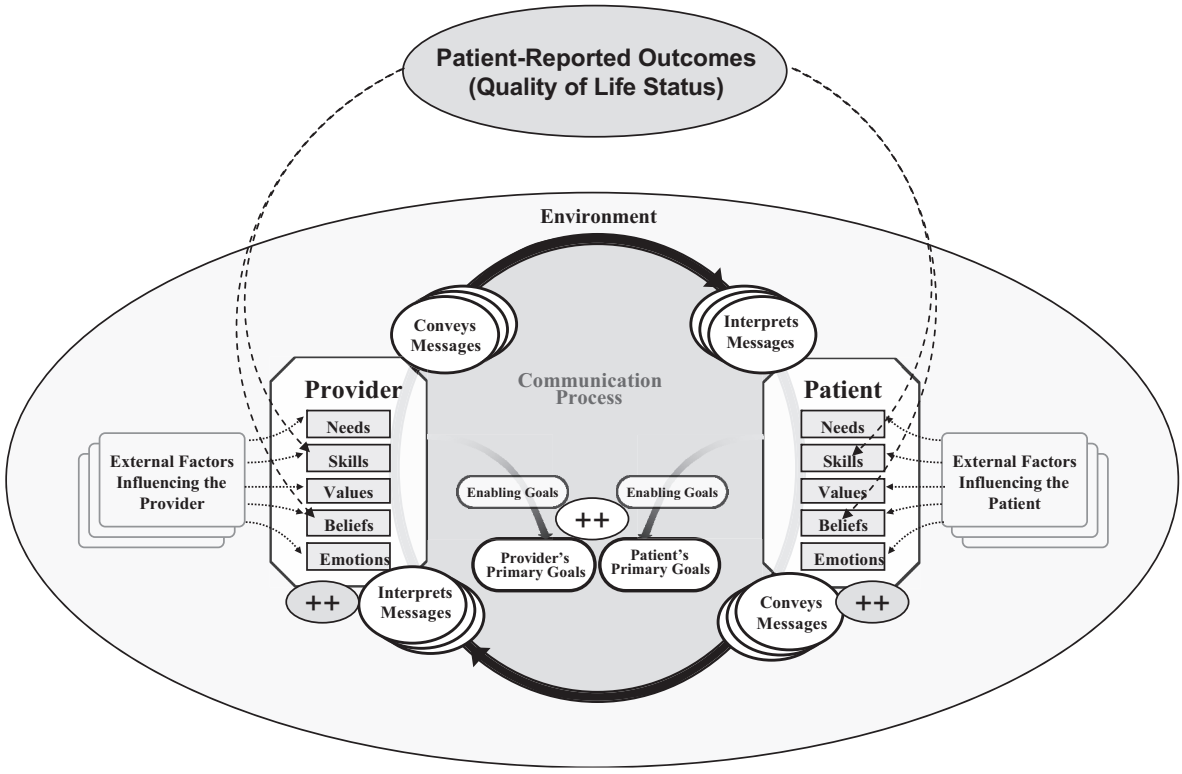

Figure 4. The potential influence of clinical use of patient-reported outcomes on communication. Dashed arrows represent main influences. "++" indicates resultant improved patient communication with the provider.

understanding of the patients' symptoms without increasing the time involved [32].

A further finding in Velikova's study [31] was that the encounters of intervention-group patients with their doctors tended to include more discussion regarding symptoms covered in the PRO questionnaire: more discussion about chronic non-specific symptoms, about pain, and about role function, while not increasing the overall amount of time. The results also showed that the patients in this group had better emotional functioning than those in both of the other groups. The framework suggests that the shift in discussion to issues identified in the PRO instrument improves patients' emotional functioning because it addresses some of their fundamental *needs*, such as their need to feel cared for [33] and/or their need to have a sense of control over their situations [34].

One of the most frequent clinical applications of PROs is screening for mental health issues [35]. In a classic example of such an application, Shapiro et al. [36] found that provision of PROs led to only a marginal increase in overall detection of the problems but showed a marked increased in their detection among elderly patients, black patients, and men, specifically. The large increase was relative to low baseline detection of the problems in these groups. Our framework suggests that the benefit of PROs in these situations address issues related to either physicians' or to patients' attributes. For example, PRO feedback may overcome a physician's *belief* that if the patient doesn't say anything about a symptom, then the patient does not think it to be a problem. Considering patients' *skills*, the use of PROs could augment the elderly patient's memory, for example, in the instance that they have a relatively complicated health state which could require discussion of many symptoms. If the mental health symptoms are relatively less pressing for the patients, they are at higher risk for being forgotten. Considering patients' *values*, the use of PROs might help overcome values that interfere with the men's ability to report the symptoms; if men consider that feeling sad or anxious is something they should have control over, for example, they may be reluctant to initiate discussion around those symptoms. A PRO including these issues might "validate" the appropriateness of reporting the symptoms to the clinician.

Discussion

We have used our conceptual framework of cancer-related provider-patient communication to demonstrate how it can guide thinking about empirical study results involving communication and patient

preferences. A framework that both identifies components important to the communication encounter and specifies the relationship amongst the components has led us to generate informal hypotheses about how the clinical application of PROs impact on communication and might lead to the observed outcomes in empirical studies. More explicit hypotheses about the underlying causes of poor communication could be explored in future research, leading to optimization of interventions to improve communication, and to evaluating those interventions more appropriately. For example, many studies have used patient satisfaction as an outcome measure of the quality of communication. While satisfaction is an important outcome for the patient, and low satisfaction scores are of clinical concern, this outcome identifies only the net effect of the communication elements, and is of little help in identifying either the source of the problem or potential solutions.

Clearly the framework lacks detail regarding some of the complexities of the interaction, for example, how the five attributes of the participant influence each other during the iterations of the communication encounter. "Knitting" [5] our framework with other complementary communication theories is one way to systematically add relevant detail that might be useful in understanding a specific communication issue more thoroughly. For example, our framework could be knitted with Street's Ecological Perspective [37], a communication framework that specifies higher-order features but does not give guidance on what to address if one of those features is deemed to adversely affect communication. Suppose that PROs are found to increase detection of symptoms for some clinicians but not for others; guided by Street's framework, one could determine that physicians who do not effectively engage patients in conversation—those with poor "communicative strategies" – are a subgroup for whom PRO usage would be relatively more helpful.

Another strategy is to knit our framework with one that explicitly addresses an intervention. Greenhalgh's framework [6], for example, addresses the clinical application of PROs. Integrating our communication framework's psychological constructs with Greenhalgh's PRO-specific actions and outcomes would further improve the potential for understanding the impact of PROs beyond what either framework can offer on its own.

In sum, we have illustrated how a theoretically-based framework can help guide the interpretation of provider-patient communication research. Further development of this framework would be useful in guiding further research that is clearly required to better understand the elements of communication, to identify the root-cause problems that lead to poor communication, and to identify how interventions can be integrated into the routine care of patients, such that their preferences can be optimally incorporated into their care.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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