Adherence of geriatric physiotherapists to the Coach2Move protocol and their opinion on this strategy

Masterthesis Physiotherapy Sciences Program in Clinical Health Sciences Utrecht University

A.J.W. van de Sant
3328716
4 July 2014
Drs. N. de Vries-Farrouh, Prof. dr. R. Nijhuis- van
der Sanden
IQ Healthcare, Nijmegen, The Netherlands
Dr. J. van der Net
3792

"ONDERGETEKENDE

Arjan Johannes Wilhelmus van de Sant,

bevestigt hierbij dat de onderhavige verhandeling mag worden geraadpleegd en vrij mag worden gefotokopieerd. Bij het citeren moet steeds de titel en de auteur van de verhandeling worden vermeld."

Examiner

Dr. M.F. Pisters

Assessors:

Drs. N. de Vries-Farrouh Dr. M.F. Pisters

Masterthesis, Physiotherapy Sciences, Program in Clinical Health Sciences, Utrecht University, Utrecht, 2014

SAMENVATTING

Doelstelling

Het stimuleren van ouderen in het hebben van een actieve leefstijl is veelal een belangrijk onderdeel van de fysiotherapie. De Coach2Move strategie is een nieuwe strategie voor de behandeling van ouderen met, of die het risico hebben voor, mobiliteitsproblemen, om fysiek actief te zijn. Bij implementatie van een nieuwe interventie is therapietrouw vaak een probleem. Dit onderzoek bepaalt de mate van therapietrouw van geriatriefysiotherapeuten aan de Coach2Move strategie en de relatie met de patiënt uitkomst. Verder worden de onderliggende factoren van de therapietrouw en de ervaring van de therapeuten met de Coach2Move strategie onderzocht.

Methode

Een *mixed methods* design is gebruikt. Waar de kwantitatieve resultaten verder uitgelegd worden door de kwalitatieve data.

Resultaten

De gemiddelde therapietrouw van een geriatriefysiotherapeut aan de Coach2Move strategie was 77 procent (±11 SD). Er is geen correlatie gevonden tussen therapietrouwheid van de therapeuten en de patiënt uitkomst, fysieke activiteit. De algemene ervaring met de Coach2move strategie vanuit therapeutisch perspectief was goed. De ervaring van de therapeuten en hun visie op fysiotherapie lijkt invloed te hebben op hun mate van therapietrouw.

Conclusie

De geriatrie fysiotherapeuten in de Coach2Move studie zijn therapietrouw aan de strategie. Er is geen correlatie gevonden tussen therapietrouw en patiënt uitkomst, fysieke activiteit. De therapeuten waarderen de Coach2Move strategie, het helpt hen om ouderen te motiveren en activeren. Factoren die therapietrouwheid beïnvloeden zijn organisatorische, patiënt en therapeuten factoren.

Klinische relevantie

De fysiotherapeuten in de Coach2Move studie vinden de strategie behulpzaam om ouderen te motiveren en activeren.

ABSTRACT

Aim

Stimulating elderly in having an active lifestyle is often an important part of the physiotherapeutic intervention. The Coach2Move strategy is a new strategy for the physiotherapy treatment of elderly with or at risk of mobility problems focusing on increasing physical activity. In implementation of a new intervention adherence is often one of the problems. This study assesses the therapeutic adherence to the Coach2Move strategy and the relation with the patient outcome. It also explains the adherence influencing factors and explores the experience of the therapist with the Coach2move strategy. *Methods*

An explanatory sequential mixed methods design was used, where quantitative results were further explained by qualitative data.

The quantitative phase consisted of determining adherence of geriatric physiotherapist by assessment of the electronic patient files with performance indicators and correlation with patient outcome on physical activity.

The qualitative phase, consisted of in-depth semi-structured interviews using a grounded theory approach to explain the difference in adherence and exploring the therapeutic experience with the coach2Move strategy.

Results

Adherence to the Coach2Move strategy was 77 percent(±11 SD). No correlation was found between physiotherapist adherence and patient outcome on physical activity. The overall experience with the Coach2Move strategy was good.

The therapeutic experience with the Coach2Move strategy and their vision on physiotherapy seems to influence the adherence.

Conclusion

The geriatric physiotherapists in the Coach2Move study are high adherent to the strategy. There is no correlation found between therapeutic adherence and patient outcome. The therapists value the Coach2Move strategy in the treatment of elderly, it helps them to motivate and activate elderly. Adherence is influenced by organizational, patient and therapeutic factors.

Clinical Relevance

The therapists in the Coach2move trial find the strategy very useful to motivate and activate elderly.

Keywords: implementation, adherence, elderly, physiotherapy

INTRODUCTION

Being physically active has a positive influence on autonomy, physical functioning and in prevention and recovery of many diseases amongst elderly.¹⁻⁴ Therefore, increasing physical activity and stimulating an active lifestyle can contribute to a better healthcare in older adults.

The Coach2Move strategy is a new physiotherapy strategy, which aimed at increasing physical activity of older adults with or at risk of mobility problems and was developed based on literature studies and expert consultation.⁵ The Coach2Move strategy is based on the clinical decision making model: Hypothesis Oriented Algorithm for Clinicians (HOAC-II) and the International Classification of Functioning, Disability and Health (ICF).⁵ The strategy focuses on patient identified goals, self management, and enablement instead of disability. The effectiveness of the Coach2Move strategy on physical activity, frailty, mobility and quality of life is being tested in a current ongoing randomized clinical trial (RCT) in which the coach2move strategy is compared with usual care physiotherapy.⁵

Implementation of a new intervention or guideline is often difficult.⁶⁻¹⁰ It is therefore, important to find out to what extent the participating geriatric physiotherapists (GPTs) in the RCT have followed the Coach2Move strategy. The Coach2Move strategy is being compared with usual care physiotherapy and a lack of adherence to the Coach2Move strategy will reduce the contrast between the two interventions and may therefore negatively influence the results to be found in the RCT. Insight in adherence can be provided by intervention specific performance indicators.^{11,12} Therefore, performance indicators to measure adherence to the Coach2Move strategy have been developed in a previous study. (Unpublished observations, Boerboom et al, 2013)

It is hypothesized that by using the Coach2Move strategy, older adults become more physically active as compared to usual care physiotherapy. High adherence to the Coach2Move strategy may even result in a larger improvement of physical activity than low adherence. However, the relation between therapeutic adherence and patient outcome, has scarcely been demonstrated in physiotherapy studies.^{7,13} In this study, the adherence of the GPTs to the Coach2Move strategy will be related to patient improvement on the level of physical activity to research whether or not patient outcome can be explained by GPT adherence.

For a successful implementation of an intervention, knowledge of the barriers and facilitating factors of the intervention and stakeholders is necessary.¹⁴ Therefore it is important to be aware of the factors which influence the GPTs adherence to the Coach2Move strategy.¹⁵ During the RCT, the researchers of the RCT recognized that some GPTs use the Coach2Move strategy easily and others have difficulties in applying the strategy. For future implementation of the Coach2Move strategy, it would be very important to know what factors influence adherence.

Hence, the objectives of the current study are: 1. to investigate GPTs adherence and its relation to patients level of physical activity, 2. to explain the GPTs adherence to the Coach2move strategy and to explore their experience with this strategy.

METHODS

Design

An explanatory sequential mixed methods design was used, where quantitative results were further explained by qualitative data.¹⁶ All data were collected within a currently operating randomized controlled trial on the effect of the Coach2Move strategy on physical activity.⁵ This study consisted of two phases. In phase 1: Quantitative data of therapeutic adherence. In phase 2, qualitative data was collected by means of interviews in order to explore factors that influence adherence of GPT to the Coach2Move strategy (figure 1).



Figure 1. study process

EPR= electronic patient record; LAPAQ= LASA Physical Activity Questionnaire; GPT=geriatric physiotherapist C2M= Coach2Move strategy

Intervention

The study protocol of the RCT provides a comprehensive description of the Coach2Move strategy.⁵ Table 1. shows the innovative elements of the Coach2Move strategy.⁵

Table 1. The innovative elements of the Coach2Move strategy

500	ategy
	The innovative elements of the Coach2Move strategy
1.	Use of motivational interviewing: exploring questions for help and barriers and facilitators in relation to physical activity.
2.	Use of an algorithm (HOAC-II*a) that emphasizes an extensive intake and supports clinical reasoning in order to set priorities.
3.	Shared decision making on meaningful treatment goals to increase physical activity.
4.	Coaching on self-management to increase long-term results.

5.	Focusing on meaningful activities at home with help from family,
	friends or professionals.
6.	
	Working according three patient-tailored intervention profiles with
	a predefined number of sessions.

*a HOAC, Hypothesis Oriented Algorithm for Clinicians

Phase 1

Samples

The Geriatriedesk Electronic Patient Records (EPRs) that were kept during the RCT were used as samples in this part of the study. Geriatriedesk is an EPR developed especially for the Coach2Move study. These EPRs were analyzed using previously developed performance indicators (Unpublished observations, Boerboom et al, 2013). All EPRs were included. Treatment episodes in which more than one therapist was involved were excluded, because it would be impossible to score the adherence of one therapist if the patient was treated by more than one.

Study parameters

LASA Physical Activity Questionnaire (LAPAQ)

Physical activity was measured using the LASA Physical Activity Questionnaire (LAPAQ). This is a reliable and valid instrument developed specifically for elderly.¹⁷ The outcome of the LAPAQ is the amount of physical activity in minutes per day. The LAPAQ was used in the RCT at baseline (t0), at 3 months (t1) and at 6 months (t2).

Adherence

Performance indicators which measure the GPTs adherence to the Coach2Move strategy were developed in a pilot study. The inter-rater reliability was found to be high, with an ICC of 0.848 (Unpublished observations, Boerboom et al, 2013). These performance indicators measure an overall adherence, which consists of different phases of the therapeutic process: request for help, anamnesis, diagnostics, analysis, treatment plan, treatment, and evaluation (See appendix 1).

Each indicator consists of multiple items, with a maximum item score of 2 points. The sum of the indicator items divided by the maximum score is the indicator score. This score will be converted into an adherence percentage, which forms the adherence score.

Procedures

All EPRs were scored by two researchers (AS and NV). The results were compared and differences in scoring were discussed. Additional data extracted from the EPRs was: gender, age, complaint, co-morbidity, which GPT treaded the patient, expected profile Coach2Move, real profile Coach2Move and number of treatment sessions.

Data analysis

The descriptive demographic data was used to describe the sample. Correlation between difference score of LAPAQ t2-t0, LAPAQt1-t0, LAPAQ t1-t2 and the adherence score was assessed using Pearson's correlation. All statistical analyses of the quantitative study were performed using SPSS 20 for Windows.

Phase 2

Participants

Interviews were held with GPTs that participated in the RCT. GPTs that treated three or more patients, during the RCT, were included. To include only GPTs that have sufficient experience and knowledge on the implementation of the Coach2Move strategy in daily practice.

Setting

The data collection consisted of in-depth semi-structured interviews and all other data collected in phase 1. The interviews took place at the physiotherapy practice of the GPTs in March-May of 2014. Each interview lasted approximately 45 minutes and was held by one researcher (AS).

Sample size

A purposive sample consisting of all participating GPTs (n=13) from the RCT was used for the qualitative study. A sample size of 12 is considered appropriate for reaching saturation in a grounded theory analysis¹⁸

Procedures

Interview preparation

Adherence scores as determined in phase 1 were used in preparation of the interviews. An interview protocol was developed for the in-depth semi-structured interviews. This protocol was developed using the key elements of the Coach2Move strategy and the salient features obscured in phase 1. (Appendix 2) The interview protocol was discussed in the research group.

Interview procedure

The participants were informed by email on the aim of the study. They were subsequently asked to participate by telephone. Informed consent was signed prior to the interview.

To ensure a complete case analysis the data collection started with the GPTs who completed all the patient treatments. The data collection was stopped if saturation was reached. Saturation was reached if no relevant data emerged in at least 2 interviews in a row.¹⁹ New

information brought up by a participant was discussed in follow-up interviews. Every interview the researcher (AS) discussed the results of the interview analysis with a fellow researcher (NV) to adjust the interview protocol.

Data analysis

Each interview was audio taped and transcribed verbatim. The interviews were analyzed using QRS Nvivo 10 for Windows. A grounded theory approach was used to analyse the data. The first phase of data analysis started with an open coding. The open coding was used to identify emergent themes or categories in the interview transcript. These categories were constantly compared within and between the different interview transcripts. Besides the interview transcripts, the adherence scores as well as the EPR of the RCT were used to identify and develop the different categories or themes. All interviews were analyzed by 2 researchers (AS and NV) to enhance triangulation. By analysing the different categories and subcategories, the causal conditions in the results were explored. Finally, the selective coding presented the connections between the categories and explains the causal conditions and factors of adherence to the Coach2Move strategy by a GPT. Results of both the open and selective coding phases were discussed. Validation was enhanced by member check, all of the participants were asked to verify the interview transcript.

RESULTS

Phase 1

From the 61 patients who were treated with the Coach2Move strategy during the RCT 58 EPRs were included. Three patients were treated by two physiotherapists, these files were excluded. Demographic and clinical characteristics are shown in Table 2. Reasons for consulting physiotherapy were diverse: low back pain, aerobic capacity problems based on (chronic) diseases, hip problems, knee problems and several patients with other problems.

Table 2. Patient characteristics n=58

Characteristics	Mean ± SD; (min-max);	
	Frequency	
Age in years	79.22 ± 5.74 (71-95)	
Sessions	8.24 ± 0.532 (2-20)	
Female	43 (74%)	

Thirteen GPTs treated 58 patients according the Coach2Move strategy. Table 3. displays the characteristics of the GPTs. On average GPTs treated four patients, in a range of one to nine patients.

Table 3. Characteristics of GPTs n=13

Age in Year	46 (10 ±SD)
Female	6 46%
Experience as physiotherapist (years)	21 (11 ± SD)
Experience as geriatric physiotherapist (years)	4 (4± SD)
Treated patients N	58 patients
average number of treated patients:	4.54

The average adherence score within one EPR was 76,7 % (\pm 11,4 SD). The EPRs were in a range of 42 - 97 % adherence. Adherence scores are presented in Table 4.

GPT	Ν	adherence	adherence	adherence
			Std.	Minimum-
		Mean (%)	Deviation	Maximum
GPT 1	8	80,8	6,0	73 - 89
GPT 2	4	87,1	6,6	77 - 92
GPT 3	7	71,9	5,5	66 - 81
GPT 4	1	72,6		73 - 73
GPT 5	6	79,6	2,8	77 - 84
GPT 6	4	81,5	12,8	63 - 92
GPT 7	4	65,7	9,3	58 - 79
GPT 8	5	83,5	12,1	68 - 97
GPT 9	7	72,1	10,5	61 - 89
GPT 10	2	69,4	12,2	58 - 82
GPT 11	5	88,1	5,4	82 - 95
GPT 12	2	62,9	6,8	58 - 68
GPT 13	1	41,9		42 - 42
Average		76,7	11,5	42 - 97

Table 4. Adherence score of the GPTs

The LAPAQ scores of the patients in the trial increased over time. The mean LAPAQ score increased from 86.95 minutes (58 \pm SD) at baseline to 119.21 (66 \pm SD) minutes at t1 and 120.404 (66 \pm SD) minutes on average at t2.

Correlation adherence and physical activity

There was no correlation between adherence score and the LAPAQ scores. (See figure 2 and Table 5.)



Figure 2. correlation adherence and physical activity

		Adherence
Difference LAPAQ t0-t1	Pearson Correlation	,140
	Sig. (2-tailed)	,307
	Ν	55
Difference LAPAQ t0-t2	Pearson Correlation	,219
	Sig. (2-tailed)	,111
	Ν	54
Difference LAPAQ t1-t2	Pearson Correlation	,130
	Sig. (2-tailed)	,350
	Ν	54

Table 5. correlation adherence and physical activity

Phase 2

Characteristics of participants

Ten GPTs were eligible and asked to participate in the interviews. Seven GPTs agreed to participate. Reason for not participating were: personal problems, unavailable and one GPT did not want to participate in this study because the GPT was discontenting regarding the amount of time involved in the RCT. One GPT added a clarification to the interview transcript, after member check.

Experience Coach2Move Strategy

The most important categories identified in the interview transcripts were: *Overall Experience, Goal setting and Patient Motivation*. Additional categories, *Coaching, Treatment profiles, Clinimetrics* and *Education* are described in Appendix 3. Supporting quotes are displayed in Table 7.

Overall Experience

The GPTs were asked to reflect on their experience with the Coach2Move strategy. All the GPTs reported that they were able to use the Coach2Move strategy in the treatment process of elderly. Most GPTs answered that they embrace the Coach2Move vision and have recognized the importance of improving social and physical activity by means of a coaching intervention. The Coach2Move strategy suggests to use one and a half hour for the first consult. Most GPTs reported that they already used an extended consult of one hour. Also after implementing the Coach2Move strategy most GPTs did not adhere to the 90 minute intake as instructed (and paid for) by the Coach2Move strategy, but kept using an intake of 60 minutes. The GPTs noticed, however, that especially the anamnesis did differ from the regular anamnesis.

Goal setting

The GPTs recognised goal setting as an important subject of the Coach2Move strategy. The GPTs pointed out to have some difficulties in goal setting with persons not used to setting goals and explicitly stating what they really want to achieve. This calls for the GPT the skill to probe questions and listen carefully to find out the underlying goals of the patient. The main difference between goal setting in general and goal setting within the Coach2Move strategy is that Coach2Move goals should be 'inspiring', which motivates patients to adhere to the treatment plan and to invest time and energy in reaching these inspiring goals.

Activating and motivating patients

All GPTs reported that they try to activate and motivate patients to become more physically active, by stimulating home activities and exercise. Motivational interviewing is thought to be very helpful in achieving this, especially with patients that are ready to change their behaviour. However, with patients who are not motivated to change, some problems arise. If a patient is in the pre-contemplation stage, it is not possible to use the Coach2Move strategy in becoming more physically active. It is suggested to stop the treatment (temporarily), after (urgent) matters on the level of body function and structure have been treated. GPTs found it difficult to find out whether or not a patient really was in the pre-contemplation phase. GPTs are not used to let people go when the therapy is, in their opinion, not really finished. Because GPTs are educated to 'care ' for people. If the patient was in the contemplation stage it was hard, for the GPTs, to persuade the patients to be more active. They used motivational interviewing techniques to motivate the patients, but despite these efforts it sometimes did not work.

Also the patient's ability to apply self-management was an important factor for success. This ability was influenced by the cognition of the patient as well as the informal care givers. When a patient is not able to apply self-management because of cognitive problems it helps if the informal caregiver assists. Also, if the opinion of the informal care is that physical activity is not important, the informal caregiver can negatively influence treatment results.

Table 7. interview quotes

Themes	Illustrative quotes*	
Overall Experience	"I think it is an excellent strategy, it suits my working method. In my opinion, is it a good tool for the patients to take control."	
	"What's new, is the focus on disablement and enablement. To look at the opportunities and to appoint this, I use my own EPR the ICF-model as well, so I state the personal and environmental factors. But not as comprehensive as in the Coach2Move strategy."	
Goal setting	"I am keen to coaching for inspiring goals. So SMART becomes SMARTI and those are time- limited inspiring goals, this is what attracts me. I find this very important and this is what I have learned from the Coach2Move strategy."	
Patient motivation	"Yes motivation is important, is somebody willing?" "There are also patients who say: yes, everybody wishes that I am more physical active, but I have lived my life and the only thing that I want is to be left alone." And then you wonder isn't this tantamount to flogging a dead horse? "	
	"Intrinsic motivation, and the partner, so the external factors. If the partner does not have faith in it than it is hard for me to persuade them. It is just not going to happen.	
Coaching	"I find it a broadening of opportunities. I find it important, though, that we do not only focus on coaching and move our work domain from movement to self management. So coaching is part of the package as a physiotherapist but not the only part."	
Treatment profiles	"I find it hard to assess how people cope whit it, and how they depend to the physiotherapist. Sometimes you need two to three consults to convince them that they can do it on their own. And if you have assessed that you need only four till seven treatments, then you're almost over this quota." (GPT who found the treatment profiles difficult)	
	"I did not look at it, only afterwards I saw: Oh I could have chosen another profile . It didn't stimulate me to be ready within this period. The patient guides me, not the profile. (GPT who looked at the profiles afterwards).	
Clinimetrics	"The First and the last measurement are useful in my opinion. And the interim measurement depends on the number of treatments. If somebody has a long treatment process of, for instance 3 months, interim are measurements useful. But if somebody only has a few treatments, in profile 1, a interim measurement is not that useful.	
	"In practice it is the purpose to use interim measurement for your EPR because otherwise it will not work. In the EPR for Coach2Move, Geriatriedesk, it was not restrictive. So I think it would be wise to build in this restriction with a margin of 1`week. Which means a person has to measure to complete the EPR."	
Education	"Motivational interviewing, however it was not new but very necessary. I think the education was enough, however to fully implement a iterative education process is necessary."	
*Quotes have been slightly edited to increase readability.		

Adherence related factors

In further analysis of the interview codes, three main themes were discovered which might explain the difference in adherence scores. First, organizational factors, in the RCT the GPTs used two different EPRs: the EPR which they always use to invoice and Geriatriedesk. It is very time consuming to record, complete and precise, both EPRs. Because of this there could be flaws in the registration.

Second, the characteristics of the patient, the most important characteristic was the motivation of the patient (i.e. readiness to change). Also the patient's ability to self-management was an important factor for success. With patients without the ability to self manage his/her problems the GPT focussed more on function. Where the GPT should (also) focus on the environment of the patient. GPTs seem to find it hard to distinguish which patients can be motivated and which are in the pre-contemplation phase and should not be treated on motivation.

Even though these above mentioned themes are valuable in successfully applying the Coach2Move strategy, only the third theme, the therapeutic characteristics, could explain the differences in adherence scores. Supporting quotes are displayed in Table 8.

These therapeutic characteristics consist of the experience with the coach2move strategy as well as the vision of the GPT on the Coach2move strategy and physiotherapy in general. The four lowest adherence scores, were scored by the GPTs who treated the fewest patients. (Table 4.) What makes it plausible to conclude that 'practice makes perfect'. A certain amount of practice is necessary in order to implement a new intervention. In addition, the interviews with high adherent GPTs lasted the longest. These GPTs had a clear opinion about Coach2Move and it is closer to their own vision, allowing them to explain more.

Moreover, it was remarkable that GPTs with a high adherence score clearly had a different vision on physical therapy in general as compared to GPTs with a low adherence score. The GPTs with a high adherence score all stated to have a primary focus on increasing activity and self management. They truly believe that this, which is the essence of Coach2Move, contributes to the health status, wellbeing and quality of life of their patients. The GPTs with a lower adherence score, on the other hand, primarily focus on body functions and structures in their treatment. They feel that (hands on) treatment of body functions and structure is the core of their profession. One of the GPTs even said that the attention being paid to physical activity is overrated. Therapists with a high adherence believe that being, physically and socially, active will enable patients to improve and maintain physical functioning by themselves. While therapists with a low adherence think that patients need their physiotherapist to improve physical functioning and by improving physical functioning they will naturally become more physically active.

Table 8.	Difference	in	adherence	interview quotes
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Geriatric physiotherapist with a low adherence*	Geriatric physiotherapist with a high adherence*
"What I think of the Coach2Move is that nowadays everybody thinks that people are not active enough. Then I think, Yeah right, there are more problems besides being inactive. It annoys me a bit, there are enough people in the RCT which were active and then this strategy was not suitable because the problem wasn't being inactive."	"In fact, I was unconsciously competent in Coach2Move".
What I already said, I think that the vision of the Coach2Move strategy is good. But there is a bigger problem within physiotherapy. If you treat every patient using Coach2Move then you treat less patients. What will be financial disadvantage and this makes it hard."	"nevertheless we always have an active policy. I think that in this practice there is not a huge difference. Although, the only difference is that we focus yet more on motivating patients to be active in their leisure time, and to be active outside therapy time and to continue this after therapy. I think this an essential difference. Previously I thought that if patients stopped with therapy that they slowly decrease. Nowadays it is better secured, they stay active."
"We are getting educated at a high level, a kind of scientific level. Everybody says it all has to be evidence based, but a lot is not. So they can't tell me that it has to be evidence based. However that remains difficult, no person is the same, one is suffering a depression, the other is tired and the other has something else. It's all complicated and then it is nice to have an office hour and determine a policy, and somebody else does the production, and you see them in 4 weeks. But all these are still hopes for the future."	"Uhm it is, setting of inspiring goals which attracts me. As well as coaching and leaving the responsibility with the patients. I all ready had the intention and to go that way and this was a confirmation that is was the right way. It works well for me. I find it a nice strategy, a lovely way of work.
*Quotes have been slightly edited to increase readability.	

DISCUSSION

The aim of this study was to investigate the GPTs adherence to the Coach2Move strategy and its relation to the patients level of physical activity.

Results from phase 1 showed that the GPTs strongly adhere the Coach2Move strategy. The Coach2Move strategy is not a standard physiotherapy intervention, it is a tailored intervention. Adherence scores found in this study are similar to adherence of guidelines "Acute ankle injury" and "Osteoarthritis of the hip and knee", and slightly higher than adherence scores for the guideline "low back pain".^{7,20,21} However, these studies have different designs and indicators. It is therefore difficult to compare the results. There are some limitations to consider in the interpretation of the adherence scores. First, by assessing adherence trough performance indicators also the accuracy of reporting is measured. Which means that a GPT could be adherent to the Coach2Move strategy but did not report properly. The study of Richoz et all. describes that a large majority of the Swiss physiotherapists are not accurate in reporting.²² Secondly, the GPTs took part in a RCT in which they were continuously coached by a researcher in the implementation of the strategy. Therefore, the adherence score which was found in this study may have been higher than it will be when the strategy is implemented on a larger scale. However, this implementation

worked accordingly. Because GPTs indicate that coaching was very much appreciated and helped them in the execution of the Coach2Move strategy, it should be considered to add coaching to the implementation strategy if the Coach2Move strategy is being implemented on large scale in the future.

There was no correlation found between therapeutic adherence and physical activity at the patient level, as opposed to our hypotheses. Possible explanations for this result is the small sample size. Since, it is known that being physically active has several influencing factors, the improvement in physical activity cannot only be explained by the Coach2Move strategy.²³ In our study there was too little variance in the independent variable (adherence) and a large variance in the dependent variable (physical activity). This little variance could have been expected when using a sample from one arm of a RCT. Therefore, to find a correlation, between GPTs adherence to the Coach2Move strategy and patient outcome physical activity, a large sample is necessary. Another explanation is that possible the performance indicators are not a detailed and sensitive enough to determine differences in delivered care and adherence.¹⁴ Also the performance indicators were only marginal tested and the specific coach2move indicators were only considered face-valid.

When looking at the adherence scores in more detail, one outlier can be found. There was one therapist who scored a low adherence, this therapist treated only one patient. While the therapist decided to quit with the Coach2Move trial, this might be the reason that the EPR was not completely filled in. However, post-hoc analysis display that this low adherence score did not affect the correlation.

Besides determining adherence and assessing the correlation, the purpose of this study was explaining the GPTs adherence to the Coach2move strategy and explore their experience with this strategy.

All GPTs had a positive experience with the Coach2Move strategy and recorded that this strategy suits their way of work. Most of the GPTs already had their focus on activities and participation instead of on body structures and function. This could implicate that there was sufficient attention to this focus during their education. However, we do not know if there is a difference in focus between a GPT and a regular physiotherapist.

Despite the high adherence scores we were still able to recognise factors which might influence adherence. Results from Phase 2 illustrates that adherence of the GPT to the Coach2Move seems to depend on organizational factors, patient characteristics and the therapeutic characteristics. These three themes are also found in other studies to guideline-adherence.^{21,24,25} The influence of experience on adherence was found in the study of Van Wees et all, where experience of the GPT in general was related to the number of treatment.²⁰ This differs in our study in which we defined experience as the amount of patients, and

therefore use of Coach2Move. Swinkels et all. found a difference in knowledge as a barrier to the use of measurements.²⁴ This was not found in our study. However, different vision on Coach2move and physiotherapy in general could possibly be due to a lack of knowledge. Though this was not noticed during the interview or analysis. Subtle differences in implementation barriers between general and specialized physiotherapists were found by van Bodegom et. all.²⁵ Although, in our study only physiotherapist specialized in geriatrics participated was there still a difference in experience and perhaps knowledge. To improve adherence, an active implementation strategy is necessary.^{12,26} Suggesting that, implementation strategies aim at different levels: the professional-, the organization-, the context,- and patient-level.²⁷ The suggested implementation strategies match with the adherence related factors in this study.

The GPTs did not always know how to treat patients in the different stages of change. They discovered difficulties in stopping the treatment with patients who are not (yet) motivated. The GPTs should learn what to do in the different stages of change. For future education in the Coach2Move strategy it is recommended to focus on motivational interviewing and the stages of behavioural change and what to do in the different stages.

There are two more limitations which deserve attention. First, recall bias might be present, since the first introduction of the GPTs with the Coach2Move strategy was more than 2 years ago and the last treated patients was several months ago. Second, the GPT, who did not want to participate, might have had a useful opinion towards the Coach2Move strategy.

This study brought up some valuable information for trials to invest in experience of the therapist with the intervention. Because this might influence the therapeutic adherence to an intervention. For the Coach2Move strategy it is recommended to implement this strategy in existing EPRs. Further research on motivational interviewing and what physiotherapist should do in the different stages is recommended.

CONCLUSION

GPTs participating in the RCT on the effectiveness of the Coach2Move strategy show a high adherence to the strategy. There was no correlation found between adherence of the GPT and the patient outcome, physical activity. The GPTs value the Coach2Move strategy in the treatment of elderly, it helps them to motivate and activate elderly. Adherence of the GPT to the Coach2Move strategy is possible being influenced by three factors: 1) organizational factors, 2) patient characteristics and 3) therapeutic characteristics.

REFERENCES

1. de Vries NM, van Ravensberg CD, Hobbelen JS, Olde Rikkert MG, Staal JB, Nijhuis-van der Sanden MW. Effects of physical exercise therapy on mobility, physical functioning, physical activity and quality of life in community-dwelling older adults with impaired mobility, physical disability and/or multi-morbidity: A meta-analysis. *Ageing Res Rev*. 2012;11(1):136-149. doi: 10.1016/j.arr.2011.11.002; 10.1016/j.arr.2011.11.002.

2. Kruk J. Physical activity in the prevention of the most frequent chronic diseases: An analysis of the recent evidence. *Asian Pac J Cancer Prev.* 2007;8(3):325-338.

3. Singh MA. Exercise comes of age: Rationale and recommendations for a geriatric exercise prescription. *J Gerontol A Biol Sci Med Sci*. 2002;57(5):M262-82.

4. Vogel T, Brechat PH, Lepretre PM, Kaltenbach G, Berthel M, Lonsdorfer J. Health benefits of physical activity in older patients: A review. *Int J Clin Pract*. 2009;63(2):303-320. doi: 10.1111/j.1742-1241.2008.01957.x [doi].

5. de Vries NM, Staal JB, Teerenstra S, Adang EM, Rikkert MG, Nijhuis-van der Sanden MW. Physiotherapy to improve physical activity in community-dwelling older adults with mobility problems (Coach2Move): Study protocol for a randomized controlled trial. *Trials*. 2013;14:434-6215-14-434. doi: 10.1186/1745-6215-14-434; 10.1186/1745-6215-14-434.

6. Chaudoir SR, Dugan AG, Barr CH. Measuring factors affecting implementation of health innovations: A systematic review of structural, organizational, provider, patient, and innovation level measures. *Implement Sci.* 2013;8:22-5908-8-22. doi: 10.1186/1748-5908-8-

22; 10.1186/1748-5908-8-22.

7. Rutten GM, Degen S, Hendriks EJ, Braspenning JC, Harting J, Oostendorp RA. Adherence to clinical practice guidelines for low back pain in physical therapy: Do patients benefit? *Phys Ther*. 2010;90(8):1111-1122. doi: 10.2522/ptj.20090173 [doi].

8. Bekkering GE, Hendriks HJ, van Tulder MW, et al. Effect on the process of care of an active strategy to implement clinical guidelines on physiotherapy for low back pain: A cluster randomised controlled trial. *Qual Saf Health Care*. 2005;14(2):107-112. doi: 10.1136/qshc.2003.009357.

9. Otterman NM, van der Wees PJ, Bernhardt J, Kwakkel G. Physical therapists' guideline adherence on early mobilization and intensity of practice at dutch acute stroke units: A country-wide survey. *Stroke*. 2012;43(9):2395-2401. doi: 10.1161/STROKEAHA.112.660092; 10.1161/STROKEAHA.112.660092.

10. Jansen MJ, Hendriks EJ, Oostendorp RA, Dekker J, De Bie RA. Quality indicators indicate good adherence to the clinical practice guideline on "osteoarthritis of the hip and knee" and few prognostic factors influence outcome indicators: A prospective cohort study. *Eur J Phys Rehabil Med.* 2010;46(3):337-345.

11. Oostendorp RA, Rutten GM, Dommerholt J, Nijhuis-van der Sanden MW, Harting J. Guideline-based development and practice test of quality indicators for physiotherapy care in patients with neck pain. *J Eval Clin Pract*. 2013;19(6):1044-1053. doi: 10.1111/jep.12025; 10.1111/jep.12025. 12. Bero LA, Grilli R, Grimshaw JM, Harvey E, Oxman AD, Thomson MA. Closing the gap between research and practice: An overview of systematic reviews of interventions to promote the implementation of research findings. the cochrane effective practice and organization of care review group. *BMJ*. 1998;317(7156):465-468.

Hubbard IJ, Harris D, Kilkenny MF, Faux SG, Pollack MR, Cadilhac DA. Adherence to clinical guidelines improves patient outcomes in australian audit of stroke rehabilitation practice.
 Arch Phys Med Rehabil. 2012;93(6):965-971. doi: 10.1016/j.apmr.2012.01.011;
 10.1016/j.apmr.2012.01.011.

14. Grol R, Cluzeau FA, Burgers JS. Clinical practice guidelines: Towards better quality guidelines and increased international collaboration. *Br J Cancer*. 2003;89 Suppl 1:S4-8. doi: 10.1038/sj.bjc.6601077 [doi].

15. Grol R. Successes and failures in the implementation of evidence-based guidelines for clinical practice. *Med Care*. 2001;39(8 Suppl 2):II46-54.

16. Creswell, John W. : Plano Clark, V L. *Designing and conducting mixed methods research* Thousand Oaks, CA: Sage; 2007.

17. Stel VS, Smit JH, Pluijm SM, Visser M, Deeg DJ, Lips P. Comparison of the LASA physical activity questionnaire with a 7-day diary and pedometer. *J Clin Epidemiol*. 2004;57(3):252-258. doi: 10.1016/j.jclinepi.2003.07.008 [doi].

18. Guest G, Bunce A, Johnson L. How many interviews are enough?: An experiment with data saturation and variability. *Field Methods*. 2006;18(1). doi: 10.1177/1525822X05279903.

19. Strauss AL:C,J. *Basics of qualitative research. grounded theory procedures and techniques.* London: Sage; 1990.

20. van der Wees PJ, Hendriks EJ, Jansen MJ, van Beers H, de Bie RA, Dekker J. Adherence to physiotherapy clinical guideline acute ankle injury and determinants of adherence: A cohort study. *BMC Musculoskelet Disord*. 2007;8:45. doi: 1471-2474-8-45 [pii].

21. Jansen MJ, Hendriks EJ, Oostendorp RA, Dekker J, De Bie RA. Quality indicators indicate good adherence to the clinical practice guideline on "osteoarthritis of the hip and knee" and few prognostic factors influence outcome indicators: A prospective cohort study. *Eur J Phys Rehabil Med*. 2010;46(3):337-345. doi: R33102240 [pii].

22. Richoz C, Ayer A, Berchtold A, Richoz S. Record keeping by swiss physiotherapists--a national survey of knowledge regarding legal requirements. *Swiss Med Wkly*. 2011;141:w13291. doi: 10.4414/smw.2011.13291 [doi].

23. McArthur D, Dumas A, Woodend K, Beach S, Stacey D. Factors influencing adherence to regular exercise in middle-aged women: A qualitative study to inform clinical practice. *BMC Womens Health*. 2014;14:49-6874-14-49. doi: 10.1186/1472-6874-14-49 [doi].

24. Swinkels RA, van Peppen RP, Wittink H, Custers JW, Beurskens AJ. Current use and barriers and facilitators for implementation of standardised measures in physical therapy in the netherlands. *BMC Musculoskelet Disord*. 2011;12:106-2474-12-106. doi: 10.1186/1471-2474-12-106 [doi].

25. van Bodegom-Vos L, Verhoef J, Dickmann M, et al. A qualitative study of barriers to the

implementation of a rheumatoid arthritis guideline among generalist and specialist physical therapists. *Phys Ther*. 2012;92(10):1292-1305. doi: 10.2522/ptj.20110097 [doi].

26. Harting J, Rutten GM, Rutten ST, Kremers SP. A qualitative application of the diffusion of innovations theory to examine determinants of guideline adherence among physical therapists. *Phys Ther*. 2009;89(3):221-232. doi: 10.2522/ptj.20080185; 10.2522/ptj.20080185.

27. Grol R, Grimshaw J. From best evidence to best practice: Effective implementation of change in patients' care. *Lancet*. 2003;362(9391):1225-1230. doi: 10.1016/S0140-6736(03)14546-1.

APPENDIX

1 Request for help					
Good (2); Moderate (1); Wrong (0); Inapplicable (2)					
Current situation activities and roles					
Indicator 3: Diagnostics					
10 Physical diagnostics on function level					
nents					

		Impairment in muscle force: grip strength measurement & MRC (or 10RM) relevant muscle groups			
	Impairment in endurance/ walking distance: 6 minute walking test				
	Impairment in balance: Berg Balance Scale (if not possible: Tinetti)				
	Impairment in joint mobility: ROM according to the neutral 0 method				
	Impairment in sensibility: sensibility research				
		Impairment in walking ability: TUG			
		Pain: NPRS			
		Yes (2); Partially (1); No (0)			
11		Consistence anamnesis and diagnostics			
	11.1.	There is consistence between the anamnesis and the diagnostics			
		Yes (2); Partially (1); No (0)			
12		Physical diagnostics on activity level			
	12.1.	The questionnaire PSC is filled in			
		Yes (2); Partially (1); No (0)			
13		Consultation other disciplines			
	13.1.	Consultation to other disciplines corresponds to the findings in the anamnesis/ or diagnostics			
		Yes (2); No (0)			
		Indicator 4: Analysis			
14		Profile choice			
	14.1.	The profile choice has filled in adequately			
		Yes (2); No (0)			
15		Mutual relation identified problems			
	15.1.	Description of the mutual relation of the identified problems			
		Good (2); Moderate (1); Wrong (0)			
16		Contextual or personal factors			
	16.1.	Description of the contextual or personal factors that influence physical therapy (positive or negative)			
		Good (2); Moderate (1); Wrong (0); Inapplicable (2)			
17		Factors hindering recovery and recovery-promoting factors			
	17.1.	Description factors hindering recovery is adequately			
		Yes (2); Partially (1); No (0); Inapplicable (2)			
	17.2.	Description recovery-promoting factors is adequately			
		Yes (2); Partially (1); No (0); Inapplicable (2)			
		Indicator 5: Treatment plan			
18		Patient specific goals			
	18.1.	The patient specific goals are SMARTI (Specific, Measurable, Acceptable, Realistic, Time-bound, Inspiring) formulated			
<u> </u>		Cood (2): Moderate (1): Maana (0)			
L	10.2	Good (2); Moderate (1); Wrong (0)			
	18.2.	The patient specific goals are focused on participation and activity			
		Good (2); Moderate (1); Wrong (0)			

19	Consistence between patient specific goals and diagnosis and treatment						
	19.1.	There is	consistence between the physical diagnosis and the patient specific goals				
			Yes (2); Partially (1); No (0)				
	19.2.	The patie	ent specific goals as drawn in the treatment plan reoccur in the treatment				
			Yes (2); Partially (1); No (0)				
	Indicator 6: Treatment						
20			Self-management and coaching				
	20.1.	From the patient, t given.	e descriptions of the sessions it is clear that self management was promoted, i.e. agreements are made with the these agreements were documented and in the future progress of the patient is measured and feedback was				
			Yes (2); Partially (1); No (0)				
	20.2. From the description of the sessions it is clear that coaching was executed, i.e. agreements are made with the patient, these agreements were documented and in the future progress of the patient is measured and feedback was given.						
			Yes (2); Partially (1); No (0)				
21	Consistence request for help and patient specific goals						
	21.1.	1.1. There is consistence between the request for help and the patient specific goals					
			Yes (2); Partially (1); No (0)				
			Indicator 7: Evaluation				
22			Measurement instruments during the treatment				
	22.1.	22.1. Each six weeks the outcomes of the appropriate measurement instruments were filled in to evaluate the treatment. The following measurement instruments are included:					
	The PSC (patient specific complaints), the LAPAQ (LASA Physical Activity Questionnaire), the EFIP (Evaluative Frailty Index for Physical activity), the TUG and the walking velocity						
			Yes (2); Partially (1); No (0); Inapplicable (2)				
23		· · · · ·	Measurement instruments after the total treatment				
	23.1.	After the	total treatment the instrument Global Perceived Effect (GPE) is taken				
			Yes (2); No (0)				
24			Patient specific goals reoccur in the evaluation				
	24.1. The patient specific goals reoccur in a description in the evaluation						
			Yes (2); Partially (1); No (0)				
25	Aftercare appointments						
	25.1.	There are	e aftercare appointments				
			Yes (2); No (0)				

Appendix 2 Interview protocol

Interview	
Date interview:	
Name respondent:	

Introduction

At first I would like to thank you for your participation in this study. I will introduce myself and explain the interview process, before we start the interview .

My name is Arjan van de Sant, I am a physiotherapist at Zorgcentra Pantein in Boxmeer and I work at the department Geriatric revalidation. I am a student Physiotherapy Sciences at the Utrecht University. This study is my master thesis.

With this study we would like to explore the experience of the GPTs with the Coach2Move strategy. In practice it is often hard to implement a new strategy and we would like to know which barriers you experienced during the RCT. To be aware of possible barriers and facilitating factors when the Coach2Move will be implemented in the future.

The interview takes approximately one hour of your time. A voice recorder will record the conversation. The interview quotes will be used anonymously in the article. Do you have any questions or statements in advance? You are free to ask them. If you have any questions during the interview feel free to ask them. Can I ask you to sign the informed consent? The interview will start now.

(turning on the voice recorder)

Introduction questions:

- When did you graduate as a physiotherapist?
- Since when are you geriatric physiotherapist?
- At which institution did you study?
- Do you have any other specialisations, besides geriatrics?
- Since when do you work at your current physiotherapy practice?

Main questions:

TOPIC: Coach2move strategy

• According to you, what is the essence of Coach2Move?

TOPIC: Experience Coach2Move

You treated ... patients in the RCT.

- What is your experience with the Coach2Move strategy?
 - Why good?
 - What can be better?
 - Perceived experience of the patients?
- Do You think that the Coach2Move strategy as a therapy is different than regular physiotherapy?
- Would you recommend Coach2Move?

TOPIC Clinical reasoning

One of the aspects of the Coach2Move strategy is an extended anamnesis and examination.

- What is your experience with the extra time for the anamnesis and examination?
 - What does it provide you?
 - Where you able to bring the extra time in practice?
 - Why/why not.

TOPIC Goal setting

In the Coach2move strategy there was a lot of attention for goal setting and shared decision making.

- How does this shared decision making work in practice?
 - Shared or from the physiotherapist?
- What would ease this process?
 - What skills do you need to do this goal setting even better?
 - What makes this goal setting successful.

TOPIC Activate

Activating patients is a part of the Coach2Move strategy.

- Can you explain how this activating works? With an example.
- Has this changed since you worked with this strategy?
- How did you find out the patients motivation?
- How did you act when problems occur in motivation?
- What makes activating successful?
 - What makes the activation fail?
 - Do you see opportunities to improve this?
 - Why is it successful and what could be better?
- Was the activation focussed on potential of a patient?
 - And participatory? Use of family members?
 - What's your experience with it?

TOPIC Coaching

The coach2move strategy is a coaching intervention.

- What is your opinion regarding the coaching?
- How do you see the role of the physiotherapist?
 - Do you like this role as a physiotherapist?
- What do you think of the idea that you may be more coach soon than a practitioner?
 - o Is this realistic for physiotherapy?

TOPIC Clinimetrics

Regularly measurements took place during the trial. In addition to the measurements made by the independent investigator, there was also the possibility to make use of measuring instruments yourselves.

- What is your experience with the use of measurements?
- Is the use of instruments in relation to participation in the trial changed? How?
- At what times you use the measuring instruments? And why?
- Why are (sometimes) instruments not been used in an (interim) evaluation?
 o How could this be improved?
- What is your experience with the use of measuring instruments in general?
 - What do you like? (And why)
 - What could be better? (And why)

TOPIC Profile

In coach2move strategy you were asked to determine the treatment profile of a patient in advance

- What is your experience with this profile? How does it help you?
- Did you often end up in the right profile?
- Has this changed when you handled more people according Coach2move?

TOPIC Adherence

The coach2move strategy is a new intervention, which is not according a strict protocol.

- Do you think that the extent to which a therapist follows coach2move strategy, as it is intended, affects the degree of activity of a patient?
- Did you follow the coach2move strategy as it was intended? What percentage have you followed the coach2move strategy?
 - What makes this work?
 - What makes you deflect from the coach2move strategy? In which do you differ from the coach2move strategy?
 - \circ $\;$ How could this be improved in the future, according to you?

TOPIC Coaching by another therapist

In the trial you were remotely coached by an independent therapist.

- How have you experienced this?
- Should this be used in the launch or possible trainings?

TOPIC File use

•

For this trial, you were asked to keep file in geriatrics desk.

- What are your experiences with keeping the file?
 - And how is it related to the regular file?
- Is the regular file fully completed?
- What causes that a file is not completely filled?

TOPIC Organization

A few questions about the organizational aspect.

- Was it possible to plan the anamnesis and examination for 1.5 hours?
 Did you need this time fully?
- What's your opinion on an intake of 1.5 hours?
- Is it possible to plan 1.5 hours?
- Was in the context treatment possible?
 - Why / why not
- Invites coach2move strategy into practice in the context?
- Have you made use of the option for telephonic consultation or follow-up?
 - Why? And what are your experiences with this?
 - Did you do this for the COACH2MOVE too? Call / follow-up realistic?
 - Why not?

Complement possible questions if there are notable cases from file / indicator score.

Sequence of Topics is not important.

Note the influence of the trial on the coach2move strategy, more evaluation by researchers which may themselves become less evaluated.

Problems with regard to trial as inclusion are not relevant for this study

Closing:

- Summarize each topic

-Are there any questions?

I would like to thank you for this interview. I want to ask you, if I may approach you again, if this is necessary for my research. This would be by phone or email. If, after today, there are any questions or comments you are always allowed to let us know.

In July, this study will be completed, and if you find it interesting, I will send you my article.

Appendix 3 Additional interview categories

Physiotherapist as a Coach

The GPTs see coaching as a physiotherapy intervention. However, with the notification that it is one of many possible interventions of the physiotherapist. The focus within physiotherapy should not only be on coaching.

Treatment profile

In the Coach2move strategy the GPTs were asked to fill in an expected treatment profile. There was a difference in use of the treatment profiles between the GPTs. Most of the GPTs found it hard to assess the treatment profile prior to treatment. Some just only look at the profiles after the therapy had ended. All GPTs were, however, aware of the importance of efficiency and took this into account in their treatment. Three GPTs noticed that the profiles triggered them to be even more efficient considering the number of treatments. Choosing the appropriate treatment profile became easier overtime for all GPTs.

Clinimetrics

The GPTs did not use measurement instruments consistently throughout the treatment episode. The first measurement was considered to be the most important and GPTs also found the evaluation measurements useful. However, interim measurements were not always thought to be necessary and therefore not always executed. This depended on the duration of the treatment episode. Most patients were treated for a relatively short period of time which made the interim measurements not necessary. Also the EPR system did not support the GPTs in applying interim measurements by giving a reminder after a certain amount of time.

Training Coach2Move

The GPTs were trained in using the Coach2Move strategy during a 2-day training prior to the trial. All GPTs mentioned that the training was sufficient for using the strategy. Motivational interviewing was considered as a key element which should always be part of the training.