Nice to have or need to have?
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Dosage of pain rehabilitation programs: A qualitative study from patient and professionals’ perspectives

Franka P.C. Waterschoot, Elseline Bennen Msc, Henrica R. Schiphorst Preuër MD, PhD, Pieter U. Dijkstra PhD, Jan H.B. Geertzen MD, PhD, Michiel F. Reneman PhD

Submitted for publication
Abstract

There is a large variety in prescribed dosages of pain rehabilitation programs (PRP) but evidence regarding the optimum dosage is unknown. The aim of this study was to explore perspectives of patients and rehabilitation professionals regarding dosages (e.g. total duration, number of contact hours) of PRP in three different rehabilitation centers in the Netherlands. A study using an explorative qualitative research design was performed with thematic analysis. Individual semi-structured interviews were conducted with patients undergoing PRP, and focus groups were formed with rehabilitation professionals involved in PRP. In total, 12 patient interviews and three focus groups with 17 rehabilitation professionals were analyzed. All patients were satisfied with offered dosage. Several factors were considered important in relation to the choices in dosage of PRP. All factors were categorized as patient-related factors, treatment-related factors and external factors. Although dosage of PRP differed among the participating rehabilitation centers, patients and rehabilitation professionals mentioned similar factors. In absence of evidence, differences in choices of PRP dosage appear mainly based on historical grounds and clinical expertise.

Keywords
Pain rehabilitation programs, dosage, qualitative analysis, chronic pain.
Patient and professionals’ perspectives on dosage of PRP

Introduction

Multidisciplinary Pain Rehabilitation Programs (PRPs) are recommended to treat patients with chronic musculoskeletal pain (CMP) \(^1\). These PRPs, based on the biopsychosocial model, aim to decrease disability and optimize participation of patients with CMP. A systematic review showed that PRPs have a moderate, but consistent, positive effect on disability and pain, compared to usual care or physical treatment programs for patients with chronic low back pain \(^3\). PRPs result in better self-management of pain and disability, and a reduction in healthcare utilization in treated patients was found, which may contribute to a decrease of direct and indirect costs over the long term \(^4\).

Although effective, PRPs are relatively expensive. The multidisciplinary characteristics, as well as the high number of contact hours and total duration of PRP, provide relatively high direct costs and travel expenses for the patients. An aspect of PRP is dosage, which includes the total duration, the total number of contact hours, and intensity of treatment (number of contact hours per week). Differences in the dosage of PRP may lead to differences in direct and indirect costs. Choices for dosage and how dosage is established for an individual patient is unknown. A recent systematic review showed that dosage of PRP has never been studied as a primary aim and the optimum dosage of PRPs is currently unknown \(^5\). The studies included in that review differed in terms of dosage (total duration, from weeks to months, and regarding contact hours, from fewer than 10 to over 100 hours) and effect.

Better understanding of dose variables could lead to better and more efficient patient care, which will benefit patients, rehabilitation facilities, insurers and employers. To acquire insight into factors related to dosage of multidisciplinary PRP, this study aimed at exploring perspectives of patients who underwent PRP, as well as of the rehabilitation professionals working in PRPs. In addition, this study aimed at examining the argumentations/reasons and underlying choices in dosage of PRPs in three rehabilitation centers in the Netherlands.

Methods

A study using an exploratory qualitative design with thematic analyses was used to gain in-depth information about the perspectives of patients and rehabilitation professionals involved in PRPs regarding the doses of these programs. The study was performed in three rehabilitation centers in the Netherlands. These centers were selected because of their differences in dosage, while patient characteristics were similar \(^6\). Individual semi-structured interviews with patients who underwent multidisciplinary PRP, as well as focus groups with professionals working in multidisciplinary PRP,
were used. The medical ethics committee of the University Medical Center of Groningen (UMCG) granted a waiver for this study. All participants signed informed consent for participation, digital recording and the use of data.

Participants
A purposeful sample of patients was recruited from three rehabilitation centers in the Netherlands: Adelante in Hoensbroek (RC1), located in the south; Roessingh in Enschede (RC2), located in the east and the Center of Rehabilitation of the UMCG (RC3), located in the north. We aimed at including patients with varying characteristics, who completed a multidisciplinary PRP: working/not working, differences in dosage of PRPs, males/females, and a variety of ages. PRP should have been completed for at least two weeks. The first author contacted the recruited patients via telephone to check their willingness to participate in the study and to plan the interview. They received written information about the purpose of the interview.

Rehabilitation professionals from the three rehabilitation centers were included for participation in the focus groups, provided that they were working within the area of multidisciplinary PRP for a minimum of two years, for at least 0.5 fte. We aimed to include rehabilitation professionals from different disciplines (i.e. occupational therapist/ physiotherapist/ psychologist/ physiatrist). These rehabilitation professionals should be involved in determining the individual dosages of the program for the patient.

Data collection
Data were collected between May and September 2014. A total sample of 15 patients was planned for the interviews, five patients from each rehabilitation center, with the expectation of reaching data saturation. A semi-structured interview scheme was constructed [Appendix] for patients using open questions enabling reflection about experiences and perceptions on dosage of treatment received. The interview started with questions about the total duration and intensity of PRP, followed by questions regarding personal experiences and perceptions of treatment dosage, such as: “what did you like and dislike about the duration and intensity of the program” and “which factors, in your opinion, influence dosage of PRP?”. Also patients’ opinion regarding the relationship of dosage to return to work and personal and general costs were asked. Face-to-face interviews were performed at the rehabilitation center where the patient was treated. The interviews were scheduled for 60 minutes and were audio recorded. Prior to this study, an interview was pilot tested. Patient interviews were planned prior to the focus group at each center.

For the focus groups meetings, a minimum of five rehabilitation professionals of different disciplines per center were invited in order to achieve variation in perspectives on PRP dosage per
rehabilitation center. Meetings were planned for 90 to 120 minutes and were audio recorded. An interview scheme was constructed [Appendix], aiming to gain insight into the line of reasoning underlying dosage choices, as well as rehabilitation professionals’ perspectives on optimum dosage of PRPs.

**Measures of validity**
The first author (FW), who has over 10 years of experience as an occupational therapist in pain rehabilitation, conducted all patient interviews and also led the focus group meetings in the Adelante and Roessingh rehabilitation centers. Because she was closely acquainted with the rehabilitation professionals at UMCG, a psychologist with experience in chronic pain treatment but who was not involved in PRP of the UMCG led this focus group. The second author (EB) assisted in all focus groups.

**Data analysis**
Interviews and focus groups were audio recorded and transcribed verbatim by the first and second authors (FW and EB). Transcripts were imported into ATLAS.ti, version 5.2, to analyze data. Thematic analysis was considered as the appropriate approach for identifying, analyzing and reporting factors related to dosage of PRP. Because of the lack of evidence regarding dosage of rehabilitation programs, especially PRP aimed at behavior change, it was not possible to provide a detailed theoretical framework. Initially, the first and second authors (FW and EB) conducted the inductive coding of the interviews and another independent researcher validated the codes. All codes and quotations were re-analyzed, merged, and renamed.

**Results**
**Participants**
In total, 13 patients were interviewed and 12 interviews were analyzed. Initially, five patients per center were planned, two dropped out because of logistics problems and one was excluded because the audio was impossible to transcribe. Seventeen rehabilitation professionals participated in the focus groups (RC1: 5; RC2: 5; RC3: 7). Different disciplines participated: occupational therapists (4), physiotherapists (3), movement teacher (1), psychologists (4), social workers (2) and physiatrists (3). The characteristics of participants are described in Table 1. Data saturation was reached for patient interviews and focus groups for rehabilitation professionals.
Table 1 Characteristics of participants and PRP dosage

<table>
<thead>
<tr>
<th></th>
<th>RC1 (n=4)</th>
<th>RC2 (n=4)</th>
<th>RC3 (n=4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patients</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age mean (SD)</td>
<td>42 (16)</td>
<td>37 (11)</td>
<td>53 (7)</td>
</tr>
<tr>
<td>Female %</td>
<td>75</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Duration of pain n</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 2 years</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2 to 5 years</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 5 years</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Initial PDI score mean (SD)</td>
<td>27</td>
<td>43.3 (14.2)</td>
<td>31.5 (16.4)</td>
</tr>
<tr>
<td>Missing n</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Rehabilitation professionals</strong></td>
<td>(n=5)</td>
<td>(n=5)</td>
<td>(n=7)</td>
</tr>
<tr>
<td>Age mean (SD)</td>
<td>41 (6)</td>
<td>43 (9)</td>
<td>39 (6)</td>
</tr>
<tr>
<td>Female %</td>
<td>60</td>
<td>80</td>
<td>71</td>
</tr>
<tr>
<td>Years of experience in PRP mean (SD)</td>
<td>7.6 (4.7)</td>
<td>9.0 (5.6)</td>
<td>7.4 (5.5)</td>
</tr>
<tr>
<td><strong>PRP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range in total duration (wks)</td>
<td>3</td>
<td>1 to 2</td>
<td>1 to 2</td>
</tr>
<tr>
<td>Assessment</td>
<td>12</td>
<td>3 to 36</td>
<td>8 to 20</td>
</tr>
<tr>
<td>Treatment</td>
<td>30</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Range in contact hours</td>
<td>120</td>
<td>10 to 150</td>
<td>30 to 70</td>
</tr>
</tbody>
</table>

PDI: Pain Disability index, PRP: Pain Rehabilitation Program; RC1: Adelante in Hoensbroek; RC2: Roessingh in Enschede, RC3: Center for Rehabilitation of the UMCG

Factors related to dosage

Different codes related to dosage of PRP were derived from the interviews and focus groups. Codes were categorized as patient-related factors, treatment-related factors or external factors. In addition, the codes were arranged as “shared” (indicating that they were mentioned by patients and rehabilitation professionals), “patients” (those that were mentioned by patients only), and “rehabilitation professionals” (those mentioned by rehabilitation professionals only) (table 2).
Table 2 Overview of codes per category

<table>
<thead>
<tr>
<th>Patient related factors</th>
<th>Shared factors</th>
<th>Factors from interviews with patients</th>
<th>Factors from focus groups with rehabilitation professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Case complexity</td>
<td>Assertiveness</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>General status</td>
<td>Relapse</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Insecurity</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Self-knowledge</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Motivation and ability to change behavior</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Expectancies</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Focus on yourself</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Acceptance of pain</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Self management</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Apply lessons learned into practice</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Team &amp; treatment related factors</td>
<td>Waiting time</td>
<td>Having time and opportunity to explore</td>
<td>Ehealth</td>
</tr>
<tr>
<td></td>
<td>Clarity about dosage and time plan</td>
<td>Saturation</td>
<td>Lack of evidence</td>
</tr>
<tr>
<td></td>
<td>Individually tailoring</td>
<td>Expertise of the team</td>
<td>Prediction of dosage of PRP</td>
</tr>
<tr>
<td></td>
<td>Shared decision making</td>
<td></td>
<td>Timing to finish PRP</td>
</tr>
<tr>
<td></td>
<td>Contact with rehabilitation professionals</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Interdisciplinary functioning</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Content of treatment</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Treatment goals</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Format of treatment</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>External factors</td>
<td>Direct costs</td>
<td>Support from environment</td>
<td>Travelling time</td>
</tr>
<tr>
<td></td>
<td>Indirect costs</td>
<td></td>
<td>Format of treatment</td>
</tr>
<tr>
<td></td>
<td>Investment for the future</td>
<td></td>
<td>Injury compensation</td>
</tr>
<tr>
<td></td>
<td>Personal and work factors</td>
<td></td>
<td>Test results or other treatments</td>
</tr>
</tbody>
</table>
Patient-related factors:

Shared factors:

Both patients and rehabilitation professionals mentioned case complexity of a patient as an important factor related to dosage of PRP as well as an important issue to take into account for indication of dosage of PRP. Both patients and rehabilitation professionals described characteristics that affect dosage of PRP, such as the general status (the level of physical condition or the degree of experienced disability), as well as the degree of insecurity, self-understanding, motivation and ability to change behavior, in addition to the expectancies patients have regarding treatment and treatment results. (P3): “It depends on what is going on with someone. Is he traumatized? Does he want to talk about it? Is he able to manage his problems? Does he have some self-understanding; does he know what his problem is?”

Both patients and rehabilitation professionals mentioned that PRP requires focusing on yourself. Patients and rehabilitation professionals involved with both high and low PRP dosages mentioned this focus as being related to dosage. A patient (P7) who underwent semi-inpatient PRP described: “The inpatient format of treatment was a good experience. It was quite intense, but actually very good because you really have to focus on yourself. If I would have been at home, I would have been distracted by all the things you have to do at home”. Focusing on oneself and on the treatment was also mentioned by a patient (P9) as motivation for preferring twice a week PRP instead of once a week: “Yes, two times a week, than you are really engaged with the treatment. Treatment only once a week…. well, then a whole week is in between….”. Rehabilitation professionals mentioned that being able or motivated to focus on oneself results in being motivated to follow the prescribed dosage of PRP. In some cases, for example (T13) “if a patient is overloaded”, being able to focus on oneself is a motivation for the choice of dosage and the format of PRP, such as inpatient PRP.

Acceptance of pain is related to the content of PRP because PRP is aimed at improving function, not reducing pain. Participants mentioned that PRP contributed to the acceptance of pain and that patients need time to go through this process of acceptance (P4): “I think the minimum duration of PRP should be 12 weeks. Especially because you experience a process of change in which you need time… time to make a start, because after those 12 weeks you still need to go on for yourself”.

If a patient is able to self-manage his pain and disabilities, participants suggest needing a lower dosage of PRP compared to a patient that is not able to. A rehabilitation professional in a focus group (T16) described: “Sometimes the minimum dosage of PRP is just one hour of intake. There are patients who just need some explanation to self manage their lives again. Being able to self manage pain is related to patient characteristics and behavior, the way people are, and whether
they are able to cope with their pain and disabilities themselves”. Patients also mentioned that if they are able to learn the principles of self-management during the process of PRP, they will ultimately need a lower dosage.

To apply lessons learned into practice, patients need time. This is a motivation of patients and rehabilitation professionals for dose variables such as total duration of PRP. (P9) “It is a process which requires time, 6 or 8 weeks... well, that’s quite short…. You need to be aware of things, you have to practice, adjust and adopt”. Needing time to apply lessons learned was additionally mentioned with regard to intensity (contact hours per week) and the reduction of intensity of contact hours during PRP. (T13): “At the end of the program, reducing the intensity of the program (fewer days or fewer contact hours per week), could support the process of putting the lessons learned into practice”.

Factors from interviews with patients:

Assertiveness was mentioned by patients with regard to the ability to stand up for themselves. This code is part of the goals and content of PRP and therefore patients mentioned this in relation to needing a lower dose when patients are already able to stand up for themselves. However, the code has also been reported in terms of “shared decision making” regarding dosage of PRP. (P8) “I had to learn to set boundaries. My day was fully planned and I used to do whatever I was told, which resulted in being exhausted at the end of the day”. Some patients reported that they needed support during times of relapse. (P2): “Everything was going well; I also felt it that way. However, I did not have the feeling that I was ready. I was afraid that I would relapse and that was why I needed some sessions”.

Factors from focus groups with rehabilitation professionals:

No other patient-related factors were reported by rehabilitation professionals only.

Treatment-related factors:

Shared factors:

Waiting time before and during treatment can influence, in a negative or positive way, the general status of a patient at the start of treatment, therefore having an influence on the dose of PRP. One patient (P1) described how she was able to turn the negative result of the waiting time into a positive action: “I had to wait for a long time before start of PRP. For me personally, it has led to an increase of pain and I became depressed. Consequently, I realized I had to do something and I started doing things on my own”. Most patients knew the total duration of PRP beforehand. Patients were satisfied with this clarity about dosage and time plan for PRP: (P4) “I compare it with knowing when to go on holidays: the last week at work you are really into holidays. With therapy, it is the same – you have a set goal to work on in time”. Nevertheless,
besides structured dosages providing this clarity, participants emphasized that the possibility of individually tailoring dosage to their needs is important. The individually tailored dosage is also related to shared decision-making. Patients and rehabilitation professionals attached value to shared decision-making in terms of PRP dosage. Good contact between patient and rehabilitation professionals supported therapy and therefore could reduce dosage: (P11): “You need to have a connection with your rehabilitation professionals; otherwise you will not make any progress”. However, too many changes in rehabilitation professionals during therapy can impede the connection, and therefore the process, because: “you have to tell your story again and again”. Related to this code, patients and rehabilitation professionals mentioned that good interdisciplinary functioning of the team supported effectiveness and therefore had a positive influence on PRP dosage. (P9): “I experienced that everyone knew who I was and what I needed. Everyone had read all reports and you did not need to tell the same stories”. Both patients and rehabilitation professionals made it clear that dosage of PRP was strongly related to the content of treatment, treatment goals and the format of treatment (e.g. inpatient versus outpatient).

Factors from interviews with patients:
Most patients had the experience of having time and opportunity during PRP to explore themselves and reach their goals. However, some patients also experienced this as a problem when the frequency was reduced from five days to two days per week. “Content became more intensive, everything was put together in two days and everything had to go faster…I had to hurry….”. Some patients denoted that towards the end of treatment, saturation of treatment content occurred. Therefore, they suggested that retrospectively, the dosage could have been reduced. (P2): “At a certain moment, you are done with it”. Patients stated that they trust the expertise of the team, both with regard to the content of treatment as a prediction of dosage and when decisions are made regarding the need to prolong or reduce PRP dosage. (P1): “I thought, well if that is the success of the therapy, then I am going to do it that way”. Rehabilitation professionals felt that they had to be experts in the field and should offer a high PRP quality. They related this quality and expertise to content and dosage of PRP.

Factors from focus groups with rehabilitation professionals:
Rehabilitation professionals suggested that different forms of ehealth could influence the dosage of PRP in the near future. “Patients can receive home assignments by mail after intake and before starting. Also aftercare can be supported by ehealth”. The focus groups revealed that there was a lack of evidence for the delivered doses of PRP. (T15) “These programs have been developed and adapted over the years based on skills acquired by the team, and developments such as group based treatments. This provides certain components in the program. This is what we have; we did not question ourselves if it is necessary for patients”. Additionally, with that lack of evidence, it is hard to predict dosage of PRP and to know when the timing is right to finish
PRP: “It is a difficult decision, at what point a patient is ready, and to reach consensus about this within the team and also with the patient.... “

External factors:

Shared factors:
Opinions regarding financial factors were of interest to the interviewer. The majority of participants stated that financial factors should not influence dosage of PRP. Patients could imagine that direct costs that patients have to pay themselves, like travel costs, could be of concern for some patients, although they did not experience that for themselves. (P11): It is regrettable if your own development depends on a few Euros extra per month. Direct costs of therapy and indirect costs, for example those related to returning to work, should not influence treatment because patients saw the costs of therapy as an investment in the future: (P9): Well, I think, on the longer term, if therapy works, you save money. It also applies for work: if my boss did not allow me time for this therapy, I might not yet be at work for 100%. Personal and work factors could have a positive or negative influence on the opportunity to receive therapy, and therefore could influence the satisfaction or choice for dosage of PRP. Some patients had to adjust their activities at home to their therapy: (P11): “On therapy days, I did not have the energy to do things at home. I was happy I made the choice to delegate the household tasks. The days at home I had time to do things with my children and husband”. A rehabilitation professional mentioned that sometimes, dosage of therapy can be adjusted to work or personal situations: “If patients are not able to organize the required dosage of two times a week and they have strong reasons, we sometimes decide to reduce frequency of treatment to once a week”.

Factors from interviews with patients:
Patients perceived support from environment (e.g. partner, colleagues, employer) as a positive factor because it helped with completing the program well and spending the time needed for the program. Lack of support could have a negative influence on the effects of the program because it could interfere with the process of therapy and lead to extension of PRP.

Factors from focus groups with rehabilitation professionals:
In the focus groups, rehabilitation professionals mentioned that travel time could influence the choice of the offered format of treatment, therefore influencing the dosage of PRP. “This center is a center of expertise regarding pain rehabilitation, so patients come from across the province, which makes outpatient rehabilitation not appropriate”. If the patient received injury compensation, it sometimes can impede progression in treatment. Therefore, rehabilitation professionals stated that in some cases, this could be a reason for not starting PRP or for stopping it prematurely. Test results or other treatments can also influence the dosage of PRP: “More often you see a sort of intermediate treatment if patients need other treatments, like EMDR
….. Or if test results are not available; waiting for these results causes delay” (EMDR is the abbreviation for Eye Movement Desensitization and Reprocessing; trauma treatment).

**Differences and similarities**

Interviews and focus groups were performed in three rehabilitation centers across the Netherlands. All centers offered multidisciplinary PRP for patients with CMP. Although dosages differed per center, factors were similar for all centers. All patients, in general, mentioned being **satisfied** with the received dosage, although some had suggestions for improvements related to dosage of PRP. Rehabilitation professionals reported that they supported the choices for current dosages of PRP; however they also had suggestions for improvements and implications for further research in order to eliminate the lack of evidence for an optimal dosage of PRP.

**Discussion**

As a contribution to gather knowledge about factors related to dosage of PRP, this study provides insight into perspectives of patients and rehabilitation professionals regarding dosage of PRP. Several general factors were considered relevant. Overall, all codes could be summarized into patient, treatment and external factors. Interestingly, despite differences in offered and received dosages of PRP, these factors were similar across centers with different PRP dosages. For example, in general, patients need clarity about dosages at the start of PRP. However, during PRP, they would like to have the opportunity to adapt the dosage to their individual needs, in consultation with their rehabilitation professionals. Patients and rehabilitation professionals mentioned that different personal characteristics, such as motivation and ability to change, general status of a patient, acceptance, and self-understanding, are related to dosage of PRP. However, similar “ability to change” can lead to 12 weeks, divided into treatment of six weeks, five times a week, eight hours a day, and six weeks, three times a week, eight hours a day of PRP in RC1, and 12 weeks, twice a week, 2.5 hours a day of PRP in RC3. Remarkably, no explicit reasons for these differences in choices of dosage were expressed during the focus groups.

Treatment outcome is caused by specific and aspecific factors of treatment. The content of PRP is a specific factor. Outcome, defined as “being satisfied” with treatment, is an example of an aspecific factor influencing the effect of treatment. The factors in this study regarding dosage of treatment seemed to be linked both to specific and aspecific factors. Ehealth and evidence regarding optimum dosage are specific factors which can contribute to better prediction of dosage and more efficient PRP. Content and format of treatment, and external factors (e.g. direct and indirect costs, investment in future, personal and work factors, support, test results) are specific factors influencing choices of, and satisfaction with dosage. These specific factors could
explain part of the differences in choices of the offered PRP dosage. However, the results of this study showed that also other, more aspecific factors seemed to be relevant although not specific related to dosage.

Some of these latter factors are similar to the common factors analyzed for explaining equivalence of various treatment approaches. In a systematic review five categories of common factors were analyzed in psychotherapy research: patient characteristics, therapist qualities, change processes, treatment structure and therapeutic relationships. Patient characteristics, such as expectations of patients with chronic pain, are related to outcomes of pain treatment. Rosenzweig already in 1934 described the effect of therapy characteristics with the introduction of the concept of common factors. In physical therapy care, a systematic review analyzing patient satisfaction concluded that characteristics of the therapist and the process of care were determinants of satisfaction of musculoskeletal physical therapy care. However, the association between satisfaction and treatment outcome was inconsistent. The category of change processes consists of, for example, the opportunity for catharsis, practice of new behaviors in a safe environment, provision of rationale and foster insight. These common factors are similar to the factors identified in this study: having time and opportunity to explore, applying lessons learned into practice, acceptance of pain, and self-management. Hush et al. also described the relationship between patient satisfaction and the process and organization of care. Timely and efficient treatment, adequate treatment frequency and follow up, patient involvement in decision making and individualized care were variables of the process of care, contributing to patient satisfaction. Variables contributing to patient satisfaction regarding the quality and efficiency of the organization of care were: good access to services, location, parking and approachable support staff. Communication, as part of the treatment structure, is concluded to be an important factor in healthcare. This is in line with the factors “clarity”, “shared decision-making” and “contact with rehabilitation professionals” mentioned by patients and professionals in this study. Communication based on patient-centered care strategies, is also associated with a stronger therapeutic relationship. In addition, studies have analyzed therapeutic relationships as important common factors that could be related to the effects of different healthcare treatments. All common factors were analyzed in different contexts of treatments and in the associations between different variables of treatment. Remarkably, however, in this study with similar contexts and aims of PRP, similar common factors led to different dosages of PRP. Therefore, it is a challenge to analyze the effect of the different components of PRP on outcome.

As a result of the lack of evidence regarding dosage of PRP, as mentioned in the focus groups, all rehabilitation centers made different choices regarding dosage. These choices were based on different motives related to content, dosage, and composition at the time of developing the multidisciplinary PRP. Over time, dosage was adapted because of changes in society, costs,
experiences, and new insights related to content or format of therapy. At present, no evidence can support the choices of dosage of PRP and therefore, rehabilitation professionals are not able to rationally choose optimum dosage of PRP.

**Strengths and limitations**

Analyzing factors associated with dosage using a qualitative method from the perspective of patients and rehabilitation professionals is considered a strength of this study because it is the first study providing an overview of factors related to dosage from patient and professionals’ perspectives. Taking into account three different rehabilitation centers with different dosages of PRP and similar content across the Netherlands is a strength because this provides insight into the differences and similarities regarding perspectives of dosage, resulting in similar factors regardless of variety in the offered dosage. Although this study was performed in three different centers, it focused solely on centers in the Netherlands, limiting generalization to PRPs performed in centers in other countries. In addition, the qualitative nature of this study resulted in perspectives of patients and rehabilitation professionals and cannot simply be generalized to all other groups of patients and rehabilitation professionals involved in PRPs. For example, we were not able to include more male patient participants. Although, the majority of patients in PRP are female, more male patient participants would have improved comparability to clinical practice.

**Recommendations**

This study is an initial exploration of the perspectives of patients and rehabilitation professionals regarding PRP dosage. It resulted in an overview of factors that can be used for future research and clinical practice regarding PRP dosage. The overview can contribute to further analysis of these factors and their relationship to dosage. Also, it can improve the awareness of these factors related to dosage of PRP in clinical practice. The results indicate that factors other than content and dosage of PRP were perceived as being important factors by patients and rehabilitation professionals. Clinical practice can be improved by taking these other factors into account as contributors to the overall success of PRP.

**Conclusion**

This study shows that, although dosage of PRP differed, patients and rehabilitation professionals generally mentioned the same factors related to characteristics of patients and treatment, as well as similar external factors. In absence of evidence, differences in choices of PRP dosage appear mainly based on historical grounds and clinical expertise. Therefore, research is needed to guide choices of optimum PRP dosage.
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Conflict of interest

We certify that no party having a direct interest in the results of the research supporting this article has or will confer a benefit on us or on any organization with which we are associated.
Chapter 5

References


