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The current implementation status of the integration of sports and physical activity into Dutch rehabilitation care

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Abstract

Purpose: To describe the current status of the nationwide implementation process of a sports and physical activity stimulation programme to gain insight into how sports and physical activity were integrated into Dutch rehabilitation care.

Methods: The current implementation status of a sports and physical activity stimulation programme in 12 rehabilitation centres and 5 hospitals with a rehabilitation department was described by scoring fidelity and satisfaction. 71 Rehabilitation professionals filled out a questionnaire on how sports and physical activity, including stimulation activities, were implemented into rehabilitation care. Total fidelity scores (in %) were calculated for each organization. Professionals' satisfaction was rated on a scale from 1 to 10.

Results: In most organizations sports and physical activity were to some extent integrated during and after rehabilitation (fidelity scores: median=54%, IQR=23%). Physical activity stimulation was not always embedded as standard component of a rehabilitation treatment. Professionals' satisfaction rated a median value of 8.0 (IQR=0.0) indicating high satisfaction rates.

Conclusions: The fidelity outcome showed that activities to stimulate sports and physical activity during and after rehabilitation were integrated into rehabilitation care, but not always delivered as standardized component. These findings have emphasized the importance to focus on integrating these activities into routines of organizations.

Implications for rehabilitation:

- Components of an evidence-based programme to stimulate sports and physical activity during and after rehabilitation can be used to measure the current status of the integration of sports and physical activity in rehabilitation care in a structural and effective way.

- The method described in the current study can be used to compare the content of the rehabilitation care regarding the integration of sports and physical activity among organizations both on a national and international level.

- Sports and physical activity are seen as important ingredients for successful rehabilitation care in The Netherlands.

Introduction

Despite of the well-evidenced benefits of a physically active lifestyle [1-3], people with disabilities and/or chronic diseases show lower levels of physical activity compared to the general population [4,5]. Therefore, special attention is needed to promote a physically active lifestyle in people with disabilities and/or chronic diseases. Up until now, programmes to stimulate physical activity have mainly focused on the general population rather than on people with a disability [6,7]. A special approach for physical activity promotion targeting people with a disability is necessary, as the experienced barriers to participate in physical activity programmes are largely unique for this population [6,8]. An early start of these promotional activities, already during the rehabilitation treatment, is essential [9,10]. Rehabilitation care frequently offers different sports or exercise activities such as fitness, walking or swimming in order to restore mobility and daily functioning [11]. A structured integration of sports and exercise activities during rehabilitation can be an appropriate way to get people with a disability acquainted with different sports and exercise activities that may contribute to the stimulation of an active lifestyle after rehabilitation.

For that reason, from the year 1997, several Dutch rehabilitation centres decided to collaborate with each other in order to integrate sports into rehabilitation care. This resulted in a national project to stimulate sports during rehabilitation that was executed in thirteen Dutch rehabilitation centres during the years 1997 – 2001 [12]. Although stimulation of sports during rehabilitation can be successful, it seems not sufficient for all patients to remain physically active after rehabilitation [13]. Van der Ploeg *et al.* (2007) showed that stimulating sports and physical activity both during

and after a clinical rehabilitation process was an effective way to maintain a physically active lifestyle at home [10,13]. In continuation of these positive findings [13], 'Stichting Onbeperkt Sportief'[a] developed the evidence-based programme named 'Revalidatie, Sport en Bewegen' (in English: Rehabilitation, Sports and Exercise (RSE)) during the years 2009 - 2011. The RSE programme aims to stimulate physical activity and sports in people with physical disabilities and/or chronic disease not only during but also after a rehabilitation treatment. As part of the RSE programme, patients are provided with the opportunity to get acquainted with different exercise and sports activities during their rehabilitation treatment. At the end of the rehabilitation, patients can be referred to a sports or exercise activity in the community. The RSE programme ends with a period of counselling after rehabilitation to stimulate a long-term active lifestyle at home. In this way, the RSE programme can create a link between the rehabilitation care on one side and the sports and exercise facilities in the community on the other side [9]. Furthermore, the RSE programme can be seen as an evidence-based approach to integrate sports and physical activity into rehabilitation practice in structural and effective way.

In the following years, a nationwide implementation of the RSE programme was organized with financial resources provided by the Dutch Ministry of Health, Welfare and Sport. This process includes a structured and organized implementation of the RSE programme in twelve Dutch rehabilitation centres and six rehabilitation departments of hospitals across the country during the period of 2012 - 2015. The implementation process and the outcomes of the RSE programme will be evaluated by the ReSpAct (Rehabilitation, Sports and Active Lifestyle) research group [14,15]. Because the rehabilitation organizations participating in ReSpAct are situated

relatively close together and under similar climatic and infrastructural circumstances, it is an unique opportunity to describe nationwide the integration of sports and physical activity in rehabilitation care. As described in the previous paragraph, The Netherlands has a history of projects that aimed to integrate sports and physical activity into the rehabilitation care. A report on the current status of the implementation of the RSE programme in organizations participating in ReSpAct can be a suitable way to illustrate how sports and physical activity are integrated into Dutch rehabilitation care. Process outcomes, such as fidelity and satisfaction, are often used to evaluate an implementation process longitudinally [15,16]. The fidelity as an indication of the "quality of the implementation" [17,18] in combination with professionals' satisfaction on the programme can also be relevant outcomes to describe an implementation status of a sports and physical activity stimulation programme cross-sectional.

The aim of this study was to describe the current status of the implementation of a sports and physical activity stimulation programme in order to gain insight into how sports and physical activity were integrated into Dutch rehabilitation care.

Methods

Study design

The current study used cross-sectional data that are part of a multicentre longitudinal cohort study ReSpAct. The ReSpAct study will evaluate the implementation process of the RSE programme. A detailed description of the design of the process evaluation is described elsewhere [15]. As part of the baseline measurement of this process evaluation, professionals involved in ReSpAct were asked to fill out a

questionnaire. Based on this questionnaire, the quality of the implementation of the RSE programme (i.e. fidelity) together with professionals' satisfaction of the programme were used to describe the current status of the implementation of a sports and physical activity stimulation programme. This paper presents parts of the baseline measurement to describe the implementation status in organizations that participate in ReSpAct.

Participating organizations and professionals

Before the start of the nationwide implementation of the RSE programme (April 2011), managements of 33 Dutch organizations (rehabilitation centres and hospitals) were approached to indicate if they were interested in implementing the RSE programme. From this group, 9% (n=3) were not interested, 24% (n=8) were interested and 45% (n=15) of the approached organizations were highly motivated to implement the RSE programme. Organizations that were not interested in the RSE programme were not recruited to participate in the nationwide implementation process. Detailed description about the inclusion criteria for organizations were described elsewhere [15].

All professionals (managers, project leaders, physicians, counsellors) who were involved in the implementation of the RSE programme in one of the participating organizations, were asked to participate in the baseline measurement by filling out a questionnaire.

Data collection

Data were collected by using digital and paper-based questionnaires. The questionnaire was filled out by rehabilitation professionals at the start of a nationwide

implementation process (April – May 2013). The questionnaire contained questions about the current status of the implementation of sports and physical activity into rehabilitation care. Specific questions were formulated about the extent to which the main components of the RSE programme were integrated into the routines of the organization (i.e. fidelity). The RSE programme contains both components related to sport and physical activity during rehabilitation and activities to stimulate a physically active lifestyle after rehabilitation. The main components of the RSE programme are:

1) Intake session on exercise and sports
2) Exercise and sports during rehabilitation
3) Referral to Sports Counselling Centre (SCC)
4) Face-to-face consultation
5) Telephone-based counselling sessions
6) Collaboration between SCC and external exercise and sports facilities.

A detailed description of these components can be found elsewhere [15]. In addition, the questionnaire contained questions about satisfaction of the professionals with the RSE programme. The content of the questionnaires was adapted to the role of the professionals. In this way four different questionnaires were constructed specifically designed for four different professional groups: managers, project leaders, counsellors, physicians. Questionnaires were combined in cases that professionals fulfilled more than one role (e.g. project leader and counsellor).

Outcome measures

Fidelity was determined as primary outcome measure to describe the implementation status. Since the RSE programme can be seen as an evidence-based approach to integrate sports and physical activity into rehabilitation care in

structural and effective way, the main components of this programme were used to measure fidelity. To measure the implementation status of the six main components, a total of 13 close-ended questions were selected from the questionnaire. The source of the selected questions (e.g. project leader or manager) differed. The topics of the selected questions including information about their source are presented in table 1. By assessing the fidelity, information can be gained on the extent to which the components of the RSE programme were implemented according to the guidelines [15]. Hereby, the fidelity outcome can be used to measure the integration of sports and physical activity into rehabilitation in a structural way.

Because not all participating organizations offer inpatient rehabilitation treatment, the fidelity outcome was focused on the implementation of the programme in outpatient rehabilitation treatment instead of inpatient rehabilitation treatment. Moreover, most patients who receive an inpatient rehabilitation treatment continue their rehabilitation with a period of outpatient rehabilitation. Activities to stimulate physical activity at home take mainly place at the end of the outpatient treatment. As a result, most patients who participate in the RSE programme are outpatients.

Satisfaction was determined as secondary outcome measure to evaluate the professionals' satisfaction about the integration of sports and physical activity into rehabilitation care. Satisfaction was measured by asking professionals to rate their appreciation for the RSE programme on a scale ranged from 1 to 10. Higher ratings indicated a greater satisfaction.

Data analyses

The fidelity was evaluated on organization level. If more than one professional working in the same organization answered the same questions, the answer of the

professional who was a member of a multidisciplinary rehabilitation team was presented. In cases that both professionals were members of the multidisciplinary rehabilitation team and gave different answers on the same questions, the results for that organization were presented as 'no consensus'.

All 13 questions that were selected for analysis of the fidelity outcome were dichotomized. If the topic of the question was implemented according to the guidelines of the RSE programme, the answer of the question was dichotomized into 'yes'. Subsequently, the total fidelity score was calculated by adding up the number of questions that were 'yes' and dividing the summed score by the total score (=13). A total fidelity score was calculated for each organization and presented as percentages. Higher total fidelity scores indicated better integration of sports and physical activity into rehabilitation according to the guidelines of the RSE programme.

Median (mdn) and interquartile ranges (IQR) of the professionals' satisfaction rates were calculated and presented. All descriptive analyses were performed with SPSS version 20.0 (SPSS Inc. Chicago, Illinois, USA).

Ethical considerations

The implementation study of ReSpAct was separately approved by the ethics committee of the Centre for Human Movement Sciences of the University Medical Centre Groningen. The participating professionals signed a (digital) informed consent. The study is registered by The Netherlands National Trial Register: NTR3961.

Results

Participating organizations and professionals

The current implementation status in twelve rehabilitation centres and five hospitals with a rehabilitation department were described. The 17 organizations were spread out over the whole country.

71 Professionals completed and returned the questionnaire (total response rate: 94.7%). Table 2 shows the professionals' response rates to the questionnaire. In each organization a project leader and one or more counsellors completed the questionnaire. In one organization the involved manager did not return the questionnaire. Furthermore, in three organizations there was no physician involved in the implementation process of the RSE programme.

Insert table 1 about here

Fidelity

Table 1 presents the fidelity of the integration of sports and physical activity into rehabilitation care. In the majority of the organizations an intake session (n=10), referral to the SCC (n=15), a face-to-face consultation (n=14) and telephone-based counselling sessions (n=9) took place as part of an outpatient rehabilitation treatment. However, these components were often not embedded as a standard component of the rehabilitation treatment (see table 1).

In the same way the results showed that in all organizations (n=17) more than one sports or exercise activities were delivered as part of a rehabilitation treatment, but in only nine organizations the topic 'sports and exercise during rehabilitation' was part of the official policy of the organization.

In ten organizations the counsellors working in the SCC collaborated with external sports and exercise facilities. In four organizations counsellors working in the same organization gave different answers on the same questions. Therefore, it was not clear whether there was collaboration between the SCC and external facilities. In ten organizations, all counsellors reported that they had knowledge of the sports and exercise facilities in the region.

Figure 1 presents the total fidelity scores for each organization (n=17). The median of the total fidelity scores was 54% with an IQR of 23%. The total fidelity scores ranged from 15% (n=1) to 85% (n=1).

Insert table 2 about here

Insert figure 1 about here

Satisfaction

Professionals rated the RSE programme with a median value of 8.0 (IQR = 0.0) indicating that professionals' satisfaction was high. No differences were seen among professionals with different roles.

Discussion

The aim of this study was to gain insight into how sports and physical activity were integrated into the rehabilitation care. The results of the fidelity outcome showed that in all organizations sports and exercise activities were delivered as part of a rehabilitation treatment. In addition, this study demonstrated that in most

organizations activities to stimulate sports and physical activity were to some extent integrated into rehabilitation, but they were not always delivered as a standard component of a rehabilitation treatment. Clearly, the total fidelity scores illustrated large variations among organizations.

The current implementation status was assessed at the start of the nationwide implementation of a sports and physical activity stimulation programme (RSE programme) into rehabilitation. Before the start of this nationwide implementation process, 9% of the approached organizations reported that they were not interested in the RSE programme. Because these organizations were not recruited in the current study, the current sample of organizations may be biased. On the other hand, the fact that the majority of the approached organizations were interested in the implementation of the RSE programme suggested that the managements of these organizations realized the importance of stimulating a physically active lifestyle in persons with disabilities. These findings are in line with the high and consistent satisfaction rates found in the current study. Together these results suggest that rehabilitation professionals support the idea to integrate sports and physical activities, including stimulation activities, into their rehabilitation treatment. This might be the result of the Dutch history on initiatives regarding sports and physical activity projects that were integrated over the past decades into the rehabilitation care. A possible mechanism behind this history of projects is that Dutch rehabilitation care is strongly connected to rehabilitation research established by several collaborations between rehabilitation professionals and (human movement) scientists [19]. In addition, the implementation of the RSE programme fits perfectly in the policy of the Netherlands Society of Physical and Rehabilitation Medicine (association of Dutch rehabilitation physicians) that may also have contributed to the fact that in general

the participating rehabilitation professionals and their centres and hospital departments were interested in the adoption of the RSE programme.

The fidelity of the implementation status was evaluated by calculating a total fidelity score per organization. To calculate this score a simple method was developed that gained insight into the quality of the implementation. In other words, the fidelity scores provided information on the extent to which activities to stimulate sports and physical activity during and after rehabilitation were implemented according to guidelines of the RSE programme [17,18]. Although all organizations offered sports and exercise activities as part of a rehabilitation treatment, the topic 'sports and exercise during rehabilitation' was not always officially integrated into the policy of the organization. In the same way, this study showed that sports and active lifestyle stimulation activities (intake, face-to-face session, counselling) were delivered in most of the organizations, but not always as a standard component of the rehabilitation treatment protocol. Ideally, in the current nationwide implementation process [15], all involved organizations should continue working with the sports and physical activity stimulation programme (RSE programme) after the end of the period (2012 - 2015). It is therefore important that the implementation strategy of this process should also focus on the integration of the programme components into the routines of the organizations. Organization of regular regional and national topic meetings may be an appropriate strategy to discuss among professionals ways to effectively continue the programme within the routines of the organization [20,21].

Nevertheless, the results of the total fidelity scores showed a large variation among organizations (range: 15% - 85%). This large variation indicates that an individual approach of the coordination and support of the current implementation

process in participating organizations, which is performed by Stichting Onbeperkt Sportief [15], is also necessary. Activities, such as face-to-face visits, audits and feedback can be an effective way to facilitate the implementation process and to produce higher and more consistent degrees of fidelity [21-23]. On another note, variation in fidelity among organizations can be useful and helpful when professionals share knowledge and experiences at one of the meetings during the programme period (2012 – 2015).

It is important to mention that the description of the implementation status regarding the integration of sports and physical activity in rehabilitation was based on the implementation status of the main components of the RSE programme (i.e. intake, face-to-face consultation, counselling). It is possible that some of the participating organizations deliver sports and active lifestyle stimulation activities that were not included in the fidelity scores. This may result in an incomplete description of how sports and physical activities, including stimulation activities, are integrated into rehabilitation. In addition, several factors (such as support, resources, attitude) can influence the implementation of sports and physical activity into rehabilitation [24]. To explain and understand the variations among organizations, insight into influencing factors can be valuable. Moreover, information on these factors is important for a successful implementation process. Therefore, these aspects are monitored and evaluated during the whole period of the current implementation process (2012 – 2015).

This paper describes the method that was used to measure the current status of the integration of sports and physical activities in rehabilitation care by using components of an evidence-based programme. This method can been seen as an

example to measure how sports and physical activity, including stimulation activities, were integrated into rehabilitation in a structural and effective way. With the use of this method the content of the rehabilitation care regarding the integration of sports and physical activity can be compared easily both on a national and international level.

A limitation of the current method is that only fidelity and satisfaction were used to describe the implementation status. It might be valuable to include also information about the percentages of patients that are reached and about the amount of stimulation activities that are delivered (i.e. dose). Unfortunately, the cross-sectional data from the baseline questionnaire used in this study, did not contain information to measure these outcomes (reach and dose) objectively. Therefore, we were not able to include this information in the description of the implementation status. In the current nationwide implementation process of the RSE programme, an online registration system is designed in which real-time data is obtained about the reach and dose of this programme [14,15]. In future studies we will therefore be able to combine these longitudinally collected data with the fidelity and satisfaction outcomes in order to describe the implementation status in more detail. Moreover, this data can be used to evaluate the outcomes of the nationwide implementation process of the sports and physical activity stimulation programme [15]. It can be expected that the evaluation of this implementation process can also lead to new insights to further optimize the current described measure of integration of sports and physical activity in rehabilitation care.

The current study was carried out in the Dutch rehabilitation care. It should be realized that the content and organization of the rehabilitation care can differ among

countries [11,25]. For example, a comparison of the rehabilitation treatment for spinal cord injury (SCI) between three countries (Norway, The Netherlands, Australia) showed that only in The Netherlands sports therapy was offered by licensed sports therapists [11]. These findings are in line with the results of the current study, but put them in an international perspective. Despite these possible differences between countries, the method described in this study can be easily applied to measure the integration of sports and physical activity in rehabilitation care in other countries. In this way, the content of a rehabilitation treatment regarding the integration of physical activity stimulation can be compared not only within countries, but also between countries.

Conclusions

The fidelity outcome showed that activities to stimulate a physically active lifestyle during and after rehabilitation were to some extent integrated into Dutch rehabilitation care, but these activities were not always delivered as a standard component of the rehabilitation treatment. These findings have emphasized the importance to focus on the integration of sports and physical activity into the routines of organizations. Professionals' satisfaction about sports and physical activity stimulation was high. Moreover, main components of an evidence-based programme to stimulate sports and physical activity both during and after rehabilitation can be used to measure the current status of the integration of sports and physical activity in rehabilitation care in a structural and effective way.

Footnotes:

[a] Stichting Onbeperkt Sportief is an organization that aims for a larger participation within disabled sports and physical activity and the development of suitable and accessible sports facilities.

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Declaration of Interest sections

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Table 1. Fidelity of the implementation of sports and physical activities into outpatient rehabilitation. Fidelity contained both components related to sports and physical activity during rehabilitation as well as activities to stimulate a physically active lifestyle after rehabilitation. Results were clustered for each organization (n=17).

Components for outpatient rehabilitation treatment	Yes	No	N.c.	Source
1) Intake session on exercise and sports				
- Takes place	10	6	0	PL°
- As standard component of rehabilitation*	2	8	0	PL°°
2) Exercise and sport during rehabilitation				
- 'Sports and exercise during rehabilitation' is part of the official policy of the organization	8	8	0	M°
- More than one sports or exercise activity (e.g. swimming, fitness) are delivered as part of a rehabilitation treatment	17	0	0	C
- The topic 'sports and exercise' is discussed during a multidisciplinary team meeting**	9	4	0	Ph
3) Referral to SCC				
- Takes place	15	2	0	PL
- As standard component of rehabilitation*	5	11	0	PL°
4) Face-to-face consultation				
- Takes place	14	3	0	PL
- All counsellors use MI during almost every consultation	6	11	0	C
5) Telephone-based counselling sessions				
- Takes place by phone	9	8	0	PL
- As standard component of rehabilitation*	3	13	0	PL°
6) Collaboration between SCC and external exercise and sports facilities				
- Collaboration between SCC and external exercise and sports facilities	10	3	4	C
- All counsellors have knowledge of sports and exercise facilities in the region	10	1	6	C

N.c. = no consensus, PL = project leader, M = managers, C = counsellors, Ph = physicians, SCC = Sports Counsellor Centre, MI = Motivational Interviewing.

**yes = standard component for (almost) all outpatients, no = standard component for only some groups of outpatients or not standard component at all.*

***yes = always or most of the times; no = never or sometimes.*

° One missing value, therefore n=16.

°°This question was not shown if subjects answered that an intake session did not take place, therefore n =10.

538 **Table 2.** Professionals' response rates to the questionnaire. Response rates are
539 shown for each organization.

Organization	Manager	Manager + project leader	Project leader	Project leader + counsellor	Counsellor	Physicians	Total
1	1 / 1	-	1 / 1	-	3 / 4	1 / 1	**6 / 7**
2	1 / 1	-	1 / 1	-	3 / 3	-	**5 / 5**
3	-	1 / 1	-	-	1 / 1	1 / 1	**3 / 3**
4	0 / 1	-	1 / 1	-	3 / 3	1 / 1	**5 / 6**
5	1 / 1	-	-	1 / 1	3 / 3	1 / 1	**6 / 6**
6	1 / 1	-	1 / 1	-	1 / 1	1 / 1	**4 / 4**
7	1 / 1	-	-	1 / 1	1 / 1	-	**3 / 3**
8	1 / 1	-	1 / 1	-	1 / 1	1 / 1	**4 / 4**
9	-	1 / 1	-	1 / 1	-	1 / 1	**3 / 3**
10	-	1 / 1	-	-	2 / 2	1 / 1	**4 / 4**
11	1 / 1	-	1 / 1	-	3 / 3	0 / 1	**5 / 6**
12	-	1 / 1	-	-	2 / 2	1 / 1	**4 / 4**
13	1 / 1	-	1 / 1	-	2 / 2	1 / 1	**5 / 5**
14	1 / 1	-	1 / 1	-	1 / 1	1 / 1	**4 / 4**
15	2 / 2	-	1 / 1	-	1 / 1	-	**4 / 4**
16	-	1 / 1	-	-	1 / 1	1 / 1	**3 / 3**
17	-	1 / 1	-	1 / 1	0 / 1	1 / 1	**3 / 4**
Total	**11 / 12 (91,7%)**	**6 / 6 (100%)**	**9 / 9 (100%)**	**4 / 4 (100%)**	**28 / 30 (93.3%)**	**13 / 14 (92.8%)**	**71 / 75 (95.7%)**

540 *If a role of the professional (e.g. manager + project leader) was not present in the organization, a '-'*
541 *was shown. 3 / 4 indicates that of four available professionals, three responded, meaning a 75%*
542 *response rate.*
543

544

Figure 1. Total fidelity score for each of the 17 organisations. Higher fidelity scores indicated better integration of sports and physical activities into rehabilitation according to the guidelines of the RSE programme.