



# Interpretation and use of patient-reported outcome measures through a philosophical lens

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Accepted: 11 November 2018 / Published online: 19 November 2018  
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## Abstract

**Purpose** As patient-reported outcome measures (PROMs) increasingly become key outcome indicators in health care, there has been growing concern about the potential negative consequences that could result when interpretations are being made to inform clinical and policy decisions. Therefore, we explored theoretical issues, assumptions, and consequences of using PROMs from a philosophical point of view.

**Methods** Our analysis of the literature was informed by Gadamerian hermeneutics, which emphasizes the dialectical processes that occur during interpretation, to provide insights as to how different users interpret and use standardized questions about health and quality of life.

**Results** We structured our consideration according to three tenets of using PROMs: (1) the use of PROMs involves the interpretation of contextual elements; (2) interpretation of PROMs is an ongoing dialectical interaction; and (3) the use of PROMs involves openness and reflexivity. These findings suggest that hermeneutics provides a useful approach to examining the complexities of measuring patient-reported outcomes by attending to the perspectives of different users (e.g., patients, clinicians, administrators, and policy-makers) at the micro-, meso-, and macro-levels and the broader socio-historical and economic situation.

**Conclusion** Because PROMs can have different meanings and are used for different purposes, we propose that hermeneutics be used as a *lens* to ask reflexive questions about the problems of measurement and open a pluralistic dialogue with respect to the way we use PROMs and the interpretations we make of the findings that derive from our studies.

**Keywords** Hermeneutics · Measurement · Consequences · Patient-reported outcome measures

## Introduction

Modern perspectives of measurement validation emphasize the justification of inferences or interpretations, actions, and decisions based on measurement scores, as well as value implications (including personal and societal consequences) as critical considerations in the development, evaluation, and use of patient-reported outcome measures (PROMs) [1, 2]. One of the reasons for this shift in emphasis is because of the potential negative consequences (both individual and societal) that could result when interpretations are being made to inform clinical and policy decisions. For example, erroneous interpretations could be made when PROMs from clinical practice are used at the system level for the purposes of audit, quality assurance, and comparative performance evaluation. Misapplication in this manner could lead to ill-informed decisions or adopting policies that could be detrimental to patients by limiting access to certain health

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care programs. The interpretation of PROMs to inform health delivery systems is further complicated by the tension between caring for the individual person and making decisions about health care priorities within organizations and societies [3]. For example, the prevailing organizational efficiency agenda might dictate the allocation of resources to high acuity services that can restore a patients' functioning relatively quickly and away from equally important health management programs where detection of dramatic improvements would be less likely. Thus, a broader philosophical perspective can be helpful in developing better understandings about the decisions made from using PROMs, enabling us to not only think more critically about the diverse perspectives of the users but also to uncover intentions that may be hidden from multiple overlapping and at times competing priorities in the health care system.

The purpose of this paper is to apply philosophical hermeneutics as a *lens* to examine how different users interpret and use standardized questions about health and quality of life, and the complexities of interactions between users and the broader context, and thereby prevent some of the potentially untoward consequences of using these measures in clinical practice and health services decision-making. Hermeneutics is grounded within constructivist ontology and interpretivist epistemology, which assumes that the meanings of items and scores in PROMs are socially constructed and are conveyed through one's interpretations [4, 5]. We draw upon Gadamerian hermeneutics because it emphasizes the dialectical processes that occur during the interpretation of PROMs [6], in which underlying assumptions are identified and examined. The following are three fundamental tenets in an effort to establish a common framework and key guiding questions for health and social science researchers to consider in the use of PROMs.

### Three tenets of using PROMs

#### The use of PROMs involves the interpretation of contextual elements

Researchers who apply hermeneutics would view all individuals as bringing a particular socio-historical context to the interpretation and use of PROMs. Gadamer describes this contextual element as *horizons* or *traditions* because understanding and interpretation are influenced by one's experience, culture, language, and history [7, 8]. For example, two patients may interpret and respond to the same PROM items differently by virtue of different assumptions about context (e.g., changes to living situation). These different interpretations imply that the same PROM item may not have the same meaning for different people. As a result, the same item may not equivalently reflect the outcome being measured when it is applied to different people which is referred

to as differential item functioning (DIF). DIF, in turn, can lead to differential test functioning (DTF), where the same PROM summary scores (which are based on the items) are not equivalently representative of the measured health outcome for different people. If differences in the meaning of PROM items for different groups of people are ignored, the resulting PROM scores could lead to inaccurate conclusions about the different groups being compared. For example, research has shown that for the Medical Outcomes Study Short Form (SF-36), women are more likely than men to endorse items that describe emotions such as being a "very nervous person," "feeling less calm and peaceful," and "feeling downhearted and blue," even though they have the same underlying level of mental health status [9]. This would mean that comparing an intervention between males and females using PROMs could lead to erroneous conclusions. The possibility that different people may interpret the same items in different ways highlights the importance of identifying social, demographic and health-related characteristics that result in DTF, and making analytical adjustments to allow for meaningful comparisons.

Moreover, the use of PROMs is increasingly being advocated to achieve different health care goals across all health care systems, including micro-, meso-, and macro-levels [10, 11]. At the micro-level of daily clinical encounters, patients and clinicians may use PROMs to inform individualized care and foster shared decision-making. At the meso-level within the health care organization, clinicians, and administrators may use PROMs to compare the effectiveness and quality of the care provided for practice improvement. At the macro-level within and across health systems, administrators, and policy-makers may use them to assess the effectiveness and performance of health care programs and delivery systems. At the meso- and macro-levels, PROMs data are aggregated across health care entities (e.g., group practices, hospitals, and organizations) to reflect performance, also referred to as PRO-based performance measures (PRO-PMs). Broadly, there is a tension between the two overarching aims in the use of PROMs: one to inform individualized care and the other to reflect performance [12]. However, the full impact of PROMs use may not be realized without considering both aims. For example, if PROMs are only used to inform individualized care, the type of intervention that works best for patients would be left unexamined. In worst cases, service provisions that are of poor quality or of little benefit may continue, which could harm patients and waste health care resources. In contrast, if PROMs are only used to reflect performance, both patients and clinicians may experience potential burden and anxiety about their use to limit service provisions which could disadvantage patients [12]. Thus, collaboration between the users of PROMs at different levels will be critical to increase the impact of PROMs on the overall quality of health care and outcomes across all systems.

For Gadamer, this type of collaboration between each user group and the use of PROMs is known as *fusion of horizons* because the user's perspective is transfused with the meaning of PROMs scores to have a shared understanding with respect to their use [7, 8]. Figure 1 shows each of the user's horizons (e.g., point of care, organizational, and health care policy and systems), which are situated in a particular socio-historical context, coming together by entering into dialogue with one another to develop a shared understanding in the use of PROMs.

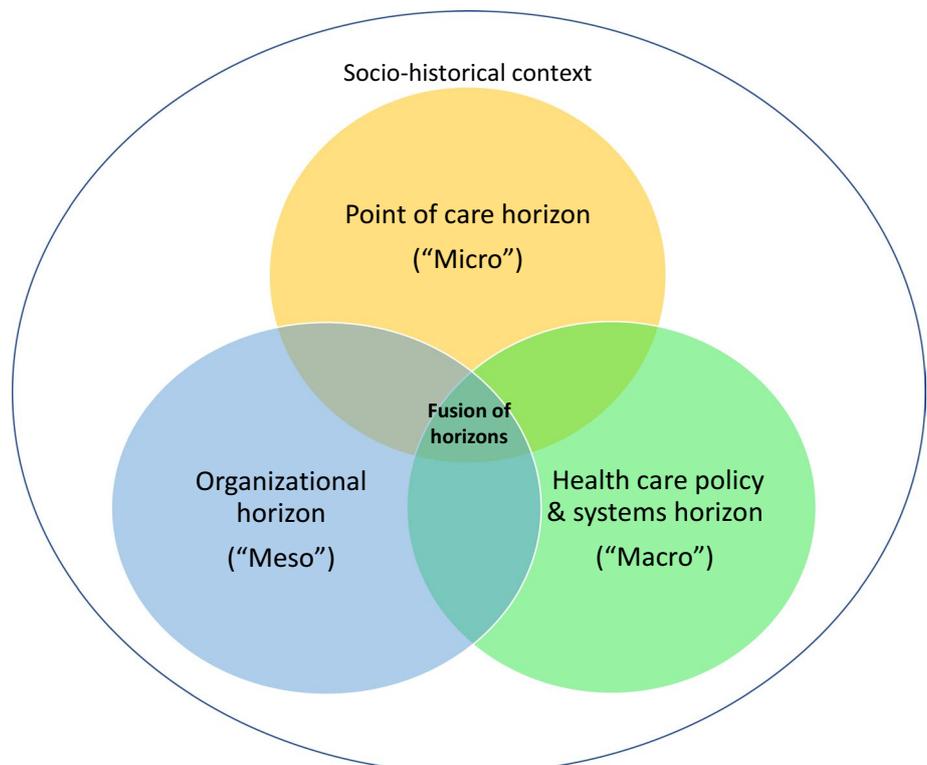
By recognizing the different users' horizons of understanding that shape the interpretation and use of PROMs within wider considerations of socio-historical context, we may be able to better attend to the tensions embedded within the micro-, meso-, and macro-level priorities of health care systems. This means that researchers would facilitate meetings with the users of PROMs (e.g., patients, clinicians, administrators, and policy-makers) to seek agreement on suitable standards regarding implementing, interpreting, and reporting on PROMs. Thus, some key guiding questions to explore contextual elements when decisions are being made based on PROMs data include: How is the PROM's use meaningful and important to patients, clinicians, administrators and policy-makers? Whose perspectives are served and or possibly ignored when decisions are made based on the PROM? What is the socio-historical context and even economic situation in which the PROM was developed and in which it is currently used? In this way, the hermeneutic

perspective can act as a philosophical *lens* to help us become more aware of the wider socio-historical context in which PROMs data could be used to determine policy directions and the allocation of resources and to seek a balanced appreciation for the perspectives that each user brings (or not) to the encounter as well as the agendas each serves.

### Interpretation of PROMs is an ongoing dialectical interaction

From a hermeneutic perspective, proper understanding is achieved through an ongoing dialectical interaction known as the *hermeneutic circle* [7, 8]. The circle is a metaphor that explains how our understanding occurs in what Gadamer refers to as the "whole" unfolds through ongoing interaction of its components. Figure 2 details the process of understanding health and quality of life from the influence of patients' pre-understanding (e.g., life experience, culture, history) to how they respond to questions for measuring patient-reported outcomes ("parts"), and from these responses, how the researchers are interpreting what they know about health and quality of life while simultaneously re-interpreting, based on their pre-understanding, to accommodate patients' responses. This dynamic, cyclical process acknowledges that understanding is situated in practice (i.e., how the parts and the whole will fit together is not known in advance) and is never permanent

**Fig. 1** Fusion of horizons for the use of PROMs



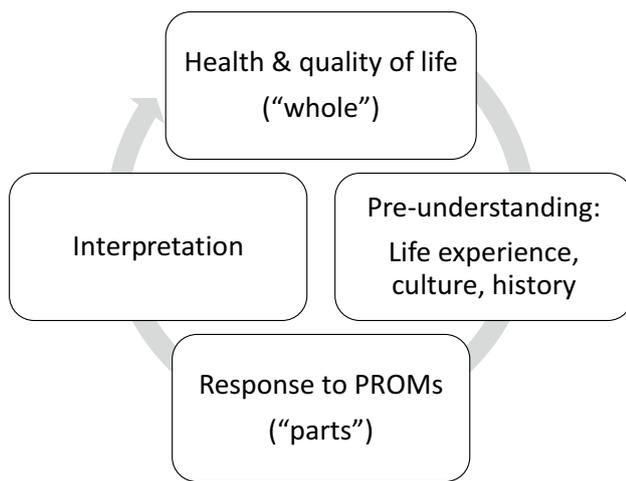


Fig. 2 Hermeneutic circle for PROMs

because of the multiple ways of understanding health and quality of life depending on one's pre-understanding and interpretation.

An example from the measurement literature that reflects the hermeneutic circle of understanding is response shift. Response shift is a phenomenon in which patients' understanding of health and quality of life may change as a result of a salient health-related event (e.g., intervention) or as they adapt to changing circumstances of their condition [13]. Response shift can occur through recalibration, reprioritization, and reconceptualization [14]. Recalibration is a change in a patient's internal standards of the measurement scale over time, which could result in changes to their perception of pre-treatment severity and thus underestimate improvements in PROMs from treatment. Reprioritization is a change in a patient's values toward health and quality of life, which could result in their placing different emphasis on each of the domains (e.g., physical, mental, and social domains) in PROMs. Reconceptualization is a redefinition of patients' understanding of health and quality of life, which could result in new domains (e.g., spiritual domain) being included in PROMs. Clinical studies have often tried to control for response shift (e.g., recalibration) because they may mask the impact of an intervention, and inadvertently underestimate improvement in PROMs [15]. However, response shift can also be viewed as a coping mechanism in which patients are adjusting to their illness [16]. For example, individuals have reported high health and quality of life despite severe physical impairments (known as the disability paradox) [17], suggesting that individuals may have come to terms with their illness by interpreting their internal standards, values and/or conceptualization differently. Because of the inevitable ongoing adjustments in interpretation, McClimans suggests that response shifts in PROMs should be viewed as a natural result of individuals

who are self-reflective and have the ability to transform their vision of who they are and what is important to them [18].

Given the above challenges regarding the dialectical interpretation of PROMs, some authors have argued for mixed approaches (i.e., both qualitative and quantitative) to data generation and interpretation [19]. We expand on this notion to argue that, regardless of the approach, researchers should be clear about their assumptions and beliefs that could influence the interpretation of PROMs data including whether they believe that the construct and its measurement scales are permanent, and whether patients' responses can be directly compared over time. In practice, this may require articulating the contextual lens of the researchers' particular background, theoretical understanding, and views that may influence how they interpret PROMs data and the decisions they intend to make. Although this may take additional time and space in publications, such explanation may help to improve the credibility of PROMs research. Some key guiding questions to consider in the dialectical approach to the interpretation of PROMs include: how are my assumptions, beliefs and theories informing the interpretation and use of PROMs? Are my interpretations of health and quality of life consistent with responses to the PROMs or are there any discrepancies? Can the construct itself be altered in any way and how stable is it over time? By articulating our interpretive lens including assumptions, beliefs, and theoretical understandings, we can provide more transparency to the research methodology as well as the methods. From a hermeneutic perspective, this form of interpretation should arguably be given more standing than a more positivist approach (e.g., quantitative testing) as it enables researchers to examine deeper meanings of patients' health and quality of life.

### The use of PROMs involves openness and reflexivity

Hermeneutic philosophy emphasizes that expanding our horizon of understanding requires openness and reflexivity, which results in *Bildung* (translated as cultivation) or a process of self-formation [8, 20]. We can use this attitude of openness and reflexivity to begin untangling aspects of measurement per se from the understandings we construct about the measure and the actions we take as a result. A hermeneutic inquiry involves not taking changes (or lack thereof) in PROMs scores at face value but rather opening up questions to expand our understanding about the measure itself. For example, PROMs are generally classified into two categories: generic and disease-specific measures. Generic PROMs (e.g., SF-36) are used for the general population regardless of disease or condition whereas disease-specific measures (e.g., Asthma Quality of Life Questionnaire) provides more detailed information that usually focuses on symptoms and other condition-specific

manifestations. If only generic PROMs are used, the broad focus may not be responsive enough to detect subtle but important improvements in patients' particular conditions. In contrast, if only disease-specific PROMs are used, the restricted focus may prevent comparisons across a variety of conditions. For these reasons, both generic and disease-specific PROMs are often recommended to complement each other in the evaluation of patient outcomes [21, 22]. However, regardless of the type of PROMs used, a hermeneutic inquiry would dig deeper by questioning the extent to which it is possible to communicate the full meaning of health or quality of life (i.e., construct validity) through the use of a standardized questionnaire. In other words, the meaning of constructs that both generic and disease-specific PROMs are intended to measure may exist in a specific choice of words, but how much of that meaning can be captured? Clearly generic and disease-specific PROMs do not measure identical constructs, even though they have the appearance of being designed to do so. McClimans suggests that part of the difficulty in communicating the meaning of a question is not having a shared understanding of the aim of the study or the shared context in which the question was posed by the researcher [23]. From a hermeneutic perspective, there may also be complex cognitive processes and pre-understandings or *prejudices* which shape our understanding and are inextricably intertwined within our social realities [8].

According to Gadamer [8], hermeneutic interpretation is possible only when we are willing to learn, reconsider prior assumptions, and accept our imperfect understanding, which allows us to open a dialogue to better understand the constructions of meaning in PROMs. Indeed, studies have shown that when PROMs were integrated into routine practice and used as structured conversation guides, clinicians reported that their use enhanced communication with patients by establishing common priorities and expectations, and enabled them to co-create new levels of understanding about quality of life and care experiences [24, 25]. Therefore, when we view PROMs not as a determinate assessment of patient outcomes but as a way to enhance communication about patients' health and quality of life, we can begin asking more open, reflexive questions about the measure such as: what is the purpose of this PROM and the rationale for its development? Does this PROM seem to adequately capture the implied construct? What is the current best thinking about measurement of this construct? Pursuing these types of questions in research may not only help to examine the *coordination problem* in measurement (i.e., the problem of linking latent constructs such as health and quality of life that are not directly observable to observable information based on people's responses to questions) but also improve the validity of interpretations based on PROMs scores [26].

## Discussion

As PROMs are increasingly being used as key outcome indicators in health care, stronger evidence to support the validity of the inferences and decisions made from their use is needed. To support these validation practices, the *Standards for Psychological and Educational Testing* identified five sources of evidence including content (i.e., extent to which items reflect the given construct), internal structure (i.e., relationships among items and how they relate to the given construct), relations to other variables (i.e., extent to which the measures correlate with other outcomes that would likely be the same), response processes (i.e., cognitive processes, and interpretation of items by respondents), and consequences (i.e., intended and unintended consequences of measurement, and the decisions and actions that result) [27]. From this view, our contribution to the literature is in exploring the consequences of using PROMs, which despite their importance is the least reported, from a philosophical point of view (see Table 1 summary).

Hermeneutics can be applied to complement and extend modern perspectives of measurement validation to better evaluate whether PROMs achieve the desired results or anticipated benefits with few negative side effects when they are used to make clinical and policy decisions [28]. According to Moss et al. [29], hermeneutics can provide flexibility to validation practices such that questions, available evidence, and interpretations can evolve dialectically as users learn from their inquiry and raise awareness of the consequences of their interpretations, decisions, and actions. For example, hermeneutics can be used to recognize that the act of interpreting any human product or expression, including those based on PROMs, is value-laden because users are already situated and contextualized with pre-understandings (e.g., life experience, culture, and history), which are represented as presupposition and biases in the measurement literature. While the traditional focus of measurement validation is to eliminate or control for these presuppositions and biases, hermeneutics makes them transparent to elucidate their role in the interpretation and use of PROMs. In addition, hermeneutics can be used to consider each user group (e.g., patients, clinicians, administrators, and policy-makers) and the broader socio-historical context and even economic situation as sources of evidence to support its interpretive activities. By recognizing and attending to the tensions that may arise at the micro-, meso-, and macro-levels in the health care system, hermeneutics can potentially encourage communication across different users and deepen understanding of the multiple perspectives that come together to create a shared understanding. However, it is important to

**Table 1** Framework underlying the use of PROMs

Tenets	1. The use of PROMs involves the interpretation of contextual elements	2. Interpretation of PROMs is an ongoing dialectical interaction	3. The use of PROMs involves openness and reflexivity
Practical implications	Develop standards regarding implementing, interpreting, and reporting on PROMs for different micro-, meso-, and macro-level purposes	Articulate the contextual lens, background, and views that may influence interpretations of PROMs data and decisions made on the basis of it	Promote openness and reflexivity in understanding the purposes, rationale, and meaning underlying measures of health and quality of life
Key guiding questions	<ul style="list-style-type: none"> <li>• How is the PROM's use meaningful and important to patients, clinicians, administrators and policy-makers?</li> <li>• Whose perspectives are served and or possibly ignored when decisions are made based on the PROM?</li> <li>• What is the socio-historical context and even economic situation in which the PROM was developed and in which is it currently used?</li> </ul>	<ul style="list-style-type: none"> <li>• How are my assumptions, beliefs and theories informing the interpretation and use of PROMs?</li> <li>• Are my interpretations of health and quality of life consistent with responses to the PROMs or are there any discrepancies?</li> <li>• Can the construct itself be altered in any way and how stable is it over time?</li> </ul>	<ul style="list-style-type: none"> <li>• What is the purpose of this PROM and the rationale for its development?</li> <li>• Does this PROM seem to adequately capture the implied construct?</li> <li>• What is the current best thinking about measurement of this construct?</li> </ul>
Consequences of asking these questions	Helps to seek a balanced appreciation regarding the different purposes of PROMs use	Provides more transparency to the research methodology as well as the methods	Improves the validity of interpretations based on PROMs scores

note that hermeneutics is not governed by specific rules or methods but rather concerned with the general nature of understanding. Thus, we endeavored to describe the three tenets of using PROMs in an attempt to broaden how we come to understand patients' health and quality of life and to provide some key guiding questions for each of the tenets when researchers are interpreting PROMs scores for a particular purpose, which is vitally important when these decisions will affect individuals and society.

Moreover, the hermeneutic circle can provide useful structure and transparency to how the user intends to interpret and make use of PROMs data for each new context. A recent study has raised concern regarding the lack of a theoretical basis for validation of PROMs in the literature, and made a clear argument that psychometrically robust properties of a measure may be a pre-condition but do not guarantee valid interpretation and use of its data in other contexts [30]. Thus, the ongoing process-oriented, dialectical approach that the hermeneutic circle provides—or what Kane [31] refers to as building an argument-based approach to validation—would allow researchers to learn from PROMs data and begin questioning the assumptions they hold with respect to the meaning of individual responses and anticipate the limitations of its use, thereby creating an ongoing interactive dialogue to develop a shared understanding of their possible meanings. In this way, hermeneutics can help not only to complement and extend modern perspectives of measurement validation but also to lend more credibility to PROMs research, and thereby prevent some of the adverse consequences of its use.

Although hermeneutics can help expand upon measurement validation practices, we recognize that it may not be a perfect answer. While we recognize that there has been some criticism of hermeneutics as *anything goes* relativism [32], we see that as inaccurate because it uses the text and its analogue as the focal source for interpretation. Thus, we acknowledge that this approach is one among many possible ways of understanding how each user interprets and uses PROMs. While there may be many similarities with other philosophical positions, the main difference is that hermeneutics sheds light on the processes involved in how users understand and interpret their social experiences through the hermeneutic circle. In practice, the application of hermeneutic interpretation may actually provide more edge in the search for patients' meaning of health and quality of life because it allows us to ask reflexive questions about the problems of measurement and opens a pluralistic dialogue with respect to the way we use PROMs and the interpretations we make of the findings that derive from our PROM-based studies.

## Conclusion

PROMs operate within a particular socio-historical context and economic situation of health care that involves various users. Thus, PROMs have different meanings and are used for different purposes, leading to both intended and unintended consequences. While measurement validation has been used as an important criterion pertaining to the interpretation and use of PROMs, hermeneutics can provide a useful approach to considering the complexity of interactions between the perspectives of users at the micro-, meso-, and macro-levels and the broader socio-historical context and economic situation. If PROMs are not contextualized within these wider considerations, they may be inconsistently understood due to the challenges of relating characteristics of the measurement instrument to the perspectives of different users. Thus, hermeneutics can act as a philosophical *lens* to disentangle the measure itself from both the understandings we construct on the basis of it and our consequent actions. Although we offer these tenets as a lens from which to consider the possibilities while guarding against potential risks associated with the use of PROMs, an ongoing challenge is to continuously engage in open dialogue and reflexivity on how to best make visible the health and quality of life concerns for each individual patient we serve.

**Acknowledgements** This analysis was undertaken, in part, thanks to funding from the Canada Research Chairs (CRC) program supporting Dr. Sawatzky's CRC in Person-Centred Outcomes.

## Compliance with ethical standards

**Conflict of interest** All authors declare that they have no conflicts of interest.

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