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To cite this article: Sven Jacobus Gertruda Geelen, Karin Valkenet & Cindy Veenhof (2018): Construct validity and inter-rater reliability of the Dutch activity measure for post-acute care “6-clicks” basic mobility form to assess the mobility of hospitalized patients, Disability and Rehabilitation, DOI: [10.1080/09638288.2018.1471525](https://doi.org/10.1080/09638288.2018.1471525)

To link to this article: <https://doi.org/10.1080/09638288.2018.1471525>



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Published online: 12 May 2018.



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ORIGINAL ARTICLE



Construct validity and inter-rater reliability of the Dutch activity measure for post-acute care “6-clicks” basic mobility form to assess the mobility of hospitalized patients

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ABSTRACT

To evaluate the construct validity and the inter-rater reliability of the Dutch Activity Measure for Post-Acute Care “6-clicks” Basic Mobility short form measuring the patient’s mobility in Dutch hospital care. First, the “6-clicks” was translated by using a forward-backward translation protocol. Next, 64 patients were assessed by the physiotherapist to determine the validity while being admitted to the Internal Medicine wards of a university medical center. Six hypotheses were tested regarding the construct “mobility” which showed that: Better “6-clicks” scores were related to less restrictive pre-admission living situations ($p=0.011$), less restrictive discharge locations ($p=0.001$), more independence in activities of daily living ($p=0.001$) and less physiotherapy visits ($p<0.001$). A correlation was found between the “6-clicks” and length of stay ($r=-0.408$, $p=0.001$), but not between the “6-clicks” and age ($r=-0.180$, $p=0.528$). To determine the inter-rater reliability, an additional 50 patients were assessed by pairs of physiotherapists who independently scored the patients. Intraclass Correlation Coefficients of 0.920 (95%CI: 0.828–0.964) were found. The Kappa Coefficients for the individual items ranged from 0.649 (walking stairs) to 0.841 (sit-to-stand). The Dutch “6-clicks” shows a good construct validity and moderate-to-excellent inter-rater reliability when used to assess the mobility of hospitalized patients.

ARTICLE HISTORY

Received 18 December 2017
Revised 26 April 2018
Accepted 27 April 2018

KEYWORDS

Hospitalization; mobility; physiotherapy; validity; reliability; measuring; tool

► IMPLICATIONS FOR REHABILITATION

- Even though various measurement tools have been developed, it appears the majority of physiotherapists working in a hospital currently do not use these tools as a standard part of their care.
- The Activity Measure for Post-Acute Care “6-clicks” Basic Mobility is the only tool which is designed to be short, easy to use within usual care and has been validated in the entire hospital population.
- This study shows that the Dutch version of the Activity Measure for Post-Acute Care “6-clicks” Basic Mobility form is a valid, easy to use, quick tool to assess the basic mobility of Dutch hospitalized patients.

Introduction

The percentage of people older than 65 years increases by the year. It is estimated that in The Netherlands the amount of elderly will rise from 13% in 2005 to 24% in 2030 [1]. The aging of the population will be accompanied with an increase in multimorbidity and frailty, resulting in a higher number of patients at greater risk of being admitted to a hospital when they become ill [2,3]. When admitted to a hospital, a relatively high proportion of these older patients with an acute musculoskeletal, neurological, or cardiopulmonary injury or disease, experience new limitations in mobility and activities of daily living (ADL) [4].


A loss in mobility and ADL during admission may have profound consequences, such as prolonged length of stay, increased risk of mortality and increased risk for institutionalization after discharge [5,6]. When the loss in mobility and ADL persist up to three months, the probability of “complete recovery” of function decreases [7]. After six months, these impairments rarely reverse [7,8].

Consequently, some patients experience permanent limitations in their ADL and participation in the community after hospitalization.

To counteract this loss in mobility and ADL, various hospital care models are aimed at stimulating the patient’s physical activity during hospitalization [9–11]. These care models regularly involve physiotherapy and are often evaluated by surrogate outcomes, such as length of stay and hospital complications, while these outcome measures do not fully represent the intended functional changes [12]. By actually using the patient’s mobility as a standardized outcome measure, it will be possible to better evaluate such care models. Additionally, it will be possible to better display the progress of recovery in regular care and provide clinically relevant insight into a patient’s physical capabilities during hospitalization.

So far, various measurement tools have been developed to assess and monitor the independent mobility of hospitalized patients [13–19], but it appears that the majority of physiotherapists working in hospitals currently do not use these tools as a

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 Supplemental data for this article can be accessed [here](#).

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standard part of their care [20]. Underlying reasons for not adopting the available instruments are that they are too time consuming to complete during usual care, too time-consuming to analyze or they have been designed for only a small part of the total hospital population [20]. The Activity Measure for Post-Acute Care (AM-PAC) “6-clicks” Basic Mobility is the only tool which is designed to be short, easy to use within usual care and has been validated in the entire hospital population.[14] Also, physiotherapists are able to score the AM-PAC “6-clicks” Basic Mobility not only by using the observations made during an assessment, but also by using their clinical judgment as a physiotherapist about patient’s probable capabilities [14]. Up to now, a Dutch version of the AM-PAC “6-clicks” Basic Mobility is not yet available.

To enable the use of the AM-PAC “6-clicks” Basic Mobility in clinical practice and research in the Netherlands, we aimed to translate this instrument to the Dutch language and investigate the construct validity and inter-rater reliability of the Dutch AM-PAC “6-clicks” Basic Mobility in patients admitted to a hospital setting.

Materials and methods

Phase 1 – Translation

The first step was to translate the AM-PAC “6-clicks” Basic Mobility version 2.0 from English to Dutch (supplementary Table S1) [21]. Permission to translate and validate the AM-PAC “6-clicks Basic Mobility Short Form has been received prior to this study from the original research team. A forward-backward translation method was used as described in Figure 1 [22,23].

In stage 1 of the translation process, two independent translators translated all 6 items, introductory texts, response options and the footnote of the AM-PAC “6-clicks” Basic Mobility. Both translators were bilingual, with Dutch as their native language. One translator worked as a clinician and was aware of the purpose of the AM-PAC “6-clicks” Basic Mobility. The second translator had no medical background and was not aware of the purpose of the AM-PAC “6-clicks” Basic Mobility.

In stage 2, both translators and an independent observer sat down to synthesize the results. During this meeting, the original AM-PAC “6-clicks” Basic Mobility, both translations and the notes were used to derive one combined translation. Any disagreements were discussed until consensus on the combined translation had been reached.

In stage 3, two different independent translators translated the preliminary Dutch version back to English. Both translators had no medical background, had English as their native language and Dutch as their second language. They were unaware of the original version of the AM-PAC “6-clicks” Basic Mobility. Both backward translations were compared with the original version by two additional independent reviewers to ensure a consistent and adequate translation. Any inconsistencies or conceptual errors in the translation process were changed.

In stage 4, an expert committee reviewed all versions of the translation process. The role of the expert committee was to consolidate all the versions into a pre-final version, ready for pre-testing as described in stage 5. A methodologist, a language professional, one forward translator, one backward translator and health professionals were part of the expert committee.

In stage 5, the pre-final version of the Dutch AM-PAC “6-clicks” Basic Mobility was field tested in a sample of physiotherapists. Three physiotherapists were asked to read the pre-final version. They were then asked about their thoughts on the meaning of each item and related answer options. These field tests were

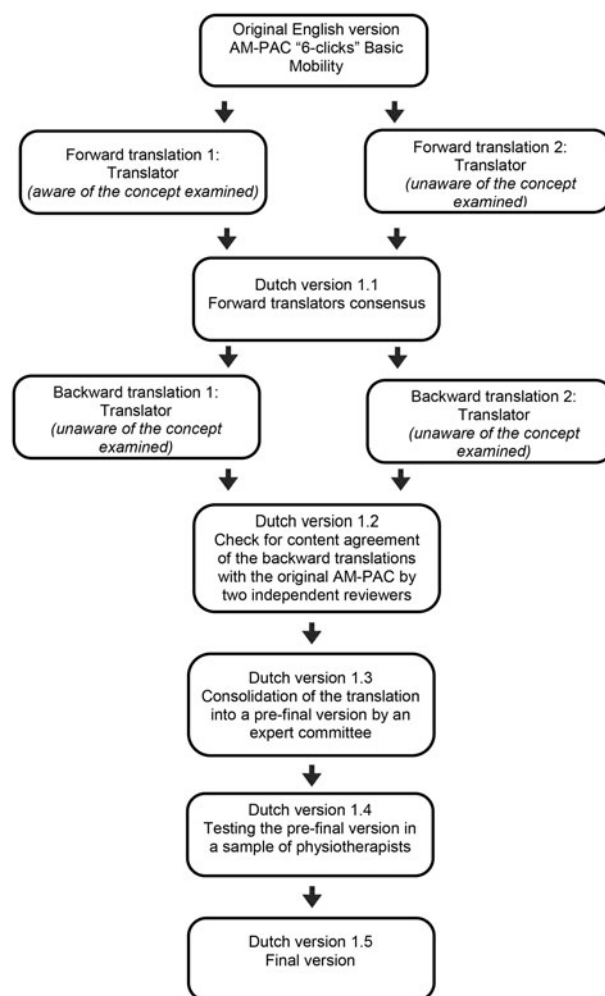


Figure 1. Forward-backward translation process.

examined in order to look for any consistent misinterpretations or room for discussion. If needed, the pre-final version was adjusted accordingly.

The translation process resulted in a final Dutch AM-PAC “6-clicks” Basic Mobility version that was used within this study and has been added to this report in Supplementary Table S2.

Phase 2 – Validation and inter-rater reliability

Study design

A single-center, cross-sectional study design was used to investigate the construct validity and inter-reliability of the Dutch AM-PAC “6-clicks” Basic Mobility. The study was approved by the Medical Research Ethics Committee and has been conducted according to the principles of the Declaration of Helsinki. All patients gave oral informed consent to collect the data.

Study population

The AM-PAC “6-clicks” Basic Mobility was first introduced to the physiotherapists working on the internal medicine wards: rheumatology, nephrology, gastroenterology, oncology (including hematology), urology, infection diseases, internal medicine and geriatrics. The physiotherapists received an explanation of the background, rationale and use of the AM-PAC “6-clicks” Basic Mobility. They were asked to use the AM-PAC “6-clicks” Basic Mobility within the regular care to assess patient mobility. For both the validity and the reliability sample, all patients above

18 years who were admitted to one of these internal medicine wards, were eligible for inclusion. The patients who were medically unstable, underwent surgery during admission, or when mobilization was contraindicated by the medical team were excluded. For the validity sample, patients were also only included when they had been assessed by the physiotherapist using the AM-PAC “6-clicks” Basic Mobility in the first visit.

The AM-PAC “6-clicks” basic mobility

The AM-PAC “6-clicks” Basic Mobility assesses the basic mobility activities, which represent the functional activities of most interest to post-acute rehabilitation providers [14]. It contains six items: rolling in bed, transfers in bed, transfers out of bed, standing, walking and climbing stairs, which are the six most important activities to determine a patient’s basic mobility level [14,24]. All activities are scored on a scale of 1 (unable to do or total assistance required) to 4 (no assistance required). The sum of the scores ranges from 6 (indicating total assistance or cannot do at all) to 24 (indicating completely independent). Because the AM-PAC “6-clicks” Basic Mobility was drawn from the calibrated AM-PAC Basic Mobility item bank [14,21], all scores can be converted to a standardized score, the t-scale score, for analysis (with a mean of 50 and standard deviation (sd) of 10) [21,25]. The t-scale score offers the health care professional to compare the AM-PAC “6-clicks” Basic Mobility scores with other AM-PAC mobility questionnaires via a single reporting scale, assessing different target populations (e.g. inpatient vs. outpatient) and different mobility levels (ranging from very low to high level of function). Also, it offers the option to gain insight into the level of functioning of individual patients in the entire construct “mobility”, with lower scores being equal to a higher degree of limitation. [21] The physiotherapists scored the AM-PAC “6-clicks” Basic Mobility without changing their assessment or treatment. They were asked to score each item by observing the patient’s physical performance or by using their clinical judgment about patient’s probable capabilities. The English AM-PAC “6-clicks” Basic Mobility has been validated and found reliable within a diverse population of American hospitalized patients [14,26].

Assessment of validity

The construct that needed to be validated within the AM-PAC “6-clicks” Basic Mobility was “the patients’ mobility” [27]. The research team decided to investigate the construct by testing hypotheses related to the construct, due to the absence of a gold standard [23]. To test construct validity, the following six hypotheses were defined: (1) lower age correlates moderately with higher AM-PAC “6-clicks” Basic Mobility scores registered during the first physiotherapeutic visit, (2) the patients’ length of stay is inversely moderately correlated with the AM-PAC “6-clicks” Basic Mobility score on the first visit, (3) patients living independently at home before being admitted to a hospital have significantly higher AM-PAC “6-clicks” Basic Mobility scores during the first visit of a physiotherapist than those living in more restrictive settings such as nursery homes, (4) patients score significantly higher during the first visit of a physiotherapist when they were more independent in their ADL prior to admission (as measured by the Katz-ADL[28]), (5) patients returning home independently after hospital admission have significantly higher AM-PAC “6-clicks” Basic Mobility scores during the first visit of a physiotherapist than patients returning to more restrictive settings such as nursery homes and (6) patients who only needed a single physiotherapy visit during their hospital stay have a mean difference of at least 7.36 (standardized score, minimal detectable difference [26])

compared to patients who needed more visits. The following criteria were used for labeling correlations: small/weak ($0.1 < r < 0.3$), medium/moderate ($0.3 < r < 0.5$) and large/strong ($0.5 < r$) [29]. These hypotheses have been posed using the original study [14], the input of the research team and two involved physiotherapists. A positive rating of the construct validity is present when at least 75% of the results are in correspondence with these hypotheses [30].

The AM-PAC “6-clicks” Basic Mobility scores, information regarding the patients’ age, gender, type of diagnosis at admission, length of stay, pre-admission living situation, discharge location and the pre-admission Katz-ADL score [28] were collected by the physiotherapist and delivered anonymously to the research team. The Katz Index of Independence in Activities of Daily Living (ADL) describes the level of independence in ADL and contains six dichotomous questions which can be scored from 0 (completely ADL dependent) to 6 (completely ADL independent) [28].

Inter-rater reliability

In daily care hospital practice, clinimetric instruments are often used by several health care providers. Therefore, the inter-rater reliability was assessed of the AM-PAC “6-clicks” Basic Mobility Short Form. The procedure used to assess the inter-rater reliability has been described in earlier research [26,31]. Participating physiotherapists visited hospitalized patients in pairs. One physiotherapist was responsible for the direct care of the patient and performed treatment as usual and additionally recorded the Dutch AM-PAC “6-clicks” Basic Mobility scores. The second physiotherapist solely observed the patient and also scored the tool. Both physiotherapists were unaware of the other therapist’s AM-PAC “6-clicks” Basic Mobility assessment. The physiotherapists did not communicate with each other during the assessment.

Data analysis

All analyses were conducted using IBM-SPSS Statistics version 24 (IBM Corp, Armon, New York).

For the construct validity, a sample size of at least 64 patients was needed, as calculated with a $(1-\beta)$ of 80%, an α of 5% and a one-tail correlation of at least 0.3 based on the original validation study of Jette et al. [14]. For the inter-rater reliability, a sample of at least 50 patients was needed to calculate an Intraclass Correlation Coefficient (ICC) between two raters of at least 0.8 with a 95% confidence interval of ± 0.1 [23,32].

Descriptive statistics were derived to describe the patients who were observed during the study. Normality was evaluated by using histograms and Q-Q plots. Homogeneity of variances was evaluated by Levene’s test. The following data analyses were used to test the six hypotheses: a one-tailed Spearman’s correlation coefficient was used to determine the relationship between (1) the first visit score and age, and (2) the first visit score and length of stay. Kruskal–Wallis analysis of variance (ANOVA) was used to examine differences in mean first visit scores across (3) six types of pre-admission living situations (home alone, home with partner, home with home-care/caregiver, rehabilitation center/assisted-living facility and nursing facility), (4) across the different Katz-ADL scores and (5) across seven types of discharge locations (home alone, home with partner, home with home-care/caregiver, rehabilitation center/assisted-living facility, nursing facility/different hospital/hospice, and death). A Mann-Whitney U-test was used to examine (6) the difference in first visit scores between the patients who were visited once by a physiotherapist or visited more than once.

Table 1. Validity and inter-rater reliability sample baseline characteristics.

Characteristics	Validity sample <i>n</i> = 64	Inter-rater reliability sample <i>n</i> = 50
Age (years), mean (SD, range)	73.52 (13.53, 18–93)	70.94 (14.99, 31–95)
Sex, <i>n</i> (%)		
Female	35 (54.7)	26 (52.0)
Male	29 (45.3)	24 (48.0)
Type of primary diagnosis at admission, <i>n</i> (%)		
Gastroenterology	10 (15.6)	6 (12.0)
Nephrology	2 (3.1)	2 (4.0)
Internal Medicine	15 (23.4)	3 (6.0)
Geriatrics	27 (42.2)	18 (36.0)
Oncology, (including hematology)	2 (3.1)	3 (6.0)
Rheumatology	3 (4.7)	8 (16.0)
Dermatology	1 (1.6)	1 (2.0)
Infectious disease	4 (6.3)	4 (8.0)
Urology	0 (0.0)	4 (8.0)
Length of stay (days), median (IQR)	11 (7–20)	
Amount of physiotherapy visits, median (IQR)	3 (2–7)	

n: numbers of patients; SD: standard deviation.

Table 2. AM-PAC “6-clicks” Basic Mobility scores of the validity sample.

Characteristic	Amount, <i>n</i> (%)	First visit raw basic mobility, median (range)	First visit basic mobility <i>t</i> -scale score, mean (SD)
Living situation prior to admission			
Home alone	22 (34.4)	21.5 (10.0–24.0)	47.41 (8.75)
Home with partner	24 (37.5)	20.0 (11.0–24.0)	44.80 (7.68)
Home with caregiver/home-care	12 (18.8)	18.0 (9.0–24.0)	42.84 (9.90)
Rehabilitation center/Assisted living home	3 (4.7)	14.0 (7.0–18.0)	32.00 (11.26)
Nursing home/Hospice	3 (4.7)	9.0 (6.0–14.0)	25.98 (9.48)
Katz-ADL			
0	19 (29.7)	23.0 (16.0–24.0)	49.86 (6.04)
1	5 (7.8)	19.0 (18.0–24.0)	45.85 (6.82)
2	5 (7.8)	21.0 (18.0–22.0)	44.12 (2.90)
3	5 (7.8)	23.0 (20.0–24.0)	51.16 (6.48)
4	8 (12.5)	17.5 (9.0–23.0)	39.26 (10.18)
5	15 (23.4)	17.0 (7.0–24.0)	38.56 (8.92)
6	6 (9.4)	13.0 (6.0–24.0)	33.90 (13.70)
Missing data	1 (1.6)	–	–
Physiotherapy visits			
One	12 (18.8)	23.50 (18.0–24.0)	52.72 (5.83)
Two or more	52 (81.3)	18.00 (6.0–24.0)	41.80 (9.53)
Discharge location			
Home alone	8 (12.5)	23.5 (20.0–24.0)	52.75 (5.77)
Home with partner	15 (23.4)	22.0 (16.0–24.0)	47.11 (6.89)
Home with caregiver/home-care	16 (25.0)	21.0 (9.0–24.0)	45.04 (9.27)
Rehabilitation center/Assisted living home	16 (25.0)	17.50 (7.0–24.0)	39.39 (9.51)
Nursing home/Hospice/Different hospital	9 (14.1)	14.0 (6.0–23.0)	36.34 (11.10)
Death	0 (0)	–	–

n: numbers of patients; SD: standard deviation.

To investigate the inter-rater reliability for each individual item of the AM-PAC “6-clicks” Basic Mobility, a linear weighted kappa statistic was used. To determine the inter-rater reliability of the total AM-PAC “6-clicks” Basic Mobility score, a two-way [2,1] random model of absolute agreement ICC was used. Confidence intervals at the 95% level around the two-way ICC were calculated. Absolute reliability was assessed using the standard error of measurement (SEM), which was calculated as $SEM_{\text{agreement}} = \sqrt{(o'_{\text{observer}} + o'_{\text{error}})}$. The $SEM_{\text{agreement}}$ estimates how far apart the measurement results of two raters are [32]. In addition, the minimum metrically detectable change (MMDC) was calculated as $MMDC_{95\%} = SEM \times 1.96 \times \sqrt{2}$ [33].

Results

Construct validity

The validity sample included 64 patients, with a mean age of 73.52 (sd = 13.53) and 55% was male (Table 1). Patients were

admitted for a duration of 3 to 75 days and received between 1 and 32 physiotherapy visits during hospitalization.

Table 2 shows the living situation prior to the admission, Katz-ADL scores prior to admission, number of patients receiving a single physiotherapy visit and the discharge location. A majority of patients admitted to the hospital lived independently at home either alone (34%) or with a partner (38%). None of the patients died during hospitalization.

The mean of the AM-PAC “6-clicks” Basic Mobility scores at the first physiotherapy visit was 18.88 (sd = 4.90), which converts to the standardized score 43.85 (sd = 9.90). Table 2 shows the raw and standardized AM-PAC “6-clicks” Basic Mobility scores of each subgroup.

The results of the hypotheses-testing show that: (1) lower age is not moderately correlated ($r = -0.180$, $p = 0.528$) with higher first visit scores, (2) the patients’ length of stay is significantly, inversely correlated with the first visit score ($r = -0.408$, $p = 0.001$), (3) there is a linear trend showing that patients living

Table 3. Kappa coefficients.

AM-PAC "6-clicks" Basic Mobility Item	Weighted kappa	95% Confidence Interval	
		Lower bound	Upper bound
Turning in bed left and right	0.831	0.708	0.955
From supine to sitting on the edge of the bed	0.732	0.591	0.873
Transfer from bed to chair and back	0.761	0.625	0.898
From sitting in a chair to standing	0.841	0.730	0.951
Walk in room	0.827	0.728	0.926
Walking three to five steps of a stairs	0.649	0.497	0.801

independently at home have significantly higher first visit scores than those living in more restrictive settings ($p=0.011$), (4) patients have significantly higher first visit scores when they were more independent in their ADL prior to admission ($p=0.001$), (5) patients who are discharged to home have significantly higher first visit scores than patients returning to more restrictive settings ($p=0.001$) and (6) patients with a single physiotherapy visit scored significantly higher first AM-PAC "6-clicks" Basic Mobility scores than patients with more than one visit (mean difference = 10.92, $p<0.001$). Therefore, five of the six hypotheses (83%) were confirmed showing that the AM-PAC "6-clicks" Basic Mobility has a good construct validity.

Inter-rater reliability

The inter-rater reliability sample included 50 patients, with a mean age of 70.94 (sd = 14.99) and an almost equal amount of men and women (Table 1).

Three physiotherapists participated in the data collection. Two physiotherapists assessed both 25 patients separately, in collaboration with the third physiotherapist who observed all 50 patients.

The two-way random model of absolute agreement ICC for the inter-rater reliability of both the first and second pair was 0.920 (95% CI: 0.828–0.964). The $SEM_{\text{agreement}}$ was 4.24 and the $MMDC_{95\%}$ was 11.77 on the t-score scale. The weighted Kappa's for each item are described in Table 3.

Discussion

This is the first study investigating the validation and inter-rater reliability of the Dutch AM-PAC "6-clicks" Basic Mobility in a hospital setting. The results provide evidence for the construct validity of the newly translated AM-PAC "6-clicks" Basic Mobility in assessing the mobility of hospitalized patients. Since five of the six hypotheses were confirmed, the construct validity was good. The results found in this study also show that the inter-rater reliability of the Dutch AM-PAC "6-clicks" Basic Mobility is moderate to excellent, with ICC's exceeding 0.90 and Kappa's ranging from 0.649 to 0.841.

The forward-backward translation process described in earlier research is a well-described translation protocol [22], which led to a good translation of the AM-PAC "6-clicks" Basic Mobility with little to no questions and uncertainties from physiotherapists.

Contrary to what was found in the study investigating the validity of the original English AM-PAC "6-clicks" Basic Mobility, no relationship was found between age and the AM-PAC "6-clicks" Basic Mobility score [14]. It is possible that the severity and the type of the underlying diseases on the internal medicine departments have a considerably greater effect on the mobility than the patient's age. The results of hypothesis 3, 4 and 6 were in line with the results of the corresponding hypotheses in the original studies [14,34]. Additionally, we defined two supplementary hypotheses (2 and 4) based on the input of the research team and involved physiotherapists. Earlier research, using other

mobility tools, showed that both the patient's length of stay and the performance of ADL prior to admission have a moderate to strong relationship with the patient's mobility [35–38]. These relationships were confirmed in this study using the AM-PAC "6-clicks" Basic Mobility to measure the patient's independent mobility.

Jette et al. [26] also examined the inter-rater reliability of the original English AM-PAC "6-clicks" Basic Mobility. The ICC's of the English AM-PAC "6-clicks" Basic Mobility were investigated on four separate hospital services with an overall of 0.849, whereas the overall ICC of the Dutch AM-PAC "6-clicks" Basic Mobility are slightly higher (0.920). The Weighted Kappa Coefficients of the Dutch AM-PAC "6-clicks" Basic Mobility (0.649 to 0.841) are also slightly higher when compared with the English AM-PAC "6-clicks" Basic Mobility (0.492 to 0.712) [26]. This difference can be explained by the small number of physiotherapists who participated in this study. Despite the small number of physiotherapists, this study indicated that the inter-rater reliability of the Dutch AM-PAC "6-clicks" Basic Mobility, like the English version, is moderate to excellent.

The AM-PAC "6-clicks" Basic Mobility is designed to be easy to use within regular care. Physiotherapists base the scores on their observations made within regular care in combination with their clinical judgment about the patient's probable capabilities [14]. Although this method of data collection may affect the psychometric properties of this measuring tool, it does reflect usual care practices of a physiotherapeutic assessment in a hospital. For instance, patients with poor exercise capacity due to the illness cannot perform all six activities during assessment. Still, physiotherapists have to be able to estimate the amount of help needed for all basic mobility activities in order to optimize the care for the patient during and after admission. The AM-PAC "6-clicks" Basic Mobility also offers physiotherapists a way to improve the communication with other medical personal because of the short, standardized format of the measuring instrument. During hospitalization, this instrument easily shows all medical personnel how much assistance the patient needs in each basic mobility activity. Finally, using the AM-PAC "6-clicks" Basic Mobility within regular care helps to improve the accuracy for predicting discharge destinations from a hospital [34]. In a system which aims to decrease the length of stay of hospital admissions nationwide, the added value of an instrument as an early prediction tool of the patient's ability to go home should definitely not be underestimated [39].

Since the AM-PAC "6-clicks" Basic Mobility is especially designed for use in acute hospital settings it only includes basic mobility items which raises questions about a possible ceiling effect and the generalizability to other settings. Within this study, it was observed that the majority of the patients (59%) scored ≤ 21 points on the AM-PAC "6-clicks" Basic Mobility during the first assessment. This shows that, with a demonstrated minimal detectable change of two to three points [14], there is room for measuring clinically relevant changes during hospital stay. Furthermore, since the AM-PAC "6-clicks" Basic Mobility has been derived from the calibrated AM-PAC item banks, it is possible to convert

AM-PAC “6-clicks” Basic Mobility scores to standardized scores [14,21,40]. This makes it possible to compare the AM-PAC “6-clicks” Basic Mobility scores with other AM-PAC mobility questionnaires like the AM-PAC Outpatient Short Form which expands the use of this list [21].

A limitation of this study is that in addition to the hypothesis testing, no convergent validity was explored. The research team chose not to compare the AM-PAC “6-clicks” Basic Mobility with other measuring tools, because these were not administered routinely within the regular care of the physiotherapists due to the aforementioned limitations of tools [15,23,41,42]. However, in future research, it might be interesting to compare the AM-PAC “6-clicks” Basic Mobility with another valid measuring tool to substantiate the convergent validity of the AM-PAC “6-clicks” Basic Mobility and to see how these two measuring tools relate to one another.

Another limitation is that the results have been based solely on data of patients admitted to the internal medicine departments. Jette et al described a difference in inter-rater reliability when the results of the AM-PAC “6-clicks” Basic Mobility were compared between different specialisms within the hospital, such as medical/surgical (ICC = 0.960; 95%CI 0.857–0.983) and orthopedic (ICC = 0.581; 95%CI 0.260–0.789) [26]. Although this difference in ICCs might also be because each department had been assessed by different physiotherapists [26], it shows that further research is needed to see how reliable the Dutch AM-PAC “6-clicks” Basic Mobility is when used in other departments.

Also, further psychometric evaluation of the Dutch AM-PAC “6-clicks” Basic Mobility short form is required to support and expand the results herein, including further evaluation of its test-retest reliability, responsiveness to change and predictive values.

To counteract the loss in mobility and ADL patients experience, multiple hospitals in the Netherlands currently explore possibilities to stimulate patients to be more active in a hospital. The lack of activity when hospitalized has also been referred as “pyjama paralysis” [43]. To be able to draw up efficient policies and interventions to stimulate patients to be more active within their mobility capabilities, the independent mobility of every patient should be assessed early on, regularly and in an easy and time efficient way during usual care. However, to be able to measure the mobility of every hospitalized patient within usual care, other healthcare staff should be involved too because physiotherapists only visit a subset of patients. Therefore, an interesting topic for future research is examining the validity and reliability of the AM-PAC “6-clicks” Basic Mobility when administered by other healthcare staff, such as nurses, on a wide variety of departments.

In conclusion, this study provides a good rationale for the use of the Dutch version of AM-PAC “6-clicks” basic mobility in Dutch hospitals as a valid, easy to use, quick tool to assess the basic mobility activities of hospitalized patients.

Disclosure statement

No potential conflict of interest was reported by the authors.

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