PATIENT PARTICIPATION AND PSYCHOLOGICAL FACTORS IN MUSCULOSKELETAL PAIN REHABILITATION

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Abstract
This chapter includes recent research concerning patient participation and psychological factors in musculoskeletal pain rehabilitation. Patient participation can be identified as an individualized process, as a patient–healthcare professional relationship and may contain both physical activities and cognitive processes. This may lead to a working partnership between the patient and their healthcare professionals, in decisions on assessment, goal setting, planning, implementation and evaluation a mutual agreement about implementation of treatment. Today, patient participation is important within patient-centred medicine and for high-quality healthcare. This will be described in the first part of this chapter.

The second part will contain a description and discussion of the importance of psychological factors for positive treatment outcomes in pain rehabilitation and the need of a holistic perspective on pain problems. We will describe and explain why different psychological factors are important to consider in pain rehabilitation, such as each patient’s: 1) Expectations on pain treatment and motivation, 2) Self-efficacy, thoughts, self-reflection and self-confidence as well as 3) Coping with pain and catastrophizing. In addition, psychological factors related to patient participation will be described.

To conclude, psychological factors are important to patient participation in pain rehabilitation, as well as to treatment outcomes of pain rehabilitation. The psychological factors that have an impact on results in pain rehabilitation are also emphasized in patient participation to a high extent. Dimensions of patient participation have been found to associate with treatment adherence and results in pain rehabilitation, as well as with health outcomes. It may be necessary to provide a patient – healthcare interaction that include a patient’s active participation through enhancing patient’s motivation, self-efficacy, and coping, to gain positive treatment outcomes.

Keywords: Patient participation, psychological factors, pain rehabilitation, health

Patient participation
There has been a change in how the healthcare system understands the patient’s role in their healthcare. The transition from a biomedical model of understanding illness through medical expertise to a biopsychosocial explanation of health, disease, and illness highlight the patient’s perspective in the healthcare process. A patient’s active participation is considered important and a fundamental definition of...
Patient participation is to take part in and to be involved in one’s own healthcare (Government Offices of Sweden, 1982; Cahill, 1996; World Health Organisation (WHO), 2001; Eldh et al., 2010; Longtin et al., 2010; The Swedish Agency for Health and Care Services Analysis, 2012).

Patient participation in the healthcare system has been object to conceptual analysis for more than four decades. There are many dimensions to patient participation and the concept is used at all levels of the healthcare system. Also, the connotation of patient participation differs with perspective (Eldh et al., 2010; Heinemann et al., 2010). From a patient’s perspective frequent attributes of patient participation that has been reported are the individualized patient–healthcare professional interaction which is built on communication and where the healthcare professional surrenders power and/or control to the patient, and the patient is engaged to some extent in their healthcare process (Cahill, 1996; Frosch et al., 1999; Mead & Bower, 2000; Stewart et al., 2003; Street et al., 2009).

Cahill (1996) contributed by defining important components in patient participation. Patient participation was identified as a patient–healthcare professional relationship, in which the healthcare professional surrendered power and/or control to the patient, and the patient is engaged to some extent in their healthcare process (Cahill, 1996; Frosch et al., 1999; Mead & Bower, 2000; Stewart et al., 2003; Street et al., 2009).

Cahill (1996) contributed by defining important components in patient participation. Patient participation was identified as a patient–healthcare professional relationship, in which the healthcare professional surrendered power and/or control to the patient, and the patient is engaged to some extent in their healthcare process. Further, patient participation was understood to be an individualized process. A narrowing of the knowledge gap between the patient and healthcare professionals, as well as a gain associated with the act of participation was also recognized. According to Cahill (1996), patient participation was suggested to comprise both physical activities and cognitive processes, leading to a working partnership between the patient and their healthcare professionals, in decisions on assessment, goal setting, planning, implementation and evaluation (Cahill, 1996). In addition, previous research on patients’ participation in decision-making has illuminated the concept “shared decision-making”. Charles et al. (1997) defined “shared decision-making” as an individualized and dynamic process between at least two participants: the patient and the healthcare professional. In the process, both parts shared information in order to build a consensus about treatment, and to reach a mutual agreement about implementation of treatment (Charles et al., 1997).

Patient–healthcare professional communication has been a subject of research in patient participation. Communication is important in the exchange of information and points of view between the patient and the healthcare professionals, as well as for decision-making (Frosch et al., 1999; Street et al., 2001; Street et al., 2005; Taylor, 2009; Kidd et al., 2011). A healthcare professional’s communication style, characterized by supporting communication and focusing on enhancing the relationship with the patient, was found to be a strong predictor of a patient’s opportunities to actively participate in medical encounters (Elwyn et al., 1999; Street et al., 2001; Street et al., 2005). A healthcare professional’s communication style, characterized by supporting communication and focusing on enhancing the relationship with the patient, was found to be a strong predictor of a patient’s opportunities to actively participate in medical encounters (Elwyn et al., 1999; Street et al., 2001; Street et al., 2005). Patient-centered medicine is a communication model in which the patient–healthcare professional interaction is in focus. It was developed from the 1970s, but firstly used as a title of a model by Moira Stewart in 1995 (Illingworth, 2010). With time, patient-centered medicine has been developed into a clinical method and acknowledged as one key element of high-quality healthcare (Robinson et al., 2008; Epstein & Street, 2011; The Swedish Agency for Health and Care Services Analysis, 2012; Government Offices of Sweden, 2013). Today, patient participation may be thought of as patient-centered medicine.

**Patient-centered medicine**

A variety of terms are used interchangeably to express the idea of patient-centered
medicine: patient-, person-, client-, individual-/centered, -centeredness, -oriented, -focused, -directed-/medicine, -care (Slater, 2006; Leplege et al., 2007; Morgan & Yoder, 2012). Patient-centered medicine, and person-centered care or person-centeredness, are most recurrent. The suffix -centered, or -centeredness indicates how the patient or person is in the midpoint of consideration in their healthcare (Slater, 2006). Although, the different concepts of patient-centered medicine have been defined to be like surrogate terms with many attributes in common (Slater, 2006; McCormack et al., 2010; Morgan & Yoder, 2012), there is a debate about which concept to use. While patient-centered is described as visited-based, meaning that the focus is on the communication in the specific patient — healthcare consultation, person-centered emphasize the long-standing relationship over time that provides accumulated knowledge of the patient and the forming of partnership (Ekman et al., 2011; Starfield, 2011). Mead and Bower (2000) included “to meet the patient over time” as an important aspect of patient-centered medicine, together with forming the patient - healthcare professional relationship (Mead & Bower, 2000; Stewart et al., 2003; Hudon et al., 2012). The using of the term “person” instead of “patient” have been considered significant since this indicates the shift away from the patient as a passive part to being more involved in decision-making (Ekman et al., 2011). “Person” defines a human being, which remains an individual, while the term “patient” immediately recognize a person who is sick and in need of medical treatment (Slater, 2006). In addition, the legal aspect of using person or patient has been considered. A person is legally responsible for his own acts and behaviors, which suggests an increased subjectivity and that the individual’s rights are taken into account in the healthcare situation (Leplege et al., 2007; Ekman et al., 2011). In the Swedish healthcare system each person has a legal status as a patient (Government Offices of Sweden, 1982), which is important to acknowledge. The patient’s autonomy, integrity, and equality are in focus (Government Offices of Sweden, 1982), and the patient as a unique person with motivation to participate in decisions about their own healthcare is emphasized (Governments Offices of Sweden, 2013).

By integrating three models of patient-centered medicine/care (Stewart et al. 2003, Mead & Bower, 2010, Hudon et al., 2012), and three models of person-centered care/person-centeredness (Slater, 2006; Leplege et al., 2007; Morgan & Yoder, 2012), we have presented a theoretical introduction concerning patient participation. We will use the concept patient-centered medicine as an umbrella term. Table 1 shows each model with key components.

**The biopsychosocial perspective**

The biopsychosocial perspective (Mead & Bower, 2000; Leplege et al., 2007) and the holistic approach (Leplege et al., 2007; Morgan & Yoder, 2012) have been emphasized in patient-centered medicine in order to acknowledge the consequences of living with disease, as well as to broaden the understanding of illness. The whole person means the biological, psychological, social, and spiritual aspects of an individual (Morgan & Yoder, 2012). Mead & Bower (2000) declared that the biopsychosocial perspective provides for explanations for illness when no pathology or medical parameters are found. In addition, the biopsychosocial perspective supports a healthcare professional’s willingness to become involved in all aspects of the patient’s health problem, not just their biomedical problems. According to Stewart et al. (2003) the biopsychosocial perspective is fundamental in patient-centered medicine, even though it is not represented with a component of its own.
Exploring the disease, the illness experience, and understanding the patient as a person

The distinction between disease, which is the diagnosed condition, and the patient’s illness experience - feelings, ideas, function, and expectations – is emphasized by Stewart et al. (2003). Both the disease and the illness experience need to be explored in order to fully understand a patient’s situation (Stewart et al., 2003; Leplege et al., 2007). Hudon et al. (2012) emphasized the importance of having the illness experience legitimized by the healthcare professionals, by acknowledging the patients’ symptoms, as well as their struggle, grief and uncertainty about the future (Hudon et al., 2012). To understand the illness experience healthcare professionals’ need to start from the patient’s situation, understand the patient as a whole person and to be aware of the unique social and developmental context in which a patient lives (Mead & Bower, 2000; Stewart et al., 2003; Slater, 2006; Leplege et al., 2007; Hudon et al., 2012; Morgan & Yoder, 2012). To also identify a person’s strengths and resources, and not only the restrictions, was highlighted by Slater (2006). The person’s emotional and cognitive needs (Slater, 2006; Leplege et al., 2007), as well as the person’s values (Slater, 2007) need to be recognized to understand the present life world of the person (Slater, 2006; Leplege et al., 2007). Information and knowledge about the patient as a person is accumulated over time and is necessary to individualize healthcare, as well as to help the patient to take control and to make decisions (Mead & Bower, 2000; Stewart et al., 2003; Leplege et al., 2007; Morgan & Yoder, 2012). In cases with severe and cognitive disease, family members’ or

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significant others’ narratives can ensure that the personhood is acknowledged (Slater, 2006). The understanding of the patient as a whole person have been found to associate with adherence to treatment, patient satisfaction and improved health (Safran et al., 1998). Exploring the patient’s illness experience increased a patient’s trust in their healthcare professionals (Fiscella et al., 2004), and Larsson et al. (2007) found that satisfying patient participation involved the patient being confirmed and acknowledged as a person.

**Shared decision-making through establishing common ground and acknowledging the patient’s expertise**

Morgan and Yoder (2012) emphasized that the patient’s right and competence to make decisions about their own care must be respected, and that participating in such decisions empowered the patient (Leplege et al., 2007; Morgan & Yoder, 2012). The healthcare professionals need to acknowledge the patient’s expertise of their own lives, and believe in the patient’s capacity and resources to manage their own situation (Mead & Bower, 2000; Hudon et al., 2012). Stewart et al. (2003) emphasized that the patient and the healthcare professional need to establish common ground to consider the patient’s condition and needs for healthcare. In the process of finding common ground, both the patient’s point of view, as well as the healthcare professional’s point of view need to be taken into consideration. The focus is on mutuality in planning and prioritizing treatment, decision making, and setting goals, but the healthcare professionals’ sensitivity to timing and individuality is important (Stewart et al., 2003). The consequences of patient–healthcare professional mutuality in decision-making were acknowledged by Mead and Bower (2000) as a gap in medical knowledge between the patient and the healthcare professionals which implied an asymmetrical co-operation. They wanted a shift from the dominance of the healthcare professionals’ medical skills and knowledge, to the recognition of the patient’s needs and preferences (Mead & Bower, 2000). Slater (2006) and Leplege et al. (2007) emphasized that cognitive impairment may reduce the person’s ability to make choices, but that each person’s reflections on the available choices must be recognized. Decisions about healthcare must be made with respect for the person, not just a patient in need, and reflect healthcare professional’s ethical standards of autonomy, dignity and privacy of the person (Slater, 2006).

Gyllensten et al. (1999) found that satisfying patient–healthcare professional interaction involves health professionals establishing common ground in the interaction, through sensitivity, confidence, and professional expertise. Robinson et al. (2008) demonstrated that having respect and understanding for the patient’s point of view was strongly correlated to adherence with treatment.

**Developing an ongoing therapeutic patient–healthcare professional relationship**

To develop a strong patient–healthcare professional relationship is important in patient-centered medicine (Mead & Bower, 2000; Stewart et al., 2003; Slater (2006); Leplege et al., 2007; Hudon et al., 2012; Morgan & Yoder, 2012). For strong patient–healthcare professional interaction, there must be a readiness to form a therapeutic relationship built on respect, compassion, empathy, support, trust, continuity and stability (Mead & Bower, 2000; Stewart et al., 2003; Slater 2006; Leplege et al., 2007; Hall et al., 2010; Hudon et al., 2012; Morgan & Yoder, 2012). Such a relationship develops over time (Stewart et al., 2003; Hudon et al., 2012), and the healthcare professional needs to adjust their role in the relationship to the patient’s own role preference and capacities (Hudon et al.,
The relationship is non-judgmental and not one of power (Slater, 2006), and its purpose is to help the patient and to enhance their self-efficacy (Stewart et al., 2003). A negative attitude and behavior from the healthcare professionals, together with lack of empathy and sensitivity, have been found to reduce the patient’s self-efficacy in the patient–healthcare professional interaction (Waddell & Burton, 2005; Larsson et al., 2011). Safran et al. (1998) demonstrated that patients’ trust in their healthcare professionals was associated with adherence to treatment, patient satisfaction and improved health.

Acknowledging the influence of the healthcare professional’s subjectivity

Mead and Bower (2000) presented the healthcare professional-as-a-person dimension in patient-centered medicine, to point out the influence of a healthcare professional’s personal qualities and subjectivity in the patient–healthcare professional interaction. In patient-centered medicine both the patient and the healthcare professional influence each other all the time and the healthcare professional’s subjectivity should not be disregarded (Mead & Bower, 2000). Finset (2012) has also acknowledged the influence of both healthcare professionals’ and patients’ emotional and cognitive status and personal qualities in the patient–healthcare professional interaction.

Health promotion and participation in everyday life

Prevention and health promotion have been identified as a component in patient-centered medicine by Stewart et al. (2003). The patient’s participation in health promotion and disease prevention may be more successful in patient-centered medicine, by respect and understanding of the patient’s world, empowering the patient, and using the patient–healthcare professional relationship as a facilitator (Mead & Bower, 2000; Stewart et al., 2003; Hudon et al., 2012; Morgan & Yoder, 2012). The patient’s knowledge, beliefs, and self-efficacy in relation to health and illness, may influence the effects of health promotion and disease prevention (Stewart et al., 2003). Leplege et al. (2007) emphasized that a patient may have difficulties in everyday life and that interventions should have a subjectively perceived significance and focus on activities of daily living in real life. In addition, environmental restrictions to participate must be acknowledged (Leplege et al., 2007).

Providing advocacy, realism, and hope into the patient’s healthcare

Hudon et al. (2012) identified the importance of providing advocacy for the patient in the healthcare system dimension, which involves the healthcare professional as a co-ordinator and guide for the patient through the healthcare system. Referral to clinical examinations and treatments, as well as to support groups and other community-based services, are included in this dimension. In addition, the healthcare professional acts as a defender of the patient’s interest and safety in the healthcare system (Hudon et al., 2012). Stewart et al. (2003) consider realism and responsiveness to changes into patient-centered medicine, for example personal and economical resource distribution and advances in medical research. The health professional’s awareness of one’s own ability, effective inter- and multi-professional teamwork, as well as time and timing, were important and may influence the patients’ opportunities to participate (Stewart et al., 2003). Hudon et al. (2012) emphasized that the healthcare professionals give the patient hope and support, as well as options for the future.

In summary, patient-centered medicine focuses on the patient–healthcare professional interaction based on a biopsychosocial foundation. Healthcare
professionals’ expertise includes the understanding of the patient as unique person, as well as of their diseases and illness experiences. Patient-centered medicine emphasize the healthcare professionals’ sensitivity and readiness to form a therapeutic relationship based on trust and respect to enhance the patient’s self-efficacy to participate in decision-making and self-care. Patient-centeredness in physiotherapy offers an individualized treatment, continuous communication (verbal and non-verbal), education during the treatment, working with patient-defined goals in a treatment in which the patient is supported and empowered with a physiotherapist with specific knowledge (Wijma et al., 2017). This is in line with the ICF (WHO, 2001) statements that the healthcare system and the healthcare professionals’ attitudes, behavior, and support influence an individual’s ability to function. Further, social interactions and relationships, communication and dialogue, applying knowledge, and making decisions, are classified by ICF as participation components that interact in the process of functioning with a health condition (Bickenbach et al., 1999; WHO, 2001).

Persistent musculoskeletal pain

Brief episodes of musculoskeletal pain from injury or overuse are extremely common. Most people are affected at some point in life and after a shorter period of self-healing they find that the symptoms have disappeared and their life goes back to normal. Although about 20 percent of the adult population suffer from persistent or recurrent musculoskeletal pain (Breivik et al., 2006; The Swedish Council on Health Technology Assessment, 2010). Persistent pain is defined as pain that has lasted past normal tissue healing time (International Association for the Study of Pain, 1986), and with duration of at least three months, or recurrent episodes of pain (The Swedish Council on Health Technology Assessment, 2010). The biopsychosocial model of health explains persistent pain as a complex and dynamic process where biological, emotional, cognitive and social factors interact, and offers an understanding of the development and prediction of persistent pain (Bickenbach et al., 1999; Linton, 2000; WHO, 2001; Boersma & Linton, 2002; Waddell & Burton, 2005; Gatchel et al., 2007).

Living with persistent pain may include experiences of social withdrawal due to physical and psychological fatigue, and problems to cope with daily life (Werner & Melterud, 2003; Sallinen et al., 2011; Cedraschi et al., 2012; Dow et al., 2012; Bunzli et al., 2013). Patients with persistent musculoskeletal pain often need to seek healthcare on a regularly basis (Breivik et al., 2006).

Musculoskeletal pain rehabilitation

Physiotherapy

There is considerable evidence for the involvement of psychosocial interventions in musculoskeletal pain rehabilitation (Waddell & Burton, 2005; van der Windt et al., 2008; The Swedish Council on Health Technology Assessment, 2010; Linton & Shaw, 2011). Patients suffering from musculoskeletal pain often seek physiotherapy assessment and treatment (Breivik et al., 2006). Physiotherapists may have the strategic position as a first-line healthcare professional for musculoskeletal pain. Having such position it is important to identify and intervene on psychosocial factors which may be involved in the transition from acute to persistent musculoskeletal pain (Boersma & Linton, 2002). Ignoring psychosocial factors may hinder progression in rehabilitation, as well as recovery (Linton & Shaw, 2011).

Physiotherapy in combination with a physiotherapist guided psychosocial inter-
vention, involving targeting psychosocial risk factors and patient’s engagement, was reported to improve patient’s functioning (Åsenlöf et al., 2009; Sullivan & Adams, 2010).

**Multimodal rehabilitation**

In accordance with the biopsychosocial model and cognitive behavior theory principles, effective interdisciplinary and multi-professional treatment, such as multimodal rehabilitation (MMR) for persistent pain, has been developed (Guzman et al., 2001; Gatchel et al., 2008; The Swedish Council on Health Technology Assessment, 2010; The National Board of Health and Welfare, 2011). The treatment content in MMR can vary, but includes at least a physical (body exercises) and a psychosocial (psychological, social, or occupational) component (Guzman et al., 2001; Scascighini et al., 2008). The patient and the team of healthcare professionals, coordinate the interventions towards a mutual goal with focus on participation in daily life and/or work. The patient’s active participation in treatment, rehabilitation planning and decision making are emphasized (The Swedish Council on Health Technology Assessment, 2010; The National Board of Health and Welfare, 2011; Swedish Association of Local Authorities and Regions, 2012; Hållstam et al., 2015). Psychological factors, such as a patient’s motivation and self-efficacy, need to be considered in MMR. MMR has been reported to reduce pain intensity and improve functioning (Guzman et al., 2001; Sjöström et al., 2013; Kamper et al., 2015), as well as to reduce social costs with fewer days of sick leave (Busch et al., 2011), compared to standard treatment. However, some reports have demonstrated ambiguous and mixed results (Guzman et al., 2001; Kääpä et al., 2006). The treatment effects of MMR have been associated with the individual’s changes in beliefs and coping (Jensen et al., 2001).

MMR, as a treatment concept, invites the patient in co-operation with healthcare professionals since a patient’s active participation in treatment and rehabilitation planning is built in to the framework. MMR could be a learning forum for patient participation with opportunities to practice own strategies for patient participation, as well as having opportunities to listen to and watch the healthcare professionals’ behavior in the interpersonal interactions. Learning is known to be effective in social contexts (Bandura, 2001), and research has shown that patients’ were more actively involved in their rehabilitation planning with time (Nordin et al., 2013; Nordin et al., 2017). A distinction between “taking part” and “participating” in rehabilitation was found. Patient participation was described as having attended meetings with healthcare professionals and having had treatments, more on an operational level of adherence, without further reflections on the emotional or cognitive processes that may be involved in patient participation. In contrast, other patients’ talked a lot about their emotional and cognitive experiences in relation to patient participation, such as feelings, reflection, and appraisal (Nordin et al., 2017). These various perceptions of patient participation could be important not only to patients’ experiences of patient participation, but also to treatment adherence and outcomes. Some patients that reported on having reached a goal or having been successful in behavior change talked about this in relation to emotional and cognitive processes, such as awareness and insight (Nordin et al., 2017). In MMR, it could be important that healthcare professionals enhance patients’ emotional and cognitive relation to their rehabilitation to ensure adherence and positive treatment outcomes. It may not be sufficient to only attend the treatments.
Web-based interventions for pain management

Web-based interventions for pain management, modeled on behavioral theory literature and effective face-to-face treatment (e.g. cognitive behavioral therapy), have been developed (Barak et al., 2009; Macea et al., 2010; Rini et al., 2012; Eccleston et al., 2014). Such interventions have been suggested to increase patient participation by enabling patients to play a more active role in their rehabilitation (Forkner-Dunn et al., 2003; Eysenbach, 2008; Murray et al., 2010; Samoocha et al., 2010; Rini et al., 2012).

A web-based intervention includes program content, use of multimedia, interactive online activities, guidance and supportive feedback (Barak et al., 2009). A therapist-guided (human-supported) intervention have active involvement of a healthcare professional which deliver motivational messages, assist in problem solving, provide feedback, or follow-up to maximize adherence. In self-guided interventions the users have no therapist support, but there may be interactive tools for symptom monitoring, use of skills, and online assessments (Barak et al., 2009; Rini et al., 2012).

Web-based interventions for pain management based on cognitive behavioral therapy show promising treatment effects regarding pain and physical and psychological functioning (Macea et al., 2012; Eccleston et al., 2014; Buhrman et al., 2016). In addition, web-based interventions may have a positive impact on mediators of behavior change, for example self-efficacy (Wantland et al., 2004; Murray, 2012). Treatment with multimodal pain rehabilitation in combination with an internet-based self-management program for pain resulted in decreased pain catastrophic thinking, compared to multimodal pain rehabilitation. In addition, patients in the combined treatment protocol were more satisfied with their multimodal rehabilitation (Nordin et al., 2016). High rates of drop-outs and non-usage attrition have been reported (Eysenbach, 2005; Macea et al., 2010; Bossen et al., 2013; Ludden et al., 2015; Nordin et al., 2016). It has been demonstrated that characteristics of the user, such as motivation, symptom panorama, and education level, as well as characteristics of the web-based intervention, the flexibility of the program and how it is connected to specific personal needs of different persons, influence web-adherence (Bossen et al., 2013; Ludden et al., 2015).

Psychological factors related to positive treatment outcomes in musculoskeletal pain rehabilitation

Psychological factors are important for positive treatment outcomes in pain rehabilitation (Linton & Shaw, 2011). A holistic perspective on a pain problem is needed (The Swedish Council on Health Technology Assessment, 2010; Laisné et al., 2012). What psychological factors have been shown to be important for positive treatment outcomes in pain rehabilitation? To acknowledge and consider psychological factors in pain rehabilitation we have to identify and consider each patient’s:

1) Expectations on the pain treatment and motivation
2) Self-efficacy, thoughts, self-reflection and self-confidence
3) Coping with pain and catastrophizing

Expectations on the pain treatment and motivation

Treatment expectations and expectations on the future are important to acknowledge in pain rehabilitation (Larsson et al., 2016). On the other hand, unrealistic expectations can decrease positive rehabilitation effects. Patient expectations have been shown to predict pain control and coping, motor behavior, negative effect, and quality of life.
(Goosens et al., 2005). In a study where pain patients were randomized to active physiotherapy, cognitive behavioral therapy, or a combination, showed that the level of treatment expectations was associated with disability and treatment satisfaction (Smets et al., 2008). Chester et al. (2016) found that patients’ expectations of complete recovery from shoulder pain were the most consistent factor of positive outcome in shoulder rehabilitation (Chester et al., 2016). Patient experiences of expectations on pain rehabilitation have also been identified among persons with chronic pain. The results showed that to participate actively in the pain rehabilitation program and to learn adequate coping strategies to improve daily life was important. It was also important to acknowledge interaction with the professionals and fellow patients. Many patients expressed expectations which may reflect that early information given to the patients may have started a positive cognitive process earlier in the rehabilitation. It is important to acknowledge treatment expectations by early addressing of positive and negative expectations about pain and by incorporating and strengthen expectations of learning to cope with pain. (Larsson et al., 2016).

Qualitative interviews about patient expectations from participation in a multimodal pain rehabilitation program showed that to participate actively in the multimodal pain rehabilitation program, to interact with the professionals and fellow patients and to learn adequate coping strategies to improve daily life were very important.

Rehabilitation programs can be improved by acknowledging expectations to interact with professional team members and fellow patients, by early addressing of positive and negative expectations about the future pain and by incorporating and strengthen expectations of learning to cope with pain (Larsson et al, 2016). A physiotherapy-based psychosocial intervention, involving structured activity scheduling, graded activity, exposure to feared activities, goal setting, problem solving, and motivational enhancement, to traditional physiotherapy in back pain rehabilitation has been shown to reduce patients’ pain catastrophizing, fear of movement, and depression (Sullivan & Adams, 2010). In addition, to acknowledge motivational factors in rehabilitation is important for positive rehabilitation outcomes (Gard, 2014). Motivation is influenced by a combination of personal and social factors, for example having clear goals, positive expectations for the future and self-efficacy (Gard, 2014).

**Self-efficacy, thoughts, self-reflection and self-confidence**

Each patient’s self-efficacy, thoughts, self-reflection and self-confidence have to be considered for positive treatment outcomes. Internal thoughts and cognitions, self-reflection and self-regulatory processes have been acknowledged to reinforce and modify learning and behavior changes that are important for health (Bandura, 2004). An individual’s self-efficacy beliefs influence thoughts, motivation and actions (Bandura, 2004). Self-efficacy can be defined as an individual’s beliefs in their capabilities to accomplish a goal-related task, and is developed throughout the lifespan by acquiring new skills, experiences, and understanding. An individual judge their efficacy mostly through performance outcomes (Bandura, 1977), and there is a positive relationship between self-efficacy and behavioral changes (Bandura et al., 1977). An individual’s self-efficacy is also influenced by the individual’s perceptions of emotions and bodily sensations, while feeling more at ease with a task results in higher self-efficacy beliefs. In contrast, feeling insecure before performing a task may reduce self-efficacy beliefs in similar situations in the future. Receiving verbal
encouragement from others when performing, or witnessing an individual similar to one-self successfully performing a task, may increase self-efficacy (Bandura, 1977). Higher self-efficacy has been found to mediate a positive treatment outcome (Turner et al., 2007; Börsbo et al., 2010; Costa et al., 2011), and increase the use of more active coping strategies, as well as increase self-care (Bandura, 2004; Jensen, Nielson, et al., 2003).

Coping with pain and catastrophizing

Cognitive processes such as thoughts about the pain, the appraisal and interpretation of the pain, often determine the actions and behaviors in relation to the pain (Folkman & Moskowitz, 2004; Linton & Shaw, 2011). Such cognitive processes are often referred to as coping strategies (Linton & Shaw, 2011). Coping strategies involve the complex processes of emotions, thoughts and actions that an individual use in all situations in life, to manage internal and external demands that are appraised as stressful. Coping involves the person and the environment, and the relation between, and coping skills develop over the lifespan (Folkman & Moskowitz, 2004). In general, coping strategies have been described as problem-focused coping, which involves addressing the problem causing distress, and emotion-focused coping, which aim to ameliorate the negative emotions caused by the distress (Folkman & Moskowitz, 2004).

Pain catastrophizing describes a mal-adaptive cognitive strategy in relation to pain, which may have a negative impact on treatment outcomes and an individual’s functioning (Linton, 2000; Jensen, Nielson, et al., 2003; Quartana et al., 2009; Börsbo et al., 2010; Linton & Shaw, 2011; Miles et al., 2011). Pain catastrophizing include negative feelings about pain which may fuel negative thinking about pain, and can lead to a cognitive trap with exaggerated and irrational thinking about their pain (Linton & Shaw, 2011). There are different domains of catastrophizing: rumination, magnification, and helplessness (Sullivan et al., 2001; Craner et al., 2016). Rumination and magnification correspond to a primary appraisal of the pain sensation and evaluate it as threatening, and helplessness reflect the individual’s perception of not being able to cope with the pain (Sullivan et al., 2001). Rosentiel & Keefe (1983) defined the helplessness dimension of catastrophizing, the individual’s pessimism about the ability to cope with pain, with a set of items in the Coping Strategies Questionnaire (CSQ) (Rosentiel & Keefe, 1983; Quartana et al., 2009). Bandura stated that helplessness occurs when the individual give up to carry out actions due to beliefs that the action will be inefficient or have no impact, as well as beliefs of punishment. To overcome helplessness, individuals must little by little engage in experiences that build confidence and support self-efficacy (Bandura et al., 1977; Bandura, 2004). Higher pain catastrophizing has been found to associate with lower self-efficacy (Shelby et al., 2008), as well as to other negative health conditions, such as depression, anxiety, negative mood and worry (Quartana et al., 2009). In addition, pain catastrophizing has been found to affect how patients perceive and interpret healthcare professionals’ information of the biopsychosocial perspective of pain (Overmeer & Boersma, 2016). Also, pain catastrophizing has been found to involve insecurity, dependency and support seeking in interpersonal interactions (Lackner et al., 2004; McWilliams et al., 2007).

Increased ability to control pain is related to positive rehabilitation results. The control of pain can be improved by physical and joyful activities which reduces the experience of pain. By increased control it is possible to participate in the rehabilitation to a higher extent. Increased opportunities to influence and participate in rehabilitation are related to increased control, activity, health and well-
being (The Swedish Council on Health Technology Assessment, 2010).

**Psychological factors related to patient participation**

When seeking a healthcare professional, patients usually have expectations of the encounter (Stewart et al., 2003), such as to receive an explanation for the symptoms and to have their disorder confirmed by the healthcare professionals (Werner & Melterud, 2003; Verbeek et al., 2004; McDermott et al. 2011; Stenberg et al., 2012). In addition, they may have their own hypothesis about their problems (Stewart et al., 2003), and wish for opportunities to actively participate in the communication with the healthcare professionals (Persson et al., 2011). However, patients often perceive persistent pain as an “invisible” condition and they find it difficult to communicate their pain with healthcare professionals and others, as well as to be acknowledged as patients (Dow et al., 2012). Patients may experience mistrust and dismissal from the healthcare professionals regarding their pain (Werner & Melterud, 2003; Breivik et al., 2006; Nordin et al., 2014), as well as lack of involvement in their rehabilitation process (Melander-Wikman et al., 2006). A negative attitude and behavior from the healthcare professionals, together with a lack of empathy and sensitivity, may reduce the patient’s self-efficacy in the patient – healthcare professional interaction (Waddell et al., 2005; Larsson et al., 2011). Patients’ experiences of dismissal and disrespect from the healthcare professionals have been shown to be based on unimodal treatment, where there was no dialogue with the healthcare professionals (Nordin et al., 2014).

Emotions and cognitions have been found important both as prerequisites and determinants for patient participation in multimodal pain rehabilitation. Patients experienced that their emotional and cognitive status, influenced their opportunities to participate. For example, having psychological symptoms when entering an encounter with a healthcare professional, were experienced to restrict participation. In contrast, being emotionally strong, and having self-confidence were experienced to facilitate patient participation (Nordin et al., 2013; Nordin et al., 2014). Further, perceptions of satisfying patient participation in the interaction with the healthcare professionals could bring out feelings of joy and hope, and lead to reduced symptomatology (Nordin et al., 2013). However, perceptions of restricted patient participation were experienced to include feelings of anger and sadness, and lead to increased pain and/or stress (Nordin et al., 2013; Nordin et al., 2014). Thus, patients experienced different emotions and bodily perceptions depending on the success or failure in their interaction with the healthcare professional, as well as changes in their symptomatology. This is in line with findings that a patient-centered approach in consultations associated with reduced pain and psychological distress (Alamo et al., 2002; Dibbelt et al., 2009). Also, emotions and bodily perceptions are acknowledged to influence performance (Bandura, 1977). According to self-efficacy theory (Bandura, 1977), patients’ experiences of favorable patient participation with positive emotions and cognitions may increase patient’s motivation to participate in up-coming encounters with healthcare professional. On the other hand, perceiving negative emotions and cognitions in restrained participation may decrease the patient’s motivation for participating in such encounters.

Patients’ perceptions of being confirmed are a key component in patient participation. Being confirmed includes patients’ emotions, thoughts and cognitions in interactions with healthcare professionals and is a basis in the patient – healthcare interaction (Larsson et al., 2007; Stenberg et al., 2012; Nordin et al., 2013; Nordin et al.,
In addition, patients may be confirmed through working independently in an internet-based self-management program for pain (Nordin et al., 2017). Patients experienced being confirmed when they could identify their own symptoms, illness experience and life situation, as well as their own thoughts and cognitions about their pain condition, in the texts and the assignments of the program. Overall, patients experienced that self-identification in the rehabilitation was important to being confirmed and to patient participation (Nordin et al., 2017). Being confirmed may also include patients’ experiences of trustworthiness in their rehabilitation (Nordin et al., 2017). Patients in multimodal pain rehabilitation found it important to be able to trust healthcare professionals’ explanations to symptoms and that appropriate treatments were given to them (Nordin et al., 2013; Nordin et al., 2017), as well as finding the content in the internet-based program trustworthy (Nordin et al., 2017). In addition, the patient-hncare professional relationship, built on trust and respect, was important to being confirmed. Some patients found it important to have some knowledge about the healthcare professional as a person to provide for trust and openness in the relationship (Nordin et al., 2014). Patients’ trust in their healthcare professionals has been reported to associate with adherence to treatment (Safran et al., 1998). There may be indirect pathways between patient participation and health outcomes. A shared understanding, increased patient knowledge, and an enhanced therapeutic relationship may provide improved adherence to treatment and better self-care skills (Street et al., 2009).

Thus, emotions and cognitions may be important components in patient participation in pain rehabilitation. Patients’ experiences of satisfying patient participation in multimodal pain rehabilitation were characterized by continuous exchange of emotions and cognitions between the patients and the healthcare professionals (Nordin et al., 2013). According to patient-centered medicine, a patient’s self-efficacy beliefs may be necessary prerequisites to patient participation, and must be enhanced in patient–healthcare professional interaction (Stewart, 2003; Illingworth, 2010). Healthcare professionals’ attitudes and behavior may influence patient’s self-efficacy (Wadell et al., 2005; Larsson et al., 2011). The purpose of the therapeutic relationship is to help the patient, as well as to enhance the patient’s self-efficacy (Stewart et al, 2003). In pain rehabilitation it is important to include the strengthening of the individual’s intrinsic resources, for example self-efficacy, to increase participation in healthcare and life, and to enhance self-care.

In the Swedish healthcare legislation there is focus on increasing knowledge to support the patient to play an active role in decision-making (Government Offices of Sweden, 2013). Patients in multimodal pain rehabilitation experienced that there was a knowledge gap between them and the healthcare professionals, which restrained patient participation, and entailed inequality in the co-operation with healthcare professionals (Nordin et al., 2013; Nordin et al., 2017). A trustworthy patient-hncare professional interaction was particularly important due to the knowledge gap, since patients relied on the healthcare professionals to make their decisions for them (Nordin et al, 2013; Nordin et al., 2017). However, gained knowledge and insights entailed increased self-confidence and improved co-operation and dialogue with healthcare professionals (Eldh et al., 2010; Larsson et al., 2011; Nordin et al., 2017). Thus, the patient’s opportunities to increase knowledge, as well as their self-efficacy, in pain rehabilitation are important to patient participation. Elvén et al. (2015) have presented a physiotherapy reasoning model to support patients’ behavior change,
which include components of increasing patients’ knowledge and self-efficacy, as well as promoting feedback from healthcare professionals. Herlitz et al. (2016) emphasized emotional feedback from healthcare professionals in order to stimulate the patient’s feelings of capacity and to internalize behavior change. Thus, a patient’s learning process need to be included in patient participation to ensure opportunities to acquire new knowledge and insights. It may not be sufficient to acknowledge the patient’s present expertise of their illness experience and their life situation. By increasing patients’ knowledge and insights about pain and cognitive skill processes, patient participation in the rehabilitation can improve.

There are few studies on patients’ participation in web-based interventions. Samoocha et al. (2010) have evaluated components often linked to patient participation, such as self-efficacy, mastery, perceived control, perceived competence, and involvement in the decision-making process, in order to investigate web-based interventions potential to increase patient empowerment compared with usual care. They found positive but small effects in favor of web-based interventions (Samoocha et al., 2010).

**Conclusion**

Psychological factors are important to patient participation in pain rehabilitation, as well as to treatment outcomes of pain rehabilitation. The psychological factors that have an impact on results in pain rehabilitation are also emphasized in patient participation to a high extent. Dimensions of patient participation have been found to associate with treatment adherence and results in pain rehabilitation, as well as with health outcomes (Stewart, 1995; Stewart et al., 2000; Alamo et al., 2002; Robinson et al, 2008; Dibbelt et al., 2009; Dillon., 2012). It may be necessary to provide a patient – healthcare interaction that include a patient’s active participation through enhancing patient’s motivation, self-efficacy, and coping, to gain positive treatment outcomes. Also, to focus on successful treatment outcomes may increase patient participation in pain rehabilitation.

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