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Exploring the perspective of patients with musculoskeletal health problems in primary care on the use of patient-reported outcome measures to stimulate quality improvement in physiotherapist practice; a qualitative study.

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ABSTRACT

Background: Patient-reported outcome measures (PROMs) in clinical practice might enhance patient-centeredness and effectiveness of physiotherapy practice. Although patients have a crucial role in using PROMs, little is known about their perspective on its usefulness.

Purpose: Explore the perspective of patients with musculoskeletal health problems on using PROMs for quality improvement in primary care physiotherapy practice, and determine what barriers and facilitators patients perceive.

Methods: Semi-structured interviews were performed in 21 patients recruited from primary care physiotherapy practice and analyzed using theoretical thematic analysis. Barriers and facilitators on PROMs implementation were categorized into four predefined domains conform.

Results: Across all domains, three major themes were identified: 1) Practicality; 2) Interaction with the physiotherapist for decision-making; and 3) Sharing information outside the clinical context. Generally, PROMs were perceived practically applicable instruments with added value to the interaction with the physiotherapist for shared decision-making and for stimulating quality improvement. The perceived barriers were: difficulties in administering PROMs for patients with poor computer skills, suboptimal efficiency when PROMs were administered at the expense of the consultation, the insufficient added value of PROMs for patients with recurrent health problems, and reluctance about sharing aggregated data for accountability purposes.

Limitations: The dependence on the participating physiotherapists in patient recruitment might have resulted in selection bias.

Conclusion: Patients perceive that using PROMs has an added value in primary care physiotherapy practice. Optimizing implementation using tailored implementation strategies related to the identified barriers in all four domains might further improve the use of PROMs in clinical practice.

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Patient reported outcome measures; outcome measures; patient preference

Introduction

As defined by the Institute of Medicine (IOM), high-quality healthcare is safe, timely, equitable, effective, efficient, and patient-centered (Richardson et al, 2001). To better align the quality policy of the Royal Dutch Society for Physiotherapy (KNGF) with IOM's quality definition, in 2013 KNGF decided to broaden the scope of its quality policy, for primary care physiotherapy practice. Besides focusing on process-related aspects of clinical reasoning in the physiotherapy care process, such as the administration of history taking, the implementation of clinical practice guidelines (CPGs), and requirements on continuous professional development, KNGF added outcome-related elements to their national quality policy by focusing on patient-

reported outcome measures (PROMs). The focus on PROMs was aimed at stimulating the quality of physiotherapy care on IOM's aspects of patient-centeredness and effectiveness.

PROMs are questionnaires or single-item scales measuring outcomes that may focus on a generic domain, for example, pain; or are condition-specific, and focus for example on components of patients' functioning related to a specific disease or condition (Cella et al, 2012). In the clinical process, PROMs are considered important for aspects that stimulate patient-centeredness such as shared decision-making, goal setting and monitoring of outcomes (Coulter, Roberts, and Dixon, 2013; Greenhalgh, 2009; Greenhalgh et al, 2017; Higginson and Carr, 2001; Lindblad, Ring, Glimelius, and Hansson, 2002; McHorney, 2002;

Reuben and Tinetti, 2012; Santana and Feeny, 2014; Søreide and Søreide, 2013; Valderas et al, 2008; Wolpert, 2014). Additionally, when aggregated across patients, PROMs data can be used for monitoring and quality improvement, and for public reporting of outcomes for accountability purposes to external stakeholders, such as insurance companies and policy makers (Chaudhry et al, 2010; Deutsch et al, 2012; Greenhalgh et al, 2018, 2017; Reuben and Tinetti, 2012; Valderas et al, 2008; van der Wees et al, 2014).

Notwithstanding the potential benefits of PROMs, and the fact that PROMs are recommended in clinical practice guidelines (Bier et al, 2018; Delitto et al, 2012; Heemskerk et al, 2010; Kampshoff et al, 2018; Staal et al, 2013), their implementation in clinical practice is suboptimal (12–69%) (Copeland, Taylor, and Dean, 2008; Jette et al, 2009; Meerhoff et al, 2017; Swinkels et al, 2015; van Dulmen et al, 2017; Van Peppen et al, 2008). Reasons for this suboptimal implementation are a lack of knowledge about the use of PROMs and interpretation of PROM scores, difficulty in changing professional behavior to start using PROMs, and limited organizational support to use PROMs (e.g. lack of available time and lack of support to integrate PROMs into the electronic health record systems) (Copeland, Taylor, and Dean, 2008; Duncan and Murray, 2012; Foster et al, 2018; Meerhoff et al, 2019; Swinkels et al, 2011; Van Peppen et al, 2008).

To determine if the implementation percentage of PROMs in primary care practice could be increased, and thus, if PROMs could assist physiotherapists in increasing patient-centeredness and effectiveness of their interventions, KNGF included the implementation of PROMs as part of a national quality program titled 'Quality in Motion' (QIM). Within the QIM program, peer assessment and feedback was used in primary care physiotherapy as an implementation strategy to enhance the patient-centeredness and effectiveness of physiotherapy practice (Meerhoff et al, 2017). Physiotherapists were stimulated to use PROMs as a tool to clarify the patient problem, to set goals in dialogue with the patient, to monitor the treatment process, and to evaluate the treatment effect. Moreover, aggregated PROM data were used to provide feedback on practice outcomes. An evaluative study, that followed 355 physiotherapists in primary care practice during the one-year implementation strategy, showed that the routine use of PROMs increased in clinical practice; nevertheless, it did not reach the expected level (Meerhoff et al, 2017).

Since patients have a crucial role in the implementation of PROMs, it is relevant to get insight into their perspective on its use. Despite the availability of studies

on the use of PROMs (Copeland, Taylor, and Dean, 2008; Jette et al, 2009; Meerhoff et al, 2017; Swinkels et al, 2015; van Dulmen et al, 2017; Van Peppen et al, 2008), and their barriers and facilitators, (Copeland, Taylor, and Dean, 2008; Duncan and Murray, 2012; Foster et al, 2018; Meerhoff et al, 2019; Swinkels et al, 2011; Van Peppen et al, 2008) only a few publications have evaluated the patient's perspective on PROMs in physiotherapy practice (Melville, Baltic, Bettcher, and Nelson, 2002; Stevens, Köke, Van Der Weijden, and Beurskens, 2016). These studies identified that PROMs assisted in goal-setting, by physiotherapists and their patients, and in the reflection on the results. The small number of studies made it relevant to obtain a more in-depth understanding of the patient's perspective on the use of PROMs. The purpose of this study was to explore the perspective of patients with musculoskeletal health problems on using PROMs to stimulate patient-centeredness as one of the components of healthcare quality in primary care physiotherapy practice and to determine which factors patients perceive as barriers or facilitators for using PROMs.

Methods

Study design and setting

This qualitative study was conducted in Dutch primary care physiotherapy practice, embedded in the QIM program. To identify the perspective of patients with musculoskeletal health problems in primary care practice on using PROMs and to identify the factors they perceive to be barriers and facilitators, we used theoretical thematic analysis techniques (Braun and Clarke, 2006) based on the framework of Fleuren, Wiefferink, and Paulussen (2004). This framework identifies generic determinants that influence the implementation of innovation in healthcare divided over the following four domains: 1) characteristics of the socio-political context (e.g. rules, legislation, and patient characteristics); 2) characteristics of the organization (e.g. staff turnover or decision-making processes in the organization); 3) characteristics of the user of the innovation (e.g. knowledge, skills, and perceived support from colleagues); and 4) characteristics of the innovation (e.g. complexity or relative advantage) (Fleuren, Wiefferink, and Paulussen, 2004). These domains were used to identify more specific factors that the selected patients perceived to influence the implementation of PROMs in the Dutch primary care physiotherapy practice. The COREQ-32 criteria for reporting qualitative research was used to design and report the current study (Tong, Sainsbury, and Craig, 2007).

Participants

A convenience sample of 15 physiotherapists from two regional networks participated in our study. They were involved in the one-year QIM program and voluntarily asked to invite one to five patients each. Patients could be included when the treatment episode of the selected patients was started during or after the physiotherapists followed the QIM-program. An additional inclusion criterion was that patients were treated for musculoskeletal problems.

During the one-year QIM program, physiotherapists were instructed on how to use PROMs in the diagnostic and treatment process and as feedback on the practice outcomes. All physiotherapists agreed to participate and were provided with training on how to involve their patients in the reasoning and shared decision-making process. Additionally, after a verbal introduction was given, the patients received a printed invitation letter. If patients were willing to participate, their name and telephone number were provided to the researcher (GM). The secretarial staff of the research team then contacted these participants to schedule an appointment for the interview. All participants provided their informed consent prior to the interview. The study was approved by the Medical Ethical Committee of Radboud University Medical Center (registration #2014/260).

Data collection

After the retrieval of an informed consent form, one researcher (GM) conducted all interviews by telephone between January and March 2017. Each interview was audiotaped and took between 25 to 35 minutes. Before the start of the interview, the researcher (GM) introduced himself as a physiotherapist doing a PhD, no further information was provided. Apart from the telephone interviews, there was no contact between the research team and the participants. The interviews were semi-structured and based on an interview guide developed by the following research team members (GM, SD, MM, PW, RN). The relevant characteristics of the complete research team are provided in [Appendix A](#).

In search of generic and more specific factors influencing the implementation of PROMs, this interview guide covered all domains from Fleuren, Wiefferink, and Paulussen (2004). The first part of the interview contained open questions on the use of PROMs in clinical practice. In the second part, the patients were informed about the possibility to use PROMs results on an aggregated level as management information to monitor the performance of

physiotherapists or their practice. Thereafter their perspective on such use was explored. Examples of questions were: 'Please explain what are the pros and the cons of completing such questionnaires?'; 'What is the effect of (not) discussing the PROMs results with you?'; and 'What is your opinion on using the bundled PROMs results between colleagues in trying to improve their clinical work?'

During the process of interviewing, the guide was refined using the field notes that were taken based on the responses of the participants (see [Appendix B](#) for the complete interview guide). Data collection proceeded until saturation was reached. Saturation is defined as the degree to which new data repeated what was expressed in the previous data and redundancy is achieved (Saunders et al, 2018).

Data analysis

We used a theory-driven approach to thematic analysis (Braun and Clarke, 2006) to structure and analyze the interview data. The framework of Fleuren, Wiefferink, and Paulussen (2004) served as our theoretical scope to identify generic and more specific factors affecting implementation.

We conducted the analysis in six steps. First, the semi-structured interviews were transcribed verbatim, the transcripts were then sent to the participants for approval, and after the approval was received, they were entered into Atlas.ti. Atlas.ti is a software solution for qualitative analysis that enables researchers to store data, assign codes, merge codes into higher order codes, and link codes. Second, two researchers (GM and AB) independently coded the first three transcripts. Third, after this initial coding, both researchers discussed the codes in order to reach consensus. If no consensus was reached, a third researcher (PW) was consulted. This process resulted in an initial code-book. Fourth, the remaining transcripts were analyzed by GM and AB. When necessary, new codes were added during the analysis of the remaining transcripts. Fifth, the coding results were discussed during a consensus meeting similar to phase 3. In the sixth phase, during three face-to-face discussion rounds, the entire research team identified subthemes and themes by the constant comparison of codes, representing the actual factors that were perceived to have an impact on the implementation. Subsequently, the identified factors were linked to the domains of the framework of Fleuren, Wiefferink, and Paulussen (2004).

Results

Twelve of the 15 participating physiotherapists successfully invited 23 patients (1 to 5 patients per physiotherapist) who

Table 1. The domains, themes, and subthemes on the patient 's perspective using PROMs in clinical practice.

Fleuren's domains	Theme	Subtheme
✓ Organization ✓ Innovation	1. Practicality	• Applicability • Administering PROMs • Efficiency • Required time investment
✓ User ✓ Innovation	2. Interaction with the PT for decision-making	• Communication • Diagnostics and evaluation • Patient-centeredness • Self-awareness • Reflection on results
✓ Socio-political context ✓ Innovation	3. Sharing information outside the clinical context	• Using data for quality improvement • Sharing data with insurance companies

were treated within the Dutch primary care physiotherapy practices and for which the treatment costs were reimbursed by the insurance companies. Two patients were not able to participate in the interview due to personal circumstances. The analysis of interviews 19 to 21 revealed no new information so saturation was assumed, and practices were asked to stop inviting new patients.

The mean age of the participating patients was 56.3 years (range 24–76 years). The participants were comprised of males (N = 6) and females (N = 15), younger (18–35 years) (N = 2), middle-aged (36–55 years) (N = 7), and older patients (56–80 years) (N = 12), patients with Dutch (N = 19) and foreign origin (N = 2), patients with acute health problems (N = 14) and chronic health problems (N = 7), and patients who visited the physiotherapist with a new health problem (N = 15), as well as patients who had a recurrent health problem within two years, as registered in the electronic health record of the patient (N = 6). All participants were fluent in Dutch. The participants underwent short (1–4 treatments) (N = 2), average (4–12 treatments) (N = 11) and long (> 12 treatments) episodes (N = 8) of treatment.

The patients that were included in this study presented health problems related to the musculoskeletal domain in the neck, shoulder, low back, hip, knee, and foot. The Dutch versions of the Numeric Pain Rating Scale (NPRS), the Visual Analogue Scale (VAS), the Hip Osteoarthritis Outcome Scale (HOOS), the Knee Osteoarthritis Outcome Scale (KOOS), the Neck Disability Index (NDI), the Quebec Back Pain Disability Scale (QBPDS), and the Patient-Specific Complaints (PSC) were the PROMs that were filled out by the interviewed patients. Depending on the infrastructure of the clinic and the preferences of the physiotherapist, the PROMs were filled out using paper and pencil or online completion methods. Preferably the PROMs were filled out at the start and the end of a treatment episode.

Three major themes were identified in the data analysis: 1) Practicality; 2) Interaction with the physiotherapist

for decision-making; and 3) Sharing information outside the clinical context. In Table 1, the themes and subthemes are described, linked to the domains of Fleuren, Wiefferink, and Paulussen (2004).

Practicality

The practicality theme defines the issues patients perceived by completing PROMs and is divided into four subthemes: 1) applicability; 2) administering PROMs; 3) efficiency; and 4) required time investment. The relevant quotes for these subthemes are described in Table 2. Within the framework of Fleuren, Wiefferink, and Paulussen (2004) practicality and its subthemes relate to the domains of Organization and Innovation.

In general, patients judged the PROMs to be applicable. Not all items are relevant for each patient, but the patients understood that this was inevitable when using such generally applicable questionnaires. Some patients

Table 2. Quotes related to the theme 'practicality'.

Subthemes	Quotes
Applicability	"Yes, the patient reported outcome measures (PROMs) are applicable to my health problem, and therefore, it's relevant to answer such questions." "The disadvantage of such questionnaires is that they measure a specific moment in time. That is difficult since my health problems differ each day. Every once in a while when I fill in the questionnaire on a relatively good day I wonder if my physiotherapist gets a representative picture"
Administering PROMs	"Well, we are asked to complete the questionnaire using a computer and that is a little difficult for me because I am a little older and ... well, it is only recently that we have had a computer".
Efficiency	"I think it is more convenient to fill in the questionnaire when you are at home, at a time that it suits yourself. At least then it will not go at the expense of your consultation time ... or it prevents that you will have to stay at the practice to fill in the questionnaire after the treatment ... "
Required time investment	"So, doing the follow-up and building up a patient-file, will take up more time ... However, I think that the advantages of building up such a file outweigh the disadvantages."

had difficulties deciding how to score the items of the PROMs, especially when health problems fluctuated.

The preferences of patients on how to administer PROMs differed. When patients have little affinity with computers they preferred the paper version. Others preferred to fill out the PROMs online because it provided the patients with the opportunity to carefully read and complete the PROMs at a self-chosen moment without losing their consultation time, which increased the efficiency.

Although using PROMs was seen as important, it bothered patients when filling out the PROMs at the expense of their consultation time. Other patients had the perception that using PROMs stimulated efficiency since physiotherapists were better able to prepare themselves for the consultation.

Patients stated that the required investment of time to fill out the PROMs, which was 10–15 minutes on average, was an investment that everyone was willing to make. Patients perceived that the benefits of administering the PROMs, which helped to buildup a patient-file, outweighed the disadvantages.

Interaction with the physiotherapist for decision-making

Patients perceived that the PROMs were being used by the physiotherapist in clinical practice to support their decision-making. Within this theme, five subthemes were identified: 1) communication; 2) diagnostics and evaluation; 3) patient-centeredness; 4) reflection on results; 5) and self-awareness. The relevant quotes for these subthemes are described in Table 3. Using the framework of Fleuren, Wiefferink, and Paulussen (2004) this theme and its subthemes mainly related to the User and Innovation domains.

New patients felt that using PROMs stimulated communication with their physiotherapist. Patients that visited their physiotherapist with recurrent health problems identified the added value of PROMs in clarifying their problems and creating self-awareness, but they did not perceive the benefits in communication. They were familiar with their therapist and rather preferred talking directly to their physiotherapist.

Most of the interviewed patients thought that using the results of the PROMs assisted in the process of diagnostics and evaluation. Nevertheless, some patients with recurrent health problems, stated that the added value of PROMs was less apparent since their physiotherapist was already familiar with their problem. In addition, according to most patients, PROMs contributed to the patient-centeredness of physiotherapy care. It helped patients formulate problems and it enabled physiotherapists to make a treatment plan tailored to the specific problems

Table 3. Quotes related to the theme 'interaction with the PT for decision-making'.

Subthemes	Quote
Communication	<i>"PROMs are probably useful for patients who visit their PT for the first time. For me, they are not useful anymore. I have visited my PT before with these health problems. Therefore, I know why I visit my PT, I know my PT treats me well, and I know that 'the' treatment is effective. Therefore, I wonder: why should I keep on completing these questionnaires, even though we already know what 'the' treatment looks like."</i>
Diagnostics and evaluation	<i>"Obviously the benefit of using PROMs is that PTs can prepare themselves for my visit. Using the PROM-results, your PT can analyze what might trigger the health problem and think about the intervention they might use. At a later phase, when the PROMs are completed again, they could analyze the progression did the pain decrease or is it completely resolved?"</i>
Patient-centredness	<i>"By administering questionnaires, the PT can optimally adjust his treatment plan, with the advantage, I presume, for the patient that a sort of a custom-fit plan arises. You'll get more personal advice, and therefore, a more personal trajectory."</i>
Reflection on results	<i>"I must say that this reflection upon the results really has an added value. It unravels the underlying thoughts, which might explain differences between the answers on the questionnaire and the things that have been said during the intake."</i>
Self-awareness	<i>"I think that the questionnaires have helped me clarify my health problems, as completing the questionnaire provides me with a clearer picture of my health problems. ... And when I am at the PT practice and am asked about my health problems, then I only start to think about it at that time ... then you wonder at what moments during the week is the pain actually present. ... the benefit of using the questionnaires is that you've already written that down. Indeed I must say that that is a real big benefit."</i>

of their patients. Some patients who visited their physiotherapist with a recurrent health problem perceived that PROMs did not increase patient-centeredness. They did not recognize the added value of discussing the PROM-results for deciding the best treatment options. They reasoned that using PROMs merely stimulated talking about health issues, but stated that valuable treatment-time was wasted to resolve their health issues.

Overall, patients experienced that their physiotherapist reflected on the results of the PROMs scores in the clinical consultation. This was appreciated by the patients since it gave meaning to the effort they made to fill out the PROMs, and it provided valuable additional information that could be used by the physiotherapist. Finally, almost all patients reported that completing the PROMs increased self-awareness of their health problem and helped them formulate the severity of the health problem.

Sharing information outside the clinical context

This third theme identified the patient's perspective on sharing the collected information. This theme was

Table 5. A summary of the identified barriers and facilitators per subtheme.

Subtheme	Barrier and facilitator
• Applicability [‡]	• In general, patients identified the applicability as sufficient, which facilitated the use of PROMs. In patients with fluctuating health problems deciding how to score the items of the PROM was difficult and perceived to be a barrier.
• Administering PROMs [‡]	• Only in patients with fewer computer skills, the digital administration of PROMs was seen as a barrier. All other patients perceived it as a facilitator.
• Efficiency [‡]	• Patients who were able to fill in the PROMs before their consult perceived the PROMs to be a facilitator, since their physiotherapist was able to better prepare himself. Patients who needed to fill in the PROMs at the consult perceived a lower efficiency and identified it as a barrier since their time to be treated was less.
• Required time investment [‡]	• None of the patients perceived the required time investment to be a barrier.
• Communication [§] ,	• Patients that visited their PT with a new health problem thought PROMs to be facilitators, and patients that visited their PT with recurrent health problems identified them as barriers.
• Diagnostics and evaluation [§] ,	• PROMs are identified as facilitators, stimulating self-awareness of patients and the reflection upon the results between
• Patient-centeredness [§]	• patients and physiotherapists.
• Self-awareness [§] ,	• Some patients perceived this to be a facilitator, to enable the insurance companies to fulfill their societal role to increase healthcare quality and maintain affordability. Others perceived this as a barrier since they were suspicious about the way the data would be used by these commercial organizations .
• Reflection on results [§]	• All patients perceived this to be a facilitator.
• Sharing data with insurance companies [‡]	
• Using data for quality improvement [‡]	

[§] Theme 1: Interaction with the PT for decision-making

[‡] Theme 2: Practicality

[‡] Theme 3: Sharing information outside the clinical context

divided into two subthemes: 1) sharing data with insurance companies; and 2) using data for quality improvement. The relevant quotes for these subthemes are described in Table 4. Within the framework of Fleuren, Wiefferink, and Paulussen (2004) sharing information outside the clinical context was mainly related to the domains Innovation and Socio-political context.

Patients uniformly supported the use of the results of the PROMS on an aggregated level to stimulate quality improvement by enabling healthcare professionals to learn from each other. The majority of the patients were reluctant about sharing data with insurance companies to achieve external transparency for accountability purposes, predominantly due to the uncertainty about how these commercial organizations would use these data. Patients feared that external transparency would give insurance companies too much influence, which is merely used to obtain commercial profits. This was perceived as threatening.

Table 4. Quotes related to the theme 'sharing information outside the clinical context'.

Subtheme	Quote
using data for quality improvement	<i>"It might trigger PTs to learn from each other when results are compared."</i>
sharing data with insurance companies	<i>"Well, as soon as the collected data become publicly available and end up in the commercial circuit ... then you are absolutely not sure that it will trigger the positive effect that is pursued. Therefore, I think that is a disadvantage of using the data toward insurance companies, to obtain external transparency ... because insurance companies are commercial entities, for whom obtaining profit is a central theme. Also, I doubt in what way the data will be used ...".</i>

Nevertheless, some favored the external transparency to insurance companies for accountability purposes since this enabled insurers to fulfill their societal responsibility in increasing quality and maintaining affordable healthcare. Others agreed that transparency to external stakeholders for accountability purposes was important but they doubted if insurance companies, due to their commercial role, were the best stakeholders for this role. One patient suggested that an independent party should guide the use of aggregate data as an accountability instrument, as such parties would not have the commercial interest of that of insurance companies.

In summary, the results show that most of the identified subthemes were perceived to be both barriers and facilitators for the use of PROMs. In Table 5 a summary of the main findings is presented.

Discussion

This study showed that patients perceived that the use of PROMs had an added value in primary care physiotherapy practice. Among patients with musculoskeletal health problems in primary care, this study identified three themes representing their perspective on the use of PROMs to stimulate quality improvement: 1) practicality; 2) interaction with physiotherapist for decision-making; and 3) sharing information outside the clinical context. The subthemes of these three themes were identified as both barriers and facilitators for using PROMs in physiotherapy practice. Overall, barriers and facilitators were found in all the domains of Fleuren, Wiefferink, and Paulussen (2004)

socio-political context, organization, user, and innovation, confirming the relevance of the domains.

Basch et al. (2017) stated that some patients might be particularly unlikely to respond when collecting PROMs because of factors such as health literacy, language barriers, or functional or cognitive limitations. They stated that “collecting PROMs data from these patients was challenging, but can be enhanced by using well-designed PROMs collection systems, appropriate technology-assisted options, or supportive processes”. Such non-responders, as Basch et al. (2017) described, might trigger the discrepancies in participation rates among certain patient populations and could lessen the value and generalizability of outcomes measurement (Schamber, Takemoto, Chenok, and Bozic, 2013). To prevent the occurrence of this loss in generalizability, it is probably most effective to invest in optimal supportive processes. Besides using e-mail, an example of such support could be having a tablet in the waiting room and a secretarial person who could assist if necessary, a solution that has shown to be effective in patients with renal disease (Schick-Makaroff and Molzahn, 2014). In addition, the format of the presentation could also be changed from written questions to a more visual or verbal presentation, which, as shown in Dutch primary physiotherapy care (Welbie et al, 2018), potentially facilitates the administration of PROMs. Increasing the implementation of the online administration of PROMs also avoids that the administration of the PROM is done at the expense of the consultation time, which increases efficiency.

Multiple studies underpin the added value of PROMs on communication and diagnostics and the evaluation of the treatment (Coulter, Roberts, and Dixon, 2013; Greenhalgh, 2009; Greenhalgh et al, 2017; Higginson and Carr, 2001; Lindblad, Ring, Glimelius, and Hansson, 2002; McHorney, 2002; Reuben and Tinetti, 2012; Santana and Feeny, 2014; Søreide and Søreide, 2013; Valderas et al, 2008; Wolpert, 2014). Nevertheless, not every patient benefits from PROMs Greenhalgh et al. (2017) state that “patients valued both standardized and individualized PROMs as a tool to raise issues, but thought is required as to which patients may benefit and which may not”. In addition, Lohr and Zebrack (2009) explained that PROMs could help patients communicate their needs and concerns if the PROMs collected information that had a high priority for them.

The added value of patient-centered care (e.g. by stimulating shared decision-making) and increasing self-management, which could both be achieved by the use of PROMs (Chaudhry et al, 2010; Greenhalgh et al, 2017; Reuben and Tinetti, 2012), is shown in

patients with long-term conditions, such as chronic pain (Devan et al, 2018). Nevertheless, in our study patients suffering from recurrent musculoskeletal health problems did not feel that their needs were being met using PROMs. We hypothesized that these patients might not feel the benefits of PROMs since this patient category may typically visit their physiotherapist on an intermittent basis, only when their complaints recur. During such intermittent visits, comparable treatment modalities may be provided with similar perceived effectiveness. Therefore, this patient group may already have experiences and expectations about the treatment that would be provided, and a strong belief that the treatment would help them. They might not be aware of the possible other treatment options which could be decided upon completion of a PROM. Therefore, patients may not feel their needs are being met using PROMs.

One could imagine that when a similar study was executed in long-term rehabilitation patients with neurological conditions, this might have resulted in more positive findings toward PROMs. This latter patient category often visits their physiotherapist for a prolonged period of time, during which PROMs are used as a monitoring tool to evaluate progress and to stimulate self-management.

Besides the possible influence of the patient population on the perceived usefulness of PROMs regarding decision-making, we hypothesize that in the end, the physiotherapist has a crucial role in how PROMs are experienced. Daykin and Richardson (2004) already identified that the health beliefs of physiotherapists were predominantly biomedical rather than biopsychosocially focused. To be able to perceive the added value of PROMs in clinical decision-making, a further shift to the bio-psychosocial model regarding the health beliefs of physiotherapists is needed, since PROMs are instruments focussed on this biopsychosocial domain. In addition, physiotherapists need to be trained on how to implement PROMs in clinical practice (e.g. being able to explain to patients the relevance of collecting information using the PROMs). Swinkels et al. (2011) had already shown that knowledge and skills were lacking in the implementation of PROMs. Additionally, Stevens, Köke, Van Der Weijden, and Beurskens (2017) showed that proper implementation of PROMs, by training physiotherapists, increased the experienced shared-decision making and goal-setting. Another way to explain the importance of PROMs to inform shared decision-making is by developing an instructional video that is integrated into the PROM, which can be shown during or before administration.

The reluctance of patients toward using their data for accountability purposes, defined by Braithwaite and Mannion (2011) as performance management, had already been identified. Braithwaite and Mannion (2011) stated that such performance management systems might have a little meaningful impact on the performance when the targets of the defined indicators have perverse effects, which might lead to gaming as defined by Bevan and Hood (2006). This gaming negatively influences the validity of the data and might severely limit the potential positive benefits that PROM use has (Wolpert, 2014). Wolpert (2014) already identified such perverse effect, when funders of the service mandated the use of PROMs, setting targets for completion rates but paying little attention to its integration within the clinical conversation or clinical care. As a consequence, the use of PROMs as a means became an end in itself. Based on the merely economic interest of the commercial insurance companies, the reluctance that interviewees expressed toward sharing information outside the clinical context was possibly triggered by such anticipated perverse effects. The reluctance of sharing information with insurance companies functions as an implementation barrier and might diminish when the uncertainty of the consequences of completing the PROMs has been resolved. This can possibly be achieved when all stakeholders involved, define acceptable arrangements in how to use the shared information, which assists in building the trust among stakeholders that the data will not be misused (van der Wees et al, 2014).

Strengths and limitations

The strength of this paper was that the authors conducted a general exploration of the use of PROMs in patients with different musculoskeletal health problems in primary care physiotherapy, and they did not solely evaluate the perspective of patients on a specific questionnaire. This enabled the researchers and policy-makers to take this general perspective into account in their future work on the implementation of PROMs in clinical physiotherapy practice.

Nevertheless the study is subject to several limitations. First, the dependence on the participating physiotherapists for including patients, which might have resulted in a selection bias of our participating patients, for example, illiterate patients were not included although being literate was not an inclusion criterion. However, the total sample of patients did include males, females, younger, middle-aged, and older patients, patients with Dutch and foreign origin, patients with acute and chronic health problems, and patients who visited the PT with a new

health problem, as well as patients with a recurrent health problem. Second, the study was very specific in only focussing on patients with musculoskeletal health problems who received treatment in primary care physiotherapy practice, which is a very specific area of practice. Therefore, the findings cannot be extrapolated to other contexts of physiotherapy care. Third, for this study, the authors only focussed on the external transparency toward the insurance companies; participants were not asked on their view in using the PROMs data for external transparency purposes to inform the patient's choice.

Implications for practice and policy

As explained by van Achterberg, Schoonhoven, and Grol (2008), numerous determinants for a successful implementation are identified. However, such determinants provide headings rather than specific factors for implementation. In this study, these determinants were based on the generic domains of Fleuren, Wiefferink, and Paulussen (2004), and an analysis was performed to determine the specific factors related to the context of this study. This contextualization is crucial to obtain optimal implementation results (Grol, Wensing, Eccles, and Davis, 2013). Based on the identified factors, several implications that could address the barriers for the implementation have been defined in the discussion. In Table 6, a summary of these implications connected to the sub-themes, themes, and the domains of Fleuren, Wiefferink, and Paulussen (2004) is given. The identified factors could contribute to the development of a tailored implementation strategy for the use of PROMs in clinical practice. Future research should focus on two areas: 1) the investigation of whether similar results would be found in other contexts of physiotherapy practice; and 2) the development, implementation and evaluation of the effect of tailored implementation strategies.

Conclusion

In general, patients with musculoskeletal health problems treated in primary care physiotherapy practice perceived PROMs as practical instruments that were useful in the interaction with the physiotherapist for decision-making and sharing information for quality-improvement purposes. This study revealed different barriers to using PROMs on different subthemes. The specific context of the identified barriers in our study may guide implementation strategies within physiotherapy practice to further improve the use of PROMs in clinical practice.

Table 6. Implications for practice and policy.

Implication	Subtheme(s)	Theme(s)	Domain(s) of Fleuren
Administer the PROMs outside the consultation to increase <i>efficiency</i> . This can be done by e-mailing the PROM in advance or, when <i>computer skills are lacking</i> , help the patient use a tablet in the waiting room	- Administering PROMs, - Efficiency	Practicality	- Organization - Innovation
Create a visual/verbal presentation form explaining why PROMs are being administered (for clinical and aggregated purposes) minimizing the necessity to give an explanation at the cost of valuable consultation time, especially for patients with recurrent health problems; it increases the understanding and acceptance of patients.	- Efficiency, - Communication, - Diagnostics and evaluation, - Patient-centredness	- Practicality - Interaction with PT for decision-making	- Organization, - Innovation - User
If needed, provide training for professionals to enable them to give a verbal explanation to patients on why PROMs are being administered (for clinical and aggregated purposes).	- Communication, - Diagnostics and evaluation, - Patient-centredness	Interaction with PT for decision-making	- Innovation - User
Select the appropriate PROM, outweighing the balance between the essential questions and the length of the questionnaire.	- Communication, - Diagnostics and evaluation, - Patient-centredness	Interaction with PT for decision-making	- Innovation - User
To overcome the reluctance toward sharing information with insurance companies there is a need to make contractual agreements, ensuring that the data is only used in a pre-defined way that has been approved by all stakeholders.	Sharing data with insurance companies	Sharing information outside the clinical context	- Socio-political context - Innovation

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None declared.

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Appendix A. Characteristics of the research team

Name	Gender	Credentials	Occupation	Experience
X	Male	MSc.	PT, Junior Researcher, Senior policy advisor	Qualitative research methods in health care introduction.
X	Female	Dr.	PT, Senior researcher	Implementation research, qualitative and quantitative studies.
X	Female	Dr.	PT, Senior Researcher, Senior Lecturer	Implementation research, Qualitative research. Teaches qualitative research module in PhD program.
X	Female	BSc.	Research assistant	Data analysis in qualitative and quantitative research methods.
X	Female	Prof. Dr.	PT, Professor of Allied Health	Quantitative and qualitative methods. Multiple studies with quantitative, qualitative, and mixed methods studies in health sciences.
X	Male	Prof. Dr.	PT, Professor of Allied Health Sciences	Implementation science, quantitative and qualitative methods. Teaches qualitative research module in PhD program. Multiple quantitative, qualitative and mixed methods studies.

PT: physiotherapist

Appendix B. Interview guide

(1) Did your physiotherapist ask you to complete one or more questionnaires during your treatment?*

*If 'Yes' proceed and ask question 2–8 and 12 and 13. If the interviewee did *not* complete one single questionnaire give, explain the questionnaires by quoting some examples from a questionnaire regarding their health problems. In case of low back pain, cite some of the questions from the Quebec Back Pain Disability Scale (QBPDS). After this introduction, please proceed to question 8 and further.

(2) If so, do you know what questionnaires these were?

(3) When (during your different treatments) were you asked to complete these questionnaires?

(4) Questions on the experiences in using these questionnaires?

a. Please explain, what are the pros and cons of completing such questionnaires?

b. Did your physiotherapist give a clear explanation on how to complete these questionnaires?

c. Did your physiotherapist give a clear explanation on why to complete these questionnaires?

d. Did your physiotherapist discuss the results of the questionnaire together with you? (how did he do so and did you understand the results?)

e. What was the effect of (not) discussing the results with you?

f. How did you complete the questionnaire (at home, at the practice of your physiotherapist, digital or on paper, all by yourself or with the assistance of your physiotherapist)?

g. What way would you prefer to complete such a questionnaire?

h. How much time did it take to complete the questionnaire? Was this too long/short/OK? What would be the ideal length of a questionnaire (in mins)?

i. What do you think of the content of the questionnaire? (Were the items closely related to the health problems for which you visited your physiotherapist? Where the clearly formulated?)

(5) What's in it for you personally?

a. Did the questionnaires facilitate the communication and the clarification of your problem? (please explain?)

b. Are such questionnaires of added value to identify the problems for which you visit your physiotherapist? Or to monitor the progress that is made over the course of the different treatments? (please explain?)

(6) Can you explain your personal opinion about the use of such questionnaires by your physiotherapist, in the effort of making healthcare more patient-centered?

(7) Can you please explain if you are prepared to complete such questionnaire at the start and the end of a series of treatment?

(8) Are you prepared to complete such a questionnaire?

(9) How much time are you willing to invest in completing such a questionnaire?

(10) Do you think such questionnaires could have a positive contribution to your treatment? For example, because the answers you will provide will give your physiotherapist a better insight into your complaints, which possibly will facilitate the communication an enabled your physiotherapist to define a more specific (goal-directed) treatment?

(11) Can such questionnaires contribute to the objective evaluation of the given treatment, when completed again after a certain period?

In trying to stimulate healthcare quality, the bundled results of all questionnaires could be used by: 1) professionals in benchmarking their results to their colleagues. Such results can be used to evoke discussions about their clinical work (e.g. what treatment is given to a certain patient category), and 2) insurers in creating pay for performance structure.

(12) What is your opinion in using the bundled results between colleagues in trying to improve their clinical work?

(13) What is your opinion in sharing the bundled results with the insurance companies in trying to influence the care provided by developing pay for performance structure?