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Essential features influencing collaboration in team-based non-specific back pain rehabilitation: Findings from a mixed methods study

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ABSTRACT

The aim of the study presented in this article was to explore how professionals, without guidelines for implementing interprofessional teamwork, experience the collaboration within team-based rehabilitation for people with back pain and how this collaboration influences their clinical practice. This study employed a mixed methods design. A questionnaire was answered by 383 participants and 17 participants were interviewed. The interviews were analysed using content analysis. The quantitative results showed that the participants were satisfied with their team-based collaboration. Thirty percent reported that staff changes in the past year had influenced their clinical practice, of which 57% reported that these changes had had negative consequences. The qualitative findings revealed that essential features for an effective collaboration were shared basic values and supporting each other. Furthermore, aspects such as having enough time for reflection, staff continuity, and a shared view of the team members' roles were identified as aspects which influenced the clinical practice. Important clinical implications for nurturing and developing a collaboration in team-based rehabilitation are to create shared basic values and a unified view of all team members' roles and their contributions to the team. These aspects need to be emphasised on an ongoing basis and not only when the team is formed.

ARTICLE HISTORY

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KEYWORDS

Interprofessional collaboration; interprofessional education; mixed methods; rehabilitation; team-based care

Introduction

Back pain is a common problem internationally, and the proportion of the population suffering from back pain with at least one episode of back pain during a one-year period is estimated to range from 0.8% to 82.5% (Hoy, Brooks, Blyth, & Buchbinder 2010), and for neck pain from 48% to 79.5% (Hoy, Protani, De, & Buchbinder 2010). The first 3 months after pain onset is crucial for recovery. The persons who still suffer from back pain after this time period are at risk for transitioning from acute to persistent pain (Pengel, Herbert, Maher & Refshauge 2003). In Sweden, back pain accounted for 24% of all women and 28% of all men being on sick leave in 2013 (The National Insurance Office 2014).

In 2008, the Swedish government decided to provide financial support for evidence-based back pain rehabilitation, called the "rehabilitation warranty" (RW) (Swedish Association of Local Authorities and Regions 2013). The rehabilitation conducted within the RW is delivered by a team of various professionals and is grounded in the biopsychosocial model (Busch, Bodin, Bergström & Jensen 2011). Due to this decision a large number of new interprofessional rehabilitation teams have rapidly been established in Swedish primary healthcare, but their practice is not yet fully integrated in the everyday care setting. This is also the case internationally (Carr et al. 2012; Morgan, Pullon & McKinlay 2015). Furthermore, no guidelines on how to proceed when establishing rehabilitation teams have been given in the implementation process of the RW. This makes it important to increase our understanding of how newly established teams experience their collaborative practice in order to learn how team-based rehabilitation for people with back pain might be facilitated.

Background

The concept of teamwork has been defined as "a dynamic process involving two or more healthcare professionals with complementary backgrounds and skills, sharing common health goals and exercising concerted physical and mental effort in assessing, planning, or evaluating patient care" (Xyrichis & Ream 2008, p. 238). Collaboration is key in teamwork and includes several important dimensions, such as clear team goals, a shared team identity, shared team commitment, role clarity, interdependence, and integration between team members (Reeves, Lewin, Espin & Zwarenstein 2010).

Team-based rehabilitation is a widely used intervention for reducing back pain (Scascighini, Toma, Dober-Speilmann, & Sprott 2008). It has also been found that team-based rehabilitation has a positive influence on interference with daily living, self-control, anxiety, depression (Pietilä Holmner, Fahlström, & Nordström 2013), disability reduction, catastrophising (Monticone et al. 2014), and sick leave (Norlund, Ropponen, & Alexanderson 2009) in people with back pain. Furthermore, a systematic review found such rehabilitation

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interventions to be cost-effective (Lin, Haas, Maher, Machado, & van Tulder 2011).

The degree of collaboration within a team impacts on the clinical work performed and is highly influenced by interprofessional education (IPE). IPE is defined as occurring "when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (Centre for the Advancement of Interprofessional Education, 2002). There are a number of elements that are known to affect interprofessional teamwork. For example, challenges in the creation of effective teamwork have been brought up in terms of how professional cultures, values, and roles are merged (Hall 2005; Suter et al. 2009; Salas et al. 2005), how the dynamics of leadership is experienced (Lingard et al. 2012; Salas et al. 2005) and in terms of organisational support (Reeves et al. 2010). Furthermore, it has been established that obstacles to formal and informal communication can influence collaboration (Cartmill, Soklaridis, & Cassidy 2011; Howarth, Warne, & Haigh 2012).

Even though there is an existing body of knowledge regarding elements that influence collaboration in teambased rehabilitation it needs to be acknowledged that interprofessional teamwork is a complex and multifaceted activity (Reeves et al. 2010). For example, a discourse analysis of interprofessional collaboration has found at least two discourses proving the complexity of the activity. The utilitarian discourse which emphasises an evidence-based approach focusing on whether interprofessional collaboration is useful in patient care and, if so, what features best promote successful outcomes. The emancipatory discourse is more about equalising power relations among health practitioners (Haddara & Lingard 2013). Thus, the implementation of interprofessional teamwork needs to be studied in particular contexts in order to be able to suggest proper clinical implications. Thus, the aim of this study was to explore how professionals, without guidelines for implementing interprofessional teamwork, experience collaboration within team-based rehabilitation for people with back pain and how their collaboration influences their clinical practice.

Methods

This study was part of an evaluation assignment from the Swedish Ministry of Health and Social Affairs concerning the RW. The evaluation was intended to identify factors in team-based rehabilitation that contribute to patients' successful rehabilitation and return to work (RTW). Questionnaires on team collaboration and qualitative interviews were conducted. For further information about the RW, please see Hellman, Jensen, Bergstrom, & Busch (2015).

The present study had a mixed methods design combining quantitative and qualitative data collection in order to add insight and knowledge that cannot be gained with one data source alone (Creswell 2009).We will report on the results from the questionnaire items on team collaboration and staff turnover as well as the results from the qualitative interviews regarding the participants' experience of team collaboration. This study was conducted in three Swedish County Councils that treated the largest numbers of patients in the RW in 2012.

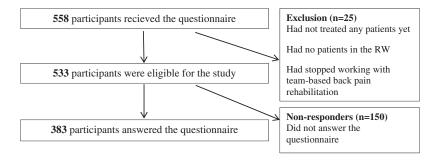
Quantitative data

Participants

Participants were recruited in collaboration with RW administration staff. The inclusion criteria were: professionals working in RW-funded rehabilitation and ability to understand Swedish. Based on the recruitment procedure, 558 professionals were identified; of them, 533 fulfilled the inclusion criteria. These persons received an email containing a webbased questionnaire. The questionnaire was answered by 383 persons (72%). For further information about the inclusion procedure, please see Figure 1. For the non-responders, we had information regarding the sex of 95%; of which 31% were men and 64% were women.

Data collection

The Assessment of Interprofessional Team Collaboration Scale (AITCS) was used to measure collaboration (Orchard, Curran, & Kabene 2005). The AITCS consisted of 37 statements concerning partnership/shared decision-making, collaboration, and coordination. Participants were asked to rate each of the statements in relation to how they currently feel that the respondents and their team work and act within the team. Responses were based on a 5-point scale ranging from 1 (never) to 5 (always). The Swedish version of the AITCS (AITCS-S) is currently psychometrically evaluated by the research team and has been found to be a preliminary reliable measure. In addition, single questions regarding staff turnover and work time spent on team-based rehabilitation were used.



Data analysis

The statistical analyses were carried out by using SPSS version 22.0 (IBM, Armonk, NY, USA). To describe the collaboration within the rehabilitation teams, the answers from the AITCS-S and single questions were analysed using descriptive statistics (mean, median, and standard deviation).

Qualitative data

Participants

In order to shed light on the quantitative part, qualitative interviews with professionals who work with team-based rehabilitation were performed. The participants were recruited by purposive sampling (Polit & Beck 2004) to ensure diversity in terms of professional background and length of vocational experience. The sampling procedure was conducted in collaboration with the RW administrative staff in the three county councils. The inclusion criteria were: working in RW-funded team-based rehabilitation, ≥6 months of professional experience in team-based rehabilitation and ability to speak and understand Swedish. The administrative staff provided the first author with information about eligible participants. An invitation was sent to the participants by the first author with information about the study. Semi-structured interviews were performed with consenting participants with varied characteristics and from nine rehabilitation units. Saturation was reached with 17 participants after which data collection came to a close (Polit & Beck 2004).

Data collection

The interviews were conducted by the first author who met all of the participants once individually at their workplaces, which was in a private office space. The interviews, which lasted 55-80 min, were semi-structured and based on an interview guide (Kvale & Brinkmann 2009). The interviews focused on two broad themes in order to cover the aim of the whole project. These themes were: the participants' experience of working with aspects regarding RTW and of working in team-based rehabilitation. In this article, we present the results which are relevant to the theme of collaborative team-based rehabilitation. Open-ended questions were asked during the interviews-for example: "Please tell me about your experience of collaborating with other practitioners in team-based rehabilitation"; "Tell me about your team's collaboration"; and "Tell me about how you experience the collaboration influence the rehabilitation". Follow-up questions were asked during the interviews in order to gather in-depth information about the nature of the collaboration (Kvale & Brinkmann 2009). Two pilot interviews were performed and minor changes made; however, the questions did not change. All interviews were recorded digitally and transcribed verbatim.

Data analyses

A qualitative inductive content analysis method (Graneheim & Lundman 2004) was used. The first step consisted of reading the transcribed interviews several times in order to gain an initial understanding of the material. Meaning units concerning the aim were marked in each interview. In the second step, each meaning unit was condensed and labelled with a code. In the third step, the codes were compared in the separate interviews. After that, codes with similar content were consolidated and codes from all of the interviews were compared, resulting in several subcategories. These subcategories were then once again compared and pulled together into two categories corresponding to the study's aim. The last step was thoroughly discussed by the first and last authors. Based on these discussions the categories were revised several times. In the latter phase of the analysis the preliminary findings were discussed by all of the authors. Throughout the analysis procedure, the authors regularly referred back to the transcribed interviews in order to ensure credibility.

Ethical considerations

Before data collection, all participants were informed about the aim of the study and that participation was voluntary so they had the right to withdraw at any time. Completing the questionnaire was seen as giving written informed consent. Concerning the qualitative interviews, the participants were given written as well as verbal information about the study and prior to the interviews they provided their written informed consent. The study was approved by the Regional Ethics Committee in Stockholm, Sweden (Reg. No. 2009/ 1750-31/1 & 2012/1773-32).

Results

Quantitative perspectives

The questionnaire was answered by 383 professionals (72%). They represented various professions, 80% were women, and 48% were 51 years old or older. A summary of participant characteristics is given in Table 1.

Results showed that 80% of the participants spent less than 50% of their total working time on team-based rehabilitation. Working time for the various professions is presented in Table 2. In total, 30% reported that staff changes in the past year had influenced their clinical practice, of which 57% reported that these changes had had negative consequences.

The maximum item score of the AITCS-S was five and the participants reported that the collaboration worked well, the

 Table 1. Information about the participants in the quantitative part of the project.

Information about the participants	n (%)
Age	
20–30 years	24 (6)
31–50 years	171 (46)
51 years or older	180 (48)
Gender	
Female	301 (80)
Male	76 (20)
Profession	
Occupational therapist	66 (18)
Physician	48 (13)
Psychologist	42 (11)
Coordinator	23 (6)
Physiotherapist	115 (31)
Nurse	16 (4)
Social worker	31 (8)
Other	34 (9)

Table 2. Amount of	Table 2. Amount of working time spent on team-based back pain rehabilitation.	ised back pain rehabilitation.					
	Physiotherapist $(n = 115)$	Occupational therapist ($n = 66$)	Physician ($n = 48$)	Psychologist ($n = 42$)	Social worker $(n = 30)$	Coordinator ($n = 23$)	Nurse ($n = 16$)
Less than 25%	56 (49)	28 (42)	30 (63)	24 (57)	20 (65)	10 (44)	3 (19)
25-50%	34 (30)	23 (35)	11 (23)	9 (21)	7 (23)	10 (44)	6 (38)
51-75%	10 (9)	6 (9)	6 (12)	5 (12)	2 (6)	1 (4)	4 (25)
More than 75%	15 (13)	8 (12)	1 (2)	4 (10)	1 (3)	2 (8)	3 (19)
Missing		1 (1)			1 (3)		

mean value of the AITCS-S being 4.38 (SD 0.48; median 4.46). The mean value for partnership/shared decision-making was 4.36 (SD 0.567; median 4.47); for cooperation it was 4.43 (SD 0.565; median 4.55); and for coordination it was 4.00 (SD 0.716; median 4.14).

Qualitative perspectives

The participants worked as occupational therapists (n = 5), physicians (n = 4), psychologists (n = 2), physiotherapists (n = 2)4), and social workers (n = 2). A summary of participant characteristics is given in Table 3.

The analysis identified two categories: (1) Essential features for collaboration in team-based rehabilitation, which includes two subcategories describing the participants' experiences of essential prerequisites for effective collaboration, and (2) aspects influencing the collaborative practice in team-based rehabilitation, which consists of three subcategories describing various aspects of importance for their clinical practice.

Essential features for collaboration in team-based rehabilitation

The participants described a few aspects that they all agreed were essential prerequisites of effective collaboration: shared basic values and assumptions and each other's support in the team. These aspects were expressed as being the basics for their collaborative practice.

Shared basic values and assumptions. All participants experienced that sharing basic values and assumptions was important for their collaborative practice. This stance implied that all team members had the same focus and coordinated their communication toward their patients, for example by repeating the messages to their patients:

The power of the team, I think...that we all project the same message, and that it provides support and security for the patient. They say they received a lot of help, even though we think we are doing the same things we have always done more or less, but we do it together and we do it with a little more focus. (Physiotherapist)

The participants described how they deliberately tried to establish a common ground when they started their teamwork. Having the same basic values did not necessary imply that all members had the same opinions; however, they stressed the importance of never giving the patients mixed

Table 3. Information about the participants' characteristics in the qualitative part of the project.

	Participants $(n = 17)$
	mean (range)
Information about the participants	
Age (year)	52 (32–65)
Gender (female/male)	13/4
Years of experience within the profession	22 (2–38)
Years of experience in pain rehabilitation	8 (1–26)
Information about the team	
Primary health care/specialised care	13/4
Number of people working in the team	4 (3–5)
Number of years the team has been established	3.5 (2–6)

messages. Such situations could lead to confusion for the patients and make the rehabilitation less effective.

Supporting each other in the teamwork. The participants felt the team's collaboration provided them with personal support and a chance for knowledge exchange. Sometimes it was hard to work with patients who were dealing with pain because of their difficult life stories. Having the opportunity to share these experiences with the other team members was valuable as it enabled them to continue to provide a good rehabilitation.

The collaboration was also considered a good opportunity to receive feedback and support regarding how to continue the rehabilitation with their patients. The participants described the atmosphere within the team as having a sense of openness and honesty, and this made it easy to ask for support and feedback:

For me, it's a strength to have the others. If there is anything that I find tedious or difficult, we can have this kind of discussion – we can support each other. (Occupational therapist)

A few participants experienced difficulties in getting their voices heard within the team and felt that their unique skills went unrecognised. They described that such experiences made them less collaborative: they would rather decide on their own how to proceed with the patients then discuss it with the other team members.

I do not think everyone's voices are heard just as much, no, I do not think that. Especially those who have start working in the project in a later phase might feel that their opinions and their knowledge may not be fully utilized. *Psychologist*

Aspects influencing the collaborative practice in teambased rehabilitation

Aspects that influenced the clinical practice were: dedicated time for reflection and planning, a shared view about the team members' roles within the team, and continuity among team members.

Having time for reflection and coordinated planning. The participants described the importance of having sufficient time and resources for reflection and planning in order to strengthen the teamwork. The formal team conferences were an opportunity to reflect upon the rehabilitation process and coordinate the planning of the interventions. However, the time scheduled for these conferences was limited and they had to prioritise discussing the patients with most extensive problems. The rehabilitation of patients with milder problems was discussed to a lesser extent or not at all. In these cases, the participants described the value of recurrent informal meetings and that such meetings enabled collaboration on a day-to-day basis. This made it possible to meld the team members' separate interventions together.

It's a luxury for the patient that we [the team] sit down and reflect and think, because when we do that, I think we take it [rehabilitation] to a higher level. (Psychologist)

Informal meetings did not occur frequently for *all* participants, and those who did not have the opportunity to engage in continuous reflection had to rely on the formal team conferences. In this process the team members worked in parallel with the consequence being that team members conducted their own interventions without knowing much about the overall rehabilitation process. Lack of sufficient time for knowledge exchange and discussions contributed to a lack of common directions in the rehabilitation, which the participants felt was detrimental to the collaboration.

Being united around a shared view of one's roles within the team. To promote effective collaboration in the team the participants described the value of taking advantage of all professionals' unique competencies and refraining from excessive intrusion into each other's domains of practice. However, they also expressed the need to allow some overlapping. This entailed a balancing act between, on the one hand, emphasising the professional domains of practice, and on the other, taking a more integrated approach.

Some participants experienced it as a strength to have several competencies within the team. They described how discussions about individual patients' situations enabled them to find creative solutions for their subsequent interventions. As a potential consequence, interventions delivered by a team member with a particular competence were prioritised. In these teams the collaboration was characterised as a process that went back and forth, in which a team member could easily revisit the things that another team member discussed earlier:

Perhaps the psychologist held a session and stated that it was really hard—they [patients] didn't understand a thing. Well, okay, I might take up the same thing in my session, but from a different angle. (Physiotherapist)

Some professions took a more overlapping approach than others. The participants experienced that occupational therapists and physiotherapists could cross the boundaries because of their shared competencies. Most participants, however, described that these professions seldom crossed the boundary to the psychologist's domain:

We do not enter the psychologist's domain of practice—there is no one who is competent in that—but physiotherapists and occupational therapists can replace each other quite a lot. (Occupational therapist)

The collaborative work was sometimes hampered by team members who felt insulted if another team member entered their domain of practice. On the other hand, effective collaboration was facilitated when team members had the feeling of being one part of a larger constellation, i.e. the team, and that their own profession and domain of practice was of less importance.

Strengthening collaboration through staff continuity. The participants experienced being a team with staff continuity had contributed to shared values and directions. The continuity enabled them to exchange knowledge and coordinate their activities. Participants that were working in teams with high staff turnover experienced a lack of energy and that the team's shared direction became unclear: We lose the speed and lose some energy, it is difficult to replace staff, and it is hard to recruit someone new and get to know the person and get back on track. (Occupational therapist)

To rebuild a team that had shared values and directions was described as a time-consuming process, and the participants seldom had sufficient time for this.

Discussion

This study focuses on how rehabilitation professionals working with team-based rehabilitation for people with back pain experience a collaboration within their team and how it influences their clinical practice. The quantitative results show that the participants were satisfied with their experience of teamwork and reported high scores on the AITCS-S. The qualitative findings reveal that the participants experienced that the essential prerequisites of effective collaboration were to have shared basic values and to support each other in the team. Furthermore, aspects related to having enough time for reflection and coordinated planning, a shared view of the team members' roles, and staff continuity were identified as being associated with the collaborative clinical practice. Meanwhile, high-staff turnover was reported as having negative consequences for the teamwork.

Having shared values and basic assumptions were brought up as prerequisites of effective collaboration, which is in line with previous research (e.g. Croker, Trede, & Higgs 2012; Fernando, Hellman, & Josephsson 2014; Howarth et al. 2012). In the present study, these aspects were closely related to staff continuity, and survey results showed that a high staff turnover was frequently reported as adversely influencing the participants' clinical practice. Staff continuity has also been discussed as an important factor in previous research (Howarth et al. 2012). The participants described how the rehabilitation teams attempted to create shared values from the start, and how these ideas implicitly shaped their clinical practice. However, these were not explicitly passed on to new team members. This is important because teams do not necessary reach collaboration only because they are working on the same task. Teamwork requires coordination and a shared understanding of each other's knowledge, skills, and experiences (Salas et al. 2005). Continuously nurturing the collaboration in team-based rehabilitation is therefore key in the development of effective collaboration.

These results have also identified the importance of supporting each other in teamwork and having a shared view of ones' roles. Emphasising these aspects might facilitate interprofessional education and encourage a continuous learning experience from each other. Our results are also in line with previous research, which have found that having a clear understanding of each team member's role and competencies in an intervention are prerequisites for effective teamwork (Salas et al. 2005). However, our findings also suggest that learning from each other is not always apparent, especially by those who were newly recruited to a team. Their experience was of not getting their voices heard within the group. On the other hand, the results from the AITCS-S showed a high score on partnership/shared decision-making. This makes the results harder to interpret. Still, experiences of not getting the voice heard and not being listened to could be related to power sharing and hierarchies. The aspects of power sharing are brought up in the emanicipatory approach to collaborative practice (Haddara & Lingard 2013). Being aware of the various ways interprofessional collaboration is approached might be helpful in finding ways for reaching an effective collaboration in which IPE might be facilitated. Team leadership is of essential importance (Salas et al. 2005; Reeves et al. 2010). Further research are needed in order to study how new team members are introduced and how they experience working in an already established rehabilitation team.

Our study identified some aspects that influenced the clinical practice of team-based rehabilitation for people with back pain. First, the aspect of having sufficient time for coordinated planning was brought up. Previous research has found that time allocated for meetings and reflection did not correlate to any degrees of collaboration (Thylefors 2012). The divergent results might be due to contextual reasons. For example, the participants experienced that the patients with the most extensive problems were most in need of coordinated planning. Another interpretation could be that having time for reflection is closely related to enabling the team to create shared basic values, which has been seen in previous studies as beneficial for a collaborative practice in rehabilitation (Hall 2005; Suter et al. 2009). Teams that are consistent over time might thus be less affected of the time allocated for meetings and reflections.

In this study we have employed a mixed methods design. A strength of our study is thus the integration of two data sources, which however were not integrated until a later stage in the research process, making it a limitation (Creswell, Fetters, & Ivankova 2004). To ensure the credibility of the qualitative findings, the meaning units and codes were kept close to the interview data and the analysis process went back and forth between codes and interviews over several steps. Furthermore, the analysis has been discussed in the interprofessional research group on several occasions to ensure rigour (Tong, Sainsbury, & Craig 2007). The research group had an independent and external role with no impact on the rehabilitation process, and this was clearly stated in the information given to the participants in order to minimise the risk of biased information. The quantitative results should be interpreted with caution as all participants were working in team-based rehabilitation with a high emphasis on the collaborative elements. Thus the results might be affected by social desirability, meaning that the participants might have given answers that goes in line with how team-based rehabilitation should be conducted (Tourangeau & Yan 2007).

Concluding comments

Sharing basic values and assumptions and supporting each other in team-based rehabilitation were prerequisites of effective collaboration. Furthermore, aspects related to staff continuity and being united around a shared view of each other's roles were identified as having an impact on the collaboration of the rehabilitation professionals. Based on our findings and previous research, important clinical implications for nurturing and developing collaboration in team-based rehabiliation are to create an awareness of what basic assumptions are directing the rehabilitation and ensuring that all team members are introduced to these assumptions when they start working within the team.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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