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Chapter 5

Effectiveness of an interactive postgraduate educational intervention with patient participation on the adherence to a physiotherapy guideline for hip and knee osteoarthritis: a randomised controlled trial

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Abstract

Purpose: To determine the effectiveness of an interactive educational intervention on a physiotherapy guideline for hip and knee osteoarthritis.

Method: Physiotherapists were randomly allocated to a 3-hour interactive educational course with the collaboration of 3 patient partners or no intervention. Assessments comprised questionnaires on adherence (score range 0-24), knowledge (score range 0-76), and barriers to use the guideline (score range 0-80). Assessments were conducted 1 week before the interactive course (T0) immediately after (T1), and 3 months thereafter (T2). Change scores were compared between the groups by means of Mann-Whitney U tests and linear mixed models.

Results: 284 of 4328 eligible PTs (7%) were included. The intervention (n=133) was significantly more effective than no intervention (n=151) concerning self-reported adherence and knowledge with mean differences in change scores (95% CI) at T1 and T2 being 1.4 (0.7-2.0) and 0.9 (0.2-1.7) for adherence and 6.8 (4.5-9.1) and 3.9 (1.7-6.2) for knowledge, (all p-values <0.005). In both groups the barrier score increased at T1 and decreased at T2, with a significantly larger increase at T1 and decrease at T2 in the intervention group (mean differences 3.1 (1.8-4.4) and 3.3 (0.5-6.1), respectively.

Conclusions: A short interactive educational course with patient participation on a PT guideline on hip and knee osteoarthritis showed a small to moderate positive effect on self-reported guideline adherence and knowledge, whereas for perceived barriers an advantage was only seen on the longer term.

Introduction

It is generally acknowledged that the introduction of evidence based guidelines and recommendations improve the quality of care. However, adherence of health care providers to clinical guidelines is often unsatisfactory, so that the use of active implementation strategies, is recommended. The institution of professional education specifically aimed at the use of guidelines is an example of such an active implementation strategy. A systematic review on the effect of educational programs to implement clinical practice guidelines for osteoarthritis (OA) and rheumatoid arthritis (RA) in primary care showed that in some of the available studies a decrease in the number of referrals to orthopaedics, improvement of the prescription of analgesics, or an increase in referrals to rehabilitation services was found. One of these educational programs concerned an interactive, multidisciplinary educational intervention to implement best practices for OA and RA management. It was recently evaluated among a larger group of professionals, with the conclusion of that study being that best practice scores improved significantly. So far, little is known about the effectiveness of interactive educational interventions for the implementation of clinical practice guidelines for OA management specifically in physiotherapy. Earlier research on interactive postgraduate education for physiotherapy guidelines on low back pain and whiplash showed that such an intervention was effective with respect to guideline adherence. In addition, in a randomized pilot study performed by our own group, an interactive, postgraduate educational course on an updated version of the Dutch physiotherapy guideline on hip and knee OA was found to be more effective in improving guideline adherence and knowledge than conventional education solely consisting of a lecture on the guideline and its recommendations. In contrast with all of the abovementioned educational interventions the latter educational course included the involvement of patients, as patient participation has been found to have a positive effect on student learning in several studies. Given the promising results regarding the effectiveness of interactive, postgraduate education with the collaboration of patient partners to enhance the uptake of the physiotherapy guideline for the management of hip and knee OA, a larger study was considered timely. The aim of the present study was therefore to determine, on the national level, the effectiveness of such an educational intervention.

Methods

Study design
The study concerned a randomized, controlled trial comparing the effectiveness of an interactive, postgraduate educational course with a waiting list condition (implying provision of the workshop 4 months later). In line with the conduct of similar studies on...
medical education by our group\textsuperscript{13,16} of the Medical Ethics Committee of the Leiden University Medical Center declared that this study was outside the remit of the Dutch law on medical research with human subjects (Wet op Medisch-Wetenschappelijk Onderzoek met mensen) and gave a written confirmation that no medical ethical approval nor written informed consent from participants was needed for this kind of study. The study was performed from May 2011 to January 2012 and conducted in accordance with the Handbook for Good Clinical Research Practice of the World Health Organization, and Declaration of Helsinki principles (http://www.wma.net/en/30publications/10policies/b3/). The principle investigator (WFP) was responsible for processing and analysing the data and was blinded for group assignment.

**Recruitment of physiotherapists**

The study was conducted across 6 national subdivisions of the Royal Dutch Society for Physiotherapy (KNGF) in the Netherlands (Amsterdam, Utrecht, Gelderland, Overijssel North and South, and Limburg), which all organize educational courses on a monthly basis. These courses are, on average, attended by 10% of the members according registration of the subdivisions of the KNGF. All physiotherapists who were a member of the national society and registered as working in primary or secondary care were invited to participate in the study via an e-mail newsletter. The invitation explained the purpose and methods of the study, the general contents of the interactive educational course and mentioned the dates the courses would be offered (four months’ time in between courses). Physiotherapists were informed that they were eligible for the study if (a) they were available at both dates; (b) were the only physiotherapist from one practice or institution to participate (to prevent contamination); and (c) were willing to fill in questionnaires at three different time points. If physiotherapists were not willing to participate they were asked to provide the reason(s) why. Participants were ensured that if they participated, their data would be stored and analysed anonymously. They were also given the assurance that they were free to discontinue their participation at any time point during the study.

**Characteristics of the physiotherapists**

The following characteristics were gathered at the first assessment: age, sex, work setting (primary or secondary care), years of work experience as physiotherapist, the number of patients with hip and or knee OA treated during the last three months (less or more than 10), and previous participation in educational courses concerning rheumatic and musculoskeletal conditions (yes/no).

**Randomization**

The randomization was carried out by members of the regional staff of the 6 participating subdivisions who were not involved in the courses or the study, to ensure blindness of the researchers for allocation. First all members of the subdivisions were listed and numbered. Then, by means of a random digit generator, each physiotherapists’ number was assigned the number 1 (interactive educational course) or 2 (waiting list group). Subsequently, the physiotherapist numbers and assigned interventions were connected to the physiotherapists’ names and addresses. The participating physiotherapists were then informed to which date they were assigned. All physiotherapists had access to the guideline through the website of the national society and had received a printed summary of the guideline, as part of the usual, passive dissemination strategy.

**Intervention**

The interactive, educational course was developed and evaluated in a previous pilot study.\textsuperscript{13} The course was guided by an expert physiotherapist, in cooperation with 3-4 patients and 3-4 physiotherapy teachers, who were instructed concerning their role during the course (see Appendix 1). A process of clinical reasoning was followed within the educational course according the Hypothesis-Oriented Algorithm for Clinicians (HOAC) II principles.\textsuperscript{17} The course lasted three hours and was offered free of charge.

**Control group**

The control group received the same educational course four months after the first course in every region.

**Outcome Measures**

After randomization, all participating physiotherapists received a hyperlink to an electronic questionnaire by e-mail one week before the first interactive, educational course (T0), immediately after the course (T1), and three months thereafter (T2). In addition, a satisfaction questionnaire was sent to the intervention group at T1 and to the control group after 4 months. At T1 and T2 two reminders were sent by e-mail (after three and five weeks) to those who did not respond. In both groups the participants received accreditation from the national professional organization for the educational course (4 Continuing Education points), provided after they had attended the educational course and completed all questionnaires.

**Measures of effectiveness**

The primary outcome was self-reported adherence with the recommendations in the guideline, while knowledge about the contents of the guideline and perceived barriers in using the guideline were the secondary outcomes. The questionnaire to assess the effect of the intervention consisted of three parts: self-reported adherence, knowledge, and perceived barriers to use the guideline. Additionally, participants were asked to score their satisfaction with the course after completing it. These outcome measures address the first three of four levels of training evaluation according to Kirkpatrick’s evaluation model for education\textsuperscript{18,19}, which includes (i) reaction
of students - what they thought and felt about the training: (2) learning - the resulting increase in knowledge or capability; (3) behaviour - extent of behaviour and capability improvement and implementation/application; (4) results - the effects on the business or environment resulting from the trainee's performance. Due to limited time and financial resources, the fourth 'results' level could not be studied within the scope of the project.

Adherence with the guideline
Self-reported adherence was measured using the 6 items that were found to discriminate between expert and general physiotherapists in an 18-item questionnaire developed in a previous study. The 6 selected items were: 1. Do you make an inventory of health related problems according the International Classification of Functioning, disability and health (ICF)?; 2. Do you assess the presence of hip and knee osteoarthritis-specific red flags?; 3. Do you evaluate the outcome of treatment with measurement instruments which are recommended in the guideline?; 4. Do you evaluate the outcome of treatment with a combination of a questionnaire and a performance based test?; 5. Do you evaluate the outcome of treatment with the Patient Specific Complaint list?; 6. Do you evaluate the outcome of treatment with the Timed Up and Go test? The score range of each question was 0-4 (0=never to 4 = always), yielding a total score range of the self-reported adherence questionnaire of 0-24, with a higher score meaning greater adherence.

Knowledge
Knowledge on the contents of the guideline was measured by means of a self-developed knowledge questionnaire, with 19 items reflecting the content of the guideline recommendations. The score range of each question was 0-4, yielding a total score range of 0-76, with a higher score meaning greater knowledge. As there was only one week between the first two assessments a learning effect was anticipated. Therefore, two versions were developed, using the same constructs and addressing similar topics from the guideline. These versions were pilot-tested among 15 physiotherapists, with no statistically significantly different scores between them (mean scores 5.4.2 (SD 8.1) and 5.3.9 (SD 7.3) (p=0.86, paired t-test)), with Pearson's correlation coefficient being 0.78 (p<0.001). Version A was used at T0 and T2, version B at T1.

Barriers for using the guideline
Barriers for using the guideline were measured by a self-developed questionnaire, based on a questionnaire developed to identify perceived barriers for implementing the Dutch physiotherapy COPD clinical practice guideline. The questionnaire comprised 20 items on barriers in using the guideline (see Appendix 2), divided over 5 different dimensions: Design, Content and Feasibility (7 items); Change in working method (2 items); Knowledge and Skills (4 items); Applicability (4 items); Social environment (3 items). Each item was scored on a 5-point Likert scale, ranging from 0 = totally agree to 4 = totally disagree. The total score range was 0-80. For items 5, 8-15, and 18-20 the reversed scores were used, in order to achieve a total score in which a higher score means more perceived barriers in using the guideline.

Satisfaction
A self-developed satisfaction survey was administered directly after the educational course in both groups and included 3 questions, all rated on a 0-10 point scale (higher score means more satisfaction): 1. "How do you rate the content of the educational course?"; 2. "How do you rate the gained knowledge?"; and 3. "How do you rate the applicability of the educational course to your daily practice?".

Data analysis
Baseline characteristics of the physiotherapists in the intervention and control groups were compared by means of Mann-Whitney U tests or Chi-Square tests, where appropriate. Mean changes from baseline of the self-reported adherence, knowledge and barriers questionnaire scores within the two groups at T1 and T2 were compared with 95% confidence interval, with their statistical significance being tested with the Wilcoxon signed rank test. Differences of these change scores between the groups were compared by means of the Mann-Whitney U test. In addition, an intention-to-treat analysis using all available data and time points was employed by means of a linear mixed model. The difference between the groups over time of each of the three outcome measures (adherence, knowledge, and barriers) was defined as the interaction between time and the nature of group assignment (intervention or control), with the analysis for each outcome measure being adjusted for the other two outcome measures. For the barriers questionnaire, all within and between group analyses were repeated for each of the 5 dimensions separately, with adjustments in the linear mixed model being made for the total adherence and knowledge scores. Finally, the Mann-Whitney U test was used to compare the satisfaction scores of physiotherapists who took part in the initial educational course (intervention group) or in the same course organized after the RCT was completed (control group). The level of statistical significance was set at p < 0.05 for all analyses. The power calculation was based on the previous pilot study, demonstrating an improvement of the score of the 6 items of the adherence questionnaire (theoretical score range 0-24) from 15 (SD 7) to 18 in the interactive educational intervention group. Assuming no improvement in the control group, an alpha of 0.05 and a power of 0.80, 87 participants per group were considered necessary to detect a difference of 3 points. Taking in account a drop out of 20%, a minimum of 109 physiotherapists per group would be needed.
Results

Response and dropouts

Figure 1 shows the recruitment and randomization of physiotherapists. In total, 9004 physiotherapists working in 4328 primary practices or institutes in the six regions were invited. As only one physiotherapist per practice could participate, in total 4328 physiotherapists were eligible to participate. Three-hundred and nineteen of them (7.4% of 4328) met the inclusion criteria and subscribed to the study.

Twenty-seven of the 319 physiotherapists did not show up at the first educational course, while 8 physiotherapists of the control group withdrew from the study before filling in any questionnaire. Of the remaining 284 physiotherapists who filled in the first questionnaire, 237 (83%) completed both two other assessments. Ninety-nine physiotherapists responded to the question why they did not want to participate. Main reasons were lack of time and not being available on both dates (figure 1).

Baseline characteristics of participating physiotherapists

Baseline sociodemographic characteristics of the participants are shown in table 1, with no statistically significant differences between the groups (results not shown).

Self-reported adherence with process indicators

Table 2 shows that compared to baseline the mean adherence score in both groups improved directly after the educational course at T1 and 3 months thereafter. The improvements at T1 and T2 in the intervention group (both p-values <0.001) and at T2 in the interactive educational intervention group (N=133) compared to control group (N=151).

Table 1 Baseline characteristics of 384 physiotherapists participating in a randomized comparison of an interactive educational intervention on a practice guideline for hip and knee osteoarthritis and a waiting list condition

<table>
<thead>
<tr>
<th></th>
<th>Interactive educational intervention group (N=133)</th>
<th>Control group (N=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years (mean, SD)</td>
<td>45.7 (10.6)</td>
<td>45.4 (11.9)</td>
</tr>
<tr>
<td>Gender, Males (%)</td>
<td>83 (62.4%)</td>
<td>93 (59.0%)</td>
</tr>
<tr>
<td>Worksetting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary care</td>
<td>102 (76.7%)</td>
<td>124 (82.1%)</td>
</tr>
<tr>
<td>Hospital/ rehabilitation center/ nursing home</td>
<td>31 (23.3%)</td>
<td>27 (17.9%)</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-10 years</td>
<td>27 (20.5%)</td>
<td>41 (27.1%)</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>106 (79.7%)</td>
<td>110 (72.9%)</td>
</tr>
<tr>
<td>Number of patients with hip and knee osteoarthritis treated past three months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-10</td>
<td>124 (93.2%)</td>
<td>142 (94.0%)</td>
</tr>
<tr>
<td>More than 10</td>
<td>7 (6.8%)</td>
<td>9 (6.0%)</td>
</tr>
<tr>
<td>Training in OA, yes (%)</td>
<td>35 (26.3%)</td>
<td>46 (30.5%)</td>
</tr>
</tbody>
</table>
in the control group (p-value <0.001) reached statistical significance. The improvement was however statistically significantly greater in the intervention group than in the control group at both T1 and T2 (p-value <0.001 and 0.004, respectively).

When taking into account all time points with the linear mixed model, a statistically significant difference of the change in adherence score over time was seen in the intervention group as compared to the control group (p<0.006).

**Knowledge**

The mean knowledge score increased in both groups, with the improvement from baseline in the intervention group reaching statistical significance at both T1 and T2 (both p-values <0.001) (table 2). The difference in improvement was statistically significantly greater in the intervention group than in the control group at both T1 and T2 (p-value <0.001 and 0.004, respectively).

Over all time points, the linear mixed model showed a statistically greater improvement of the knowledge score in the intervention group compared to the control group (p<0.001).

**Perceived barriers for using the guideline**

The mean score of the ‘Barriers for using the guideline questionnaire’ increased significantly at T1 in the intervention group compared to baseline (p-value <0.001), whereas the increase in the control group did not reach statistical significance (p-value 0.213) (table 2). The difference between the change scores of the perceived barrier score reached statistical significance in favour of the control group at T1 (p-value <0.001) and in favour of the intervention group at T2 (p-value 0.010). Taking into account all time points, the difference between the changes of the perceived barrier scores was statistically significant (p<0.001) greater in favour of the intervention group.

Analyses of the 5 dimensions of the barriers questionnaire separately showed that the initial increase of perceived barriers was seen in both groups for all dimensions, with the increase being significantly greater at T1 in the intervention group compared to the control group (p<0.001). The mean knowledge score increased in both groups, with the improvement from baseline in the intervention group reaching statistical significance at both T1 and T2 (p-values <0.001 and 0.004, respectively). The difference in improvement was statistically significantly greater in the intervention group than in the control group at both T1 and T2 (p-value <0.001 and 0.004, respectively).

**Satisfaction**

One hundred fifteen (86%) and 120 (79%) physiotherapists completed the satisfaction questionnaire after the course in the intervention and control groups, respectively. Overall, the results were favourable and did not differ between the two groups (Increase in knowledge: 6.8 (SD 0.48) and 6.9 (SD 0.18); Content of the educational course: 7.5 (SD 0.32) and 7.4 (SD 0.31); and expected applicability for daily clinical practice: 7.3 (SD 0.33) and 7.4 (SD 0.46), respectively).
Discussion

This study showed that an interactive, postgraduate educational course with cooperation of patients and following a process of clinical reasoning was an effective intervention to enhance self-reported knowledge and usage regarding a Dutch physiotherapy guideline on hip and knee OA. An effect on perceived barriers was only seen on the longer term. The overall satisfaction with the intervention was good.

The results of our study are in line with a systematic review on the effect of educational interventions to enhance implementation of practice guidelines for arthritis management in primary care, in particular with respect to the effectiveness of interactive workshops. Our results are best comparable to two Canadian studies on an interactive, multidisciplinary educational intervention to implement best practices for OA and RA management, of which the first was included in the review. In that study, an interactive, educational intervention had a positive effect on referrals to The Arthritis Society Therapy program, the provision of relevant information, health professionals’ confidence in their examination skills and perceived barriers to the use of the guideline.

In the present study, an interactive, postgraduate educational course had a positive effect on referrals to The Arthritis Society Therapy program, the provision of relevant information, health professionals’ confidence in their examination skills and perceived barriers to the use of the guideline. A larger, observational study with the same intervention as in the present study showed that interactive postgraduate education proved to be effective regarding adherence with physiotherapy guidelines on low back pain and whiplash. In both studies, audits of physiotherapists’ records were used to assess adherence, whereas in the present study questionnaires were used. The study from Rebeck et al also assessed the effect on knowledge, but neither of the previous studies evaluated perceived barriers in using the guideline.

Overall, in comparison with all of the abovementioned interactive educational interventions, the duration of the intervention used in the present study was shorter. It is therefore noteworthy that nevertheless a significant effect on self-reported adherence, knowledge and, on the longer term, on perceived barriers was seen. It remains unclear to what extent the positive effect can probably be attributed to the collaboration with patient partners. Patient participation was found to have a positive effect on medical student learning in several studies, and could have an added value for instance to improve physical examination skills.

In general, the effect regarding the primary outcome self-reported adherence with recommendations in the guideline was significant, yet relatively small. This may be related to the short duration without any follow up session of the educational course. Another explanation could be related to the instrument to measure adherence. The six selected indicators in that instrument cover only a selection of topics that were part of the educational course. It is noteworthy that some significant improvements were seen in the control group. It remains unclear to what extent the repeated completion of questionnaires contributed to this effect in the control group. Moreover, the effect of exposure to the disseminated guideline in daily practice was maybe underestimated, which made the contrast between groups smaller.

The increase of perceived barriers to the use of the guideline directly following the course in the intervention group seems counterintuitive and remains to be explained. It could probably be related to the fact that the time frame was too short to have assessed and treated patients with hip or knee OA, which made the physiotherapists feel less confident to actually apply the guideline recommendations in daily practice.

Regarding the evaluation of educational courses, there are various theoretical frameworks available. Barr et al described a framework using the Kirkpatrick model as basis, yet adding “Modifications of perceptions and attitudes” to the learning level, and “Change in organizational practice” and “Benefits to patients/clients” to the results level. Moore et al proposed a model with 6 levels of educational outcomes, including participation, satisfaction, learning, performance, patient health and community health. Given the limited scope of the present study, the Kirkpatrick’s model matched the outcome measures best.

This study has a number of limitations. First, recruitment took place only among members of the regional organizations of physiotherapists, constituting about 80% of all members of the Royal Dutch Society of Physiotherapy. Another potential source of selection bias could be that only 7% of potentially eligible physiotherapists participated in the study. The attendance rate was however only slightly lower than that of other non-compulsory educational courses for physiotherapists. This overall low participation rate could lead to the consideration of the professional organization to include educational courses on guidelines in the compulsory education for physiotherapists, of course with free choice from several guidelines on different diagnoses. Moreover, it indicates that research into alternative modes of delivery of postgraduate educational courses is needed. As lack of time and not being available at the specific dates on which the course was delivered were the most common reasons for non-participation, the development of online courses is an attractive alternative option. The observation that the compliance with the online questionnaires was very high in the present study substantiates the willingness of physiotherapists to participate in e-learning. However, it should be noted that with this...
mode of delivery personal interaction with patients and teachers cannot be provided. Regarding the measurement instruments used, it is debatable whether process indicators are suitable enough to measure adherence to guideline recommendations. In addition, the questionnaires to assess adherence and knowledge had been previously tested with respect to their validity13,20, whereas the questionnaire on perceived barriers had not been used before. As the questionnaire on adherence was based on self-report, it cannot be ruled out that socially desired answers were given. Although measures of adherence based on self-report have been used in other studies10,11 as well, data from (electronic) patient records and/or interviews could probably yield additional information. Ideally, information is gathered from different sources, so that actual change in behaviour can be measured, however this is time-consuming and costly, and was therefore not feasible within the context of the present study.

In conclusion, an interactive educational course with cooperation of patient partners seems to be an effective strategy to improve guideline adherence and knowledge but also, on the longer term, to decrease barriers to use the guideline in daily clinical practice. Education for professionals is just one implementation strategy to improve adherence with guidelines. To further improve guideline adherence other implementation strategies, such as interventions focussing on change in behaviour of professionals, or strategies aiming at the level of the patient, the health care organization and/or social context, should be developed and evaluated.

References

15. Oswald AE, Bell MJ, Wiseman J, Snell L. The impact of trained patient educators onnus-
Interactive postgraduate educational course for implementing the Dutch physiotherapy practice guideline for hip and knee osteoarthritis

1. Registration  60 min.
2. Oral presentation regarding the content of the guideline  30 min.
3. Workshop with the participation of patient partners using topics in the guideline  75 min.
4. Break  15 min.
5. Short oral presentation and practical session regarding functional exercises  30 min.
6. Plenary discussion with two fictional cases and questions concerning the guideline  45 min.
7. Evaluation and closing  15 min.
Total 270 min.

Ad 1. Registration
Participants register for the course in order to receive 4 Continuous Educational points. They receive the course material containing the guideline, instructions for the workshop, measurement instruments information and handouts of the presentations regarding the guideline, functional exercises and the two fictional cases, and an evaluation form.

Ad 2. Oral presentation regarding the content of the guideline
The content of the guideline is presented by the first author of the guideline and expert in the treatment of patients with hip and knee osteoarthritis. Key aspects:
- Introduction, including comparisons with the former version of the guideline; what’s new?
- Short overview regarding risk factors for the development and progression of the disease, and current state of the art regarding (multidisciplinary) treatment.
- Diagnostic Process: International Classification of Functioning, Disability and Health (ICF), red flags, measurement instruments; all linked to the recommendations in the guideline.
- Therapeutic Process: setting of Specific Measureable Acceptable Realistic Time lined (SMART) treatment goals, recommended treatment modalities.

Ad 3. Workshop with the participation of patient partners using topics in the guideline and following a process of clinical reasoning
3-4 Subgroups of 10-12 physiotherapists are formed. Each subgroup is guided by a physiotherapist teacher. The expert physiotherapists are supervising all the groups.
Requirements for the physiotherapist teachers should be: to treat patients with hip and knee OA at least every week and being familiar with the revised guideline. They should work in the same region where the educational course takes place and receive one and a half hour instructions about the content of the workshop. They learn how to guide the participants in the process of clinical reasoning, receiving oral and written instruction and should study the content of the guideline thoroughly.
Each group is accompanied by a patient partner who presents his/her problems based on the hip or knee osteoarthritis. The patient is invited by the physiotherapist teacher, who is treating the patient, if (s)he was willing to participate in the educational course. The patient is instructed about the content of the course and his or her role in the course. He or she is asked to fill in a questionnaire regarding physical functioning and specific limited activities due to the osteoarthritis.
The following steps are taken in the workshop:
1. The patients present themselves to the participating physiotherapists with their complaints.
2. Additional questions are asked by one of the physiotherapists to gather all the necessary information. It is important that information is gathered regarding red flags, risk factors and all the domains of the ICF.
3. The other physiotherapists give constructive feedback on the way information is gathered.

References

Interactive postgraduate educational course for the implementing the Dutch physiotherapy practice guideline for hip and knee osteoarthritis

The following steps are taken in the workshop:
1. The patients present themselves to the participating physiotherapists with their complaints.
2. Additional questions are asked by one of the physiotherapists to gather all the necessary information. It is important that information is gathered regarding red flags, risk factors and all the domains of the ICF.
3. The other physiotherapists give constructive feedback on the way information is gathered.
4. The group of physiotherapists decide which of the recommended questionnaires could be used to support the diagnostic process and select one of them.
5. One of the physiotherapists discusses the chosen questionnaire with the patient, who has filled in the questionnaire in advance.
6. Subsequently constructive feedback is given on the discussion.
7. Additional information is given by the physiotherapist teacher regarding the examination of the patient. Subsequently a recommended measurement instrument is chosen to support the findings in the examination.
8. Another physiotherapist uses the measurement instrument and discusses its results afterwards with the patient.
9. Constructive feedback is given to the way the measurement instrument is used and interpreted.
10. All findings are summarized by one physiotherapist and discussed with the patient. Subsequently treatment goals, treatment plan and strategy are discussed with the patient.
11. The final constructive feedback is given by the other physiotherapists in the group and the goals, plan and strategy is discussed with the group and the patient.

Ad 7. Evaluation and Closing

Finally all participants will be thanked for their active participation especially the patients partners. The physiotherapists are invited to fill in an evaluation form concerning the educational course and the organization.

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### Appendix 2 Questionnaire on barriers in using the Dutch physiotherapy guideline in hip and knee osteoarthritis

#### Design, Content and Feasibility

1. The guideline is applicable in daily clinical practice.
2. The guideline gives the opportunity to make your own decisions regarding initial assessment, treatment and evaluation.
3. The guideline gives the opportunity to work in a patient-centered way.
4. The guideline is supporting the improvement of my knowledge regarding hip and knee osteoarthritis.
5. Some contents of the guideline is incorrect.
6. The lay-out of the guideline facilitates its usage in daily clinical practice.
7. The recommendations in the guideline are clear and understandable.

#### Change in working method

8. In general I feel resistance towards working according to guidelines.
9. The guideline does not fit my working methods and my daily clinical practice.

#### Knowledge and Skills

10. I would like to know more about the guideline before I decide to apply it in daily clinical practice.
11. I did not read the guideline sufficiently to remember any of its contents.
12. I am lacking the knowledge to apply the guideline in daily clinical practice.
13. I am lacking the skills to apply the guideline in daily clinical practice.

#### Applicability

14. Working according to the guideline is too time-consuming.
15. Working according to the guideline should be financially rewarded.
16. The guideline is applicable to patients with a lower social economic status.
17. The guideline is applicable to patients with a cultural background other than Dutch.

#### Social environment

18. My colleagues in physiotherapy are not cooperative in applying the guideline in daily clinical practice.
19. The management of my practice is not collaborative regarding the application of the guideline in daily clinical practice.
20. The general practitioners with whom I work together are not collaborative regarding the application of the guideline in daily clinical practice.

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#### Social environment

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20. The general practitioners with whom I work together are not collaborative regarding the application of the guideline in daily clinical practice.