Differences in factors influencing the use of eRehabilitation after stroke; a comparison between Brazilian and Dutch healthcare professionals

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Abstract

Introduction: To improve the use of eRehabilitation after stroke, the identification of barriers and facilitators influencing this use in different healthcare contexts around the world is needed. Therefore, this study aims to investigate differences and similarities in factors influencing the use of eRehabilitation after stroke among Brazilian Healthcare Professionals (BHP) and Dutch Healthcare Professionals (DHP). Method: A cross-sectional survey study including 88 statements about factors related to the use of eRehabilitation (4-point Likert scale; 1-4; unimportant-important/disagree-agree). The survey was conducted among BHP and DHP (physical therapists, rehabilitating physicians and psychologists). Descriptive statistics were used to analyse differences and similarities in factors influencing the use of eRehabilitation. Results: ninety-nine (response rate 27%) BHP and 105 (response rate 37%) DHP participated. Differences were found in the top-10 most influencing statements between BHP and DHP; top-10 least influencing statements were mostly similar. Discussion: The results indicate that the use of eRehabilitation after stroke by BHP and DHP is influenced by different factors. A tailored implementation strategy for both countries needs to be developed; BHP were most influenced by support from the organization and the potential benefits of the use of eRehabilitation, DHP by the feasibility of the use of eRehabilitation for the patient. Statements with low influence like problems caused by patient characteristics or problems with resources, were comparable for both groups and should have less priority in the implementation strategies.

Introduction

Contributions to the literature

To increase the uptake of eRehabilitation, this study identified and compared factors influencing the uptake of eRehabilitation in a western country, in which the most of the studies in this topic are performed, and a country in South-America, which may benefit most from the use of eRehabilitation. In Brazil, the most important facilitator for the use of eRehabilitation is support from the rehabilitation organisation. In the Netherlands, this was the feasibility of using eRehabilitation by patients.
These findings underscore the importance of implementation strategies that are tailored to the context and wishes, needs and priorities of the end-users.

The rapid growth of digital health technology (1) provides efficient strategies for delivering rehabilitation while maintaining or improving effectiveness (2). Therefore, it may offer a solution for the increasing need for care, especially in stroke rehabilitation, where incidence, survival rates and healthcare costs are growing (3). Digital eRehabilitation programs offers an additional way of delivering conventional rehabilitation and can include physical and cognitive exercise programs, serious gaming, education (4-6) and e-consultations (7), delivered via a variety of information and communication technology (ICT) devices such as a computer, tablet and smartphone. Randomized clinical trials showed that eRehabilitation can decrease stroke-related impairments (5,8,9), relieve healthcare professionals from manual labour, make rehabilitation accessible to larger number of stroke patients (2), continue therapy-related cognitive and motor activities during and after discharge (4), decrease chronic disability during and after sub-acute rehabilitation, and facilitate home-therapy (10,11). Healthcare professionals working in stroke rehabilitation exhibited a positive attitude towards eRehabilitation (12,13). The use of eRehabilitation post-stroke can be especially important in regions with a paucity of socioeconomic resources and limited access to care (14). Those regions now have the greatest burden of stroke worldwide (15), in which eRehabilitation is likely to be the most viable strategy to reduce burden via culturally-relevant eRehabilitation interventions (16).

Acceptance of and willingness to use eRehabilitation are hampered by factors such as 1. lack of confidence with hardware or software (17,18), 2. fear of losing social face-to-face contact (12,19) and 3. lack of meaningful reimbursement (7,20). Additionally, eRehabilitation interventions for patients are rarely culturally-adapted (16) and the use of
eRehabilitation in daily practice lacks worldwide (21). Furthermore, it has been shown that eRehabilitation interventions need to address culture-specific issues in order to be effective (22).

To improve the uptake of eRehabilitation after stroke, the identification of barriers and facilitators influencing this use is needed (16). Most of the abovementioned research about barriers/facilitators in the use of eRehabilitation is performed in western countries (America, Canada, Australia, Europe), and as far as we know, no research is performed on the differences between western countries and other regions. Therefore, the aim of this paper is to describe the differences and similarities in factors influencing the use of eRehabilitation after stroke between Brazil and the Netherlands, countries with different cultures and healthcare systems.

Methods

To identify differences and similarities in factors influencing the use of eRehabilitation after stroke between Brazilian and Dutch healthcare professionals, cross-sectional study conducted in a medical specialist rehabilitation setting involved a one-time online survey. This survey was developed based on the results of a preceding focus group study (23) and was conducted among Brazilian healthcare professionals (BHP) and Dutch healthcare professionals (DHP) working in stroke rehabilitation. The COREQ guidelines were used for adequate design of the focus groups (24) and STROBE statements were used for adequate sampling, analyses and reporting of the survey.

Setting

Brazil: Data from a national prospective study indicate an annual incidence of 108 cases per 100,000 inhabitants. Stroke Care Guidelines are established involving pre-hospital treatment, intervention in acute stroke, and follow-up at rehabilitation centres (25,26). Rehabilitation can take place on an outpatient basis, an inpatient basis, or during
hospitalization. In all settings, interventions are delivered by multidisciplinary teams working in an interdisciplinary manner with active patient participation and family inclusion. Specialized professionals include physicians, nurses, social workers, physical therapists, occupational therapists, speech therapists, psychologists, hospital educators, physical education instructors, and nutritionists. The treatment and rehabilitation process are free of charge; the national health budget covers all costs.

Netherlands: The annual incidence of stroke in the Netherlands was estimated 107 cases per 100,000 inhabitants (27). Incidence and mortality rates decline as a result of better and faster treatment (28) and stroke burden in terms of the absolute number of people affected by stroke increase (29). About 10% of the stroke survivors follow multidisciplinary in or out-patient rehabilitation in a medical specialist rehabilitation setting (30), including physiotherapy, speech therapy, occupational therapy, psychology and a social worker, coordinated by a rehabilitation physician (31). A rehabilitation plan is made and evaluated during weekly team meetings, and patients and family are involved if needed. Rehabilitation consisted of individual and group exercise (31). Six months after stroke, on average 60% of the patients are community living again (32). Most costs are reimbursed by the healthcare insurance provider, with out of pocket costs for the patients of maximum €885,-.

Study population

Inclusion criteria for both BHP and DHP were 1) at least two years of working experience in a multidisciplinary stroke team and 2) still actively treating stroke patients. Invited BHP included neurologists, physical therapists, occupational therapists, psychologists, nurses, social workers, speech therapists, hospital educators, and physical educators from the SARAH Network of Rehabilitation Hospitals. Invited DHP included rehabilitation physicians,
psychologists and physical therapists. A Dutch medical address book including most healthcare professionals in the Netherlands was used to identify all eligible healthcare professionals. BHP and DHP received an invitation email including a link to the online survey. Non-responders received two reminders, first after two weeks and second after four weeks.

Survey development and content

To develop the survey, six focus groups were organized (details about the analysis and results are published elsewhere (23)). Focus groups were used to collect a broad spectrum of possible factors influencing the use of eRehabilitation, including attitudes, experiences and expectations of the healthcare professionals (33). Thirteen DHP working in stroke rehabilitation participated, including rehabilitation physicians (n=4, 31%), physical therapists (n=3, 23%), occupational therapists (n=3, 23%), psychologists (n=1, 8%), speech therapists (n=1, 8%), and managers (n=1, 8%).

All focus groups were audiotaped and transcribed in full in Dutch. The transcripts were qualitatively analysed using directed content analysis, in which the researchers used a theory or relevant research findings as guidance for initial code (34), in this case the model of Grol (35). This model was chosen because it provides a framework for identifying and categorizing factors that influence the use of innovations in healthcare (35). A total of 88 barriers/facilitators that impact the use of eRehabilitation were identified. Those were grouped into fourteen factors, divided at the levels of Grol: 1) Innovation (the eRehabilitation program); 2) Organizational context; 3) Individual patient; 4) Individual professionals and 5) Economic & political context (see Table 1).

To prioritize all barriers/facilitators identified in the focus groups, a survey was conducted in the Netherlands (June 2016) and Brazil (December 2017). The survey included questions about personal characteristics and statements about barriers/facilitators influencing the
use of eRehabilitation.

Socio-demographic-, disease- and work-related characteristics: The survey started with the question ‘Are you working with stroke patients?’ If not, the survey was ended. If ‘yes’, 12 questions followed regarding age, gender, work setting (primary care/rehabilitation centre/general hospital), years of work experience, number of new stroke patients per month and their current use of eRehabilitation (no, yes; if yes: exercises/games/information).

Influencing barriers/facilitators: Each potential barrier/facilitator identified in the focus group study was translated into a neutral statement. A total of 88 statements were formulated based on the transcripts of the focus groups (see additional file 1). The influence for the use eRehabilitation of each statement was rated on a 4-point Likert scale (1=unimportant, 2=somewhat unimportant, 3=somewhat important, 4=important or 1=disagree, 2=partly disagree, 3=partly agree, 4=agree).

The survey was tested in a pilot among three DHP (2 males, 2 physical therapists, 1 occupational therapist, mean age 38 years old, mean working experience 13.3 years). The survey was tested for feasibility, legibility, readability and presentation (e.g., perceived statement difficulty, response errors, etc.). Testing led to small changes in the phrasing and layout. The survey was developed in Dutch. For the BHP, the survey was translated by a qualified Portuguese-language translator. First, the Dutch version was translated into English by the translation agency Attached Language and the translation was discussed in the project team leading to minor changes. Subsequently, the English version was translated into Portuguese and was tested by two Portuguese project members. Differences were discussed and adaptations were made in three rounds until the Portuguese questionnaire was similar to the original Dutch version.

Data analysis
Participants who completed >90% of the survey were included in the analysis, which was executed using Statistical Packages for the Social Sciences (IBM SPSS 22.0), and we did not impute for missing values. Personal characteristics were analysed using descriptive statistics. T-test or Pearson Chi-square test was used to compare age, gender, number of new patients, work experience and the use of eRehabilitation between BHP with DHP. Based on the median score, all statements influencing the use of eRehabilitation were given a ranking (lowest number equals large influence), separately for the BHP and DHP. For the statements with a similar median, definite ranking was based on the mean. The top-ten most and least influencing statements were noted and differences in ranking were calculated to describe the level of agreement among DHP and BHP. The ranking of all statements for both the DHP and BHP were plotted on a scatterplot, including a 95% confidence interval (CI). Additionally, these analyses were performed with only the disciplines included both in the Netherlands and Brazil (i.e. physical therapists, psychologists and physicians).

**Ethical issues and approval**

All participants gave written informed consent prior to participation. Participants were anonymous and the characteristics collected were untraceable (e.g. age instead of birthday and only the IP-address was given to the researchers). This study was approved by the Medical Ethical Review Board of the Leiden University Medical Centre [P15.281] and the Medical Ethics Board of SARAH Network of Rehabilitation Hospitals.

**Results**

**Study population**

Of the 361 invited BHP, 99 (response rate 27%) responded, of the 287 DHP, 105 responded (response rate 37%). Thirty (8.3%) of the BHP and 30 (10%) DHP did not work with stroke patients and were therefore excluded from the analyses (see figure 1). Table 2 shows that
BHP and DHP did not differ significantly in age (40.0 (SD 6.4) and 42.0 (SD 10.5) years old, respectively), gender (n=21 (21%) and n= 25 (24%) male, respectively), work experience (15.6 (SD6.2) and 14 (SD10) years, respectively) and previous use of eRehabilitation (n= 50 (50%) and n=40 (38%) respectively). BHP had significantly more new patients each month compared to the DHP (p=0.00). DHP included physical therapists (n=41, 39%), psychologists (n=14, 13%) and physicians (n=47, 45%), BHP included physical therapists (n=14, 14%), psychologists (n=12, 12%), physicians (n=10, 10%); additionally, nurses (n=28, 26%), hospital educators (n=3, 3%), physical education teachers (n=10, 10%) and neurologists (n=5, 5%) were included in the BHPs.

**Most and least influencing statements**

Table 3a and 3b show the ten most and ten least influencing statements for DHP and BHP to use eRehabilitation after stroke. In the top-10 most influencing factors, four statements were found for both BHP and DHP, and twelve statements were found in the top-10 of only one group (see table 3a). The six statements found for only BHP were related to the factor Patient Motivation to Change (i.e., improved therapy adherence and health outcomes) and the Organization of Care (i.e., sufficient time and support from the organization); the six statements found for only DHP were mostly related to the factor Feasibility of eRehabilitation (like a helpdesk and support).

On the other hand, the statements that BHP and DHP considered not influencing the use of eRehabilitation were comparable, with eight statements found in the top-10 of BHP and DHP. Factors that did not influence eRehabilitation use were related to the factor Patient characteristics (i.e., cognitive and physical disability or aphasia) and the factor Resources (i.e., problems with the internet connection or hard- and software).

The abovementioned analyses were also performed including only the disciplines that were represented in both countries (i.e. physical therapists, rehabilitation physicians and
psychologists), resulting in comparable findings. Only the two statements ‘Problems with the devices on which eRehabilitation is used’ and ‘Problems with the internet connection’ were not found in the top-ten least influencing statements of this sub-analysis; the top-ten most influencing statements was fully comparable with the results of the all respondents (see table 3a and 3b).

**Difference and similarities in ranking**

The difference in ranking for the BHP and DHP was calculated for each statement (see additional file 1). The mean absolute difference in ranking between BHP and DHP was 11.2 (SD 15.9, range 0-58). In figure 2, the ranking of the Brazilian responses is plotted against the Dutch responses. Four statements were found outside the 95% CI. BHP reported the following statements more frequently as important than DHP: 1) ‘The eRehabilitation program is accessible offline’, 2) ‘Exercises to train cognitive functioning’ and 3). ‘eRehabilitation is used by the entire multidisciplinary team’. DHP reported the following statement more frequently as important than BHP: ‘Decisions made during a consult are documented and visible for patients.’ Two of those statements (the second and fourth) were found in the top-10 most influencing statements of respectively BHP and DHP (see Table 3a).

For the majority of the factors, the statements constituting that factor were spread out on a broad range of the scatterplot, with at least one statement within the 20 most and one statement in the 20 least influencing statements (see also additional file 1 and figure 2). Only the statements constituting the factors Resources, Patient Motivation not to change and Patient characteristics were found only with a low influence.

**Discussion**

In this study, we investigated differences and similarities in factors influencing the use of eRehabilitation after stroke among healthcare professionals from Brazil and the
Netherlands. The statements with the highest influence on the use of eRehabilitation differed between BHP and DHP; BHP agreed more with factors related to the benefits for the patients and organizational constrains, DHP agreed more with factors related to the feasibility of the use of eRehabilitation. The statements with the least influence on the use of eRehabilitation were comparable for BHP and DHP, and were related to patient characteristics and resources. This means that BHP and DHP indicate that the use of eRehabilitation is influenced by different factors and tailored implementation strategies for both countries need to be developed separately (16).

For BHP, and with a lesser frequency DHP, the factor Motivation to change was important. Benefits of the use of eRehabilitation were found important before, including the possibility to train at home (36), independently continue therapy activities (4) and easily accessible contact with a healthcare professionals after discharge or during outpatient therapy (12,13). For BHP, time and support for the healthcare professional from the organization is also important. Facilitating conditions, including time, communication and education, was found to be an important facilitating factor in the use of eRehabilitation after stroke before (13,37). For DHP, a thorough helpdesk delivering support for patients and healthcare professional is crucial. This is in line with a review of Pugliese (2018) concluding that the most reported patient barrier was following instructions about how to use the device (38).

Concerning the content of the eRehabilitation intervention, for the BHP speech and cognitive exercisers are important, were the DHP focus on physical exercises, and offline accessibility seems important in Brazil but not in the Netherlands. For the DHP it is important that decisions that were made during a consult are incorporated in the eRehabilitation intervention. Therefore it can be concluded that not only the implementation strategy should be adapted to the wishes of the end-users (12), but also
the eRehabilitation intervention.

Most factors were constructed of statements that were spread over a broad ranking and included both statements influencing and non-influencing the use of eRehabilitation. So some differences might remain hidden at factor level, since statements within a factor compensate for each other, differences can be found at statement levels. Therefore, it is important to investigate barriers/facilitators for the implementation of eRehabilitation in detail rather than on the level over overarching factors.

Although our study revealed some important differences and similarities among Brazilian and Dutch healthcare professionals, the results have to be interpreted with care due to some limitations. First, only 36% of the BHC were physical therapists, psychologists and rehabilitation physicians; i.e. the disciplines invited in the Netherlands. However, when only the responses of the Brazilian physical therapists, psychologists and rehabilitation physicians were taken into account, the results of the analyses were comparable with the results of all BHPs. Therefore, it seems plausible that differences are caused by the various contexts and not by the specific professional backgrounds of the respondents.

Second, the response rate of 27-37% in our study may have led to response bias because those who responded to the invitation to participate in the survey were probably more interested in eRehabilitation. As a consequence, the perspective of end-users with less interest in and experience with eRehabilitation might be missing. A third limitation is that the survey questions were based on the results of focus groups performed in the Netherlands. Consequently, we might have missed factors influencing the use of rehabilitation in Brazil that are not present in the Netherlands. However, the developed survey covered all levels of the framework of Grol, which reduces the chance of missing potentially important factors.

Conclusion
Important differences were found in factors influencing the use of eRehabilitation after stroke between BHP and DHP. For BHP, the use of eRehabilitation after stroke was most influenced by support from the rehabilitation organization and the potential benefits of the use of eRehabilitation. For DHP, the feasibility of the use of eRehabilitation for the patient was most influential. Implementation strategies should incorporate those differences, including an eRehabilitation intervention adapted to the wishes of the end-users. Statements with low influence, such as problems caused by patient characteristics after stroke or problems with resources, were comparable for both groups and should have less priority in the implementation strategies. More research about differences between disciplines in Brazil and the generalizability of those results for other countries is needed.

List Of Abbreviations

ICT; information and communication technology
BHP; Brazilian healthcare professionals
DHP; Dutch healthcare professionals

Declarations

Ethics approval and consent to participate

All participants gave written informed consent prior to participation. The study was approved by the Medical Ethical Review Board of the Leiden University Medical Center [P15.281].

Consent for publication

Not applicable.

Availability of data and material

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.
Competing interests
The authors declare that they have no competing interests.

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Authors’ contributions
BB conducted the focus groups and the survey in the Netherlands, and analysed the data.
LBV, JM and TVV were a major contributor in writing the manuscript. AK contributed to the cooperation between the Netherlands and Brazil. IG, LS and LB conducted the survey in Brazil. All authors read and approved the final manuscript.

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Tables

Table 1: results of focus groups; factors influencing the use of eRehabilitation (2 focus groups)

| Level                        | Factor       | Sub-factor                                                                 |
|------------------------------|--------------|----------------------------------------------------------------------------|
| Innovation                   | Accessibility| Time frame in which eRehabilitation accessible                              |
|                              |              | Devices on which eRehabilitation accessible                                 |
|                              |              | Helpdesk function                                                          |
|                              | Feasibility  | Tailored to patients’ situation                                             |
|                              | Attractiveness | Ease of use of eRehabilitation                                             |
|                              | Privacy      | Content of eRehabilitation program                                          |
|                              | Advantages of use | Privacy and safety of patient data                                         |
|                              | Organization of care | Added value of innovation offered                                          |
| Organization context         | Tasks and responsibilities health professional |                                   |
|                              | Tasks and responsibilities caregiver |                                   |
|                              | Tasks and responsibilities organization |                                   |
| Individual patients          | Resources    | Software                                                                    |
|                              |              | Hardware                                                                    |
|                              | Time         | Time                                                                       |
| Individual professional      | Motivation to change | Reasons to use eRehabilitation patients                                     |
|                              |             | Reasons not to use eRehabilitation patients                                 |
|                              | Motivation not to change | RFashions after stroke                                                   |
| Economic & political context | Patient characteristics | Reasons to use eRehabilitation                                              |
|                              | Motivation to change | Reasons not to use eRehabilitation                                           |
|                              | Motivation not to change | RFashions after stroke                                                       |
|                              | Financial arrangements | RFashions after stroke                                                       |
Table 2: Characteristics of Brazilian and Dutch healthcare professionals participating in the survey study

| Characteristics                        | BHP (n=99) | DHP (n=105) |
|----------------------------------------|------------|-------------|
| **Age, years (mean, SD)**              | 40.0 (6.4) | 42.0 (10.5) |
| **Sex, (n male, %)**                   | 21 (21)    | 25 (24)     |
| **Work experience, years (mean, SD)**  | 15.6 (6.2) | 14.0 (10.0) |
| **Number of new patients per month**   | 13.5 (9.5) | 8.0 (8.9)   |
| **Discipline, (n, %)**                 |            |             |
| Physical therapist                     | 14 (14)    | 41 (39)     |
| Psychologist                           | 12 (12)    | 14 (13)     |
| Physician                              | 10 (10)    | 47 (45)     |
| Nurse                                  | 28 (26)    | .           |
| Occupational therapist                 | 3 (3)      | .           |
| Hospital-based educator                | 3 (3)      | .           |
| Physical education instructor          | 10 (10)    | .           |
| Neurologist                            | 5 (5)      | .           |
| Other*                                 | 14 (14)    | 3 (3)       |
| **Work setting**                       |            |             |
| Health centre in primary care          | .          | 10 (10)     |
| Rehabilitation centre                  | 97 (97)    | 75 (71)     |
| Hospital                               | 4 (4)      | 34 (32)     |
| **Use of digital rehabilitation tools**| 50 (50)    | 40 (38)     |

BHP; Brazilian healthcare professional, DHP; Dutch healthcare professional
In bold significant differences between BHP and DHP (p-value=0.00)
* Occupational therapist, Speech therapist, Nutritionist, Social worker, **Multiple answers possible
| Statement                                                                 | Factor                              | Barrier/ facilitator | Brazil (n=99) | Median (IQR) |
|--------------------------------------------------------------------------|-------------------------------------|----------------------|--------------|--------------|
| I would use e-rehabilitation, if...                                       |                                     |                      |              | 4 (4-4)*     |
| It contributes to the patient’s therapy compliance                       | Patient motivation to change        | F                    |              | 4 (4-4)*     |
| eRehabilitation has a positive influence on recovery                      | Patient motivation to change        | F                    |              | 4 (4-4)*     |
| I can tailor the content of eRehabilitation to the patient’s personal situation | Feasibility                         | F                    |              | 4 (4-4)*     |
| I have time to (learn to) use eRehabilitation                            | Organization of care                | F                    |              | 4 (4-4)*     |
| I feel supported from within the organization to use eRehabilitation      | Organization of care                | F                    |              | 4 (4-4)*     |
| eRehabilitation offers a way to independently continue therapy after discharge | Patient motivation to change        | F                    |              | 4 (4-4)*     |
| ICT-problems are solved directly                                          | Organization of care                | F                    |              | 4 (4-4)*     |
| Logging on is easy                                                       | Accessibility                       | F                    |              | 4 (4-4)*     |
| My patient wants to use eRehabilitation                                   | Patient motivation to change        | F                    |              | 4 (4-4)*     |
| Exercises to train cognitive functioning                                 | Attractiveness                      | F                    |              | 4 (4-4)*     |
| A helpdesk is available for patients                                     | Feasibility                         | F                    |              | .            |
| Video instructions on how to use e-rehabilitation are available for patients | Feasibility                         | F                    |              | .            |
| A menu with frequently asked questions (FAQ) for patients                | Feasibility                         | F                    |              | .            |
| The patient can read information about stroke                             | Feasibility                         | F                    |              | .            |
| Decisions made during a consult are documented and visible for patients   | Advantage of Use                    | F                    |              | .            |
| Insights in goals that are achieve                                       | Attractiveness                      | F                    |              | .            |

· = no part of most influencing statements, B; barrier, F; facilitator, IQR; Interquartile range
*In the top-ten when only physical therapists, rehabilitation physicians and psychologist are included
# Outside 95%Confidence interval in scatterplot, see figure 2
Table 3b: statements with the least influence on the use of eRehabilitation

| Statement                                                                 | Factor of Grol             | Barrier/ facilitator | Median (IQR) |
|---------------------------------------------------------------------------|----------------------------|----------------------|--------------|
| The patient has too many physical disabilities after stroke              | Patient characteristic     | B                     | 2 (1-2)*     |
| The patient has too much aphasia after stroke                            | Patient characteristic     | B                     | 2 (1-2)*     |
| I believe that there will be problems with software                      | Resources                  | B                     | 2 (1-3)*     |
| There is too little scientific evidence for the effectiveness of eRehabilitation | Professional motivation not to change | B                     | 2 (1-3)*     |
| Implementation of eRehabilitation happened simultaneously with other ICT projects | Organization of care       | B                     | 2 (2-3)*     |
| The patient has too many cognitive disabilities after stroke             | Patient characteristic     | B                     | 2 (2-3)*     |
| The patient has visual problems                                          | Patient characteristic     | B                     | 2 (2-3)*     |
| Problems with the devices on which eRehabilitation is used               | Resources                  | B                     | 3 (1-4)      |
| Problems with the internet connection                                   | Resources                  | B                     | 3 (1-4)      |
| The patient cannot compare his/her results with the scores of other stroke patients | Attractiveness             | F                     | 3 (2-3)*     |
| I cannot compare patients results with the scores of other stroke patients | Attractiveness             | F                     | .            |
| The healthcare professional contacts the patients if he/she exercises too little | Organization of care       | F                     | .            |

* = no part of least influencing statements, B; barrier, F; facilitator, IQR; Interquartile range
*In the top-ten when only physical therapists, rehabilitation physicians and psychologist are included

Figures
Figure 1

Flowchart
Figure 2

Scatterplot of the ranking of all statements for the Brazilian healthcare professionals (BHP) and Dutch healthcare professionals (BHP). Lower values are statements with more influence.

Supplementary Files

This is a list of supplementary files associated with the primary manuscript. Click to download.

Additional file 1.pdf
Additional file 2; STROBE checklist.pdf