

ORIGINAL RESEARCH

Home-based Rehabilitation After Inpatient Rehabilitation: Utilization Rate and Characteristics of Referred Patients



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Abstract

Objective: To determine the utilization rate of a home-based rehabilitation program after an inpatient rehabilitation stay, and to investigate the profile of users.

Design: Observational study.

Setting: Inpatient rehabilitation facility in a tertiary hospital.

Participants: Older patients (N=1913) discharged home between June 2018 and May 2021, after an inpatient rehabilitation stay.

Interventions: Not applicable.

Main Outcome Measures: Discharge to home-based rehabilitation.

Results: Over the study period, 296 (15.5%) patients were discharged to home-based rehabilitation. Compared with the others, home-based rehabilitation patients were more frequently women (69.6% vs 61.5%; $P=.008$), and admitted after orthopedic surgery (elective or for fracture) (30.1% vs 16.1%; $P<.001$). They had worse functional performance at admission (mean Functional Independence Measure self-care score: 27.8 ± 7.3 vs 30.8 ± 6.7 ; $P<.001$), but greater gain in self-care during their inpatient stay (5.0 ± 4.8 vs 4.4 ± 4.7 ; $P=.038$). In multivariable analysis, being a woman (adjusted odds ratio [adjOR], 1.36; 95% confidence interval [CI], 1.01-1.82; $P=.040$), being admitted after orthopedic surgery (adjOR, 2.32; 95% CI, 1.64-3.27; $P<.001$), being admitted for gait disorders or falls (adjOR, 1.38; 95% CI, 1.01-1.88; $P=.039$), and showing greater gain in mobility during the inpatient stay (adjOR, 1.12; 95% CI, 1.07-1.17; $P<.001$) remained associated with discharge to home-based rehabilitation. In contrast, higher mobility at discharge decreased the odds of discharge to home-based rehabilitation (adjOR, 0.87; 95% CI, 0.83-0.91; $P<.001$).

Conclusions: One in 6 patients benefited from home-based rehabilitation after their inpatient stay. Although these patients had poorer functional performance at admission and discharge, they showed greater mobility improvement during their inpatient stay, suggesting that their good recovery potential was a key determinant of their orientation toward home-based rehabilitation.

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Hospitalization adversely affects the functional trajectories of older persons so that up to half of patients aged ≥ 75 years admitted to acute care experience a decline in their ability to self-care and mobilize upon leaving the acute hospital.¹⁻⁵ Most of these patients should be offered geriatric rehabilitation to recover their functional abilities.⁶ However, older patients

have higher risk of incomplete functional recovery because inpatient rehabilitation stays have been shortened by policy and financial constraints.⁷ Home-based rehabilitation is therefore increasingly offered to these patients to complete their rehabilitation in their usual environment after the inpatient stay.

Home-based rehabilitation has been shown to be a valuable alternative to inpatient rehabilitation in patients with hip fractures⁸⁻¹⁰ and knee replacement.^{11,12} A recent meta-analysis reported that pursuing rehabilitation at home significantly

Disclosures:

none.
The study was approved by the Ethical Committee for Human Research of the Canton Vaud (Protocol number: 2021-02197), patients who did not consent to further use of routinely collected data were not included.

shortened the length of the initial inpatient stay without altering functional outcome.¹³

However, most of these studies targeted specific population such as patients with hip fractures,¹⁴⁻¹⁶ elective orthopedic surgery, or stroke,¹⁷ or enrolled patients younger than those admitted to geriatric inpatient rehabilitation facilities. Information about the profile home-based rehabilitation users in a real-world setting remains scarce, as most previous studies were randomized controlled trials, with selected population.¹⁸ No information is available on the relationship between functional and mobility trajectories during inpatient rehabilitation stay and subsequent home-rehabilitation use. Finally, little information is provided on the utilization rate of such home-based rehabilitation.

The objectives of the study were as follows: (1) to determine the utilization rate of a home-based rehabilitation program and compare this rate before and during the COVID-19 pandemic; and (2) to compare sociodemographic, functional and health characteristics as well as inpatient recovery trajectories of patients discharged home with or without this program. Based on previous experience with the prescription of outpatient physical and occupational therapy postdischarge, our initial hypothesis was that home-rehabilitation candidates will show lower functional performance at inpatient rehabilitation admission and discharge, but similar gain over their inpatient stay. In addition, we also hypothesized that patients admitted after orthopedic surgery (elective and for fractures) will be more likely to be discharged to home-based rehabilitation.

Methods

Population and setting

Eligible patients (N=2354) were those aged ≥ 65 years, initially admitted to the inpatient geriatric rehabilitation unit of Lausanne University Hospital, Switzerland and discharged home between June 1, 2018 and May 31, 2021 (fig 1). Those who consented to the use of routinely collected hospital data were included (N=1913, 81.3%). For patients with more than one inpatient stay over the study period (N=241, 12.6%), only data pertaining to their first stay (N=187, 9.8%) or to the first stay followed by home-based rehabilitation (N=54 patients, 2.8%) were included.

Inpatient rehabilitation

Rehabilitation is usually conducted over a 3-week period (median length of stay in 2019: 21d), with an initial comprehensive geriatric assessment that results in multidisciplinary team-based interventions (physical therapy, 5 sessions/wk; occupational therapy, 1-2 sessions/wk; daily nursing rehabilitation in basic activities of daily living; social, nutritional, and psychological interventions

and counseling as needed).^{19,20} Weekly team meetings review mobility and functional progress, to adjust rehabilitation objectives, to adapt interventions, and to revise the date of discharge, and destination at discharge, including to the home-based rehabilitation program.

Home-based rehabilitation

Home-based rehabilitation was conducted by a separate team composed of health care professionals with similar backgrounds as in the inpatient setting (ie, nursing, physical and occupational therapists, etc). Therapy sessions typically begin the day after the patient returns home. They were offered on a 5-day per week basis and include 3 sessions of physical and 2 sessions of occupational therapy, while nurses and nursing assistants intervene as needed, up to several times a day for rehabilitation in activities of daily living. A family physician oversees patient's care throughout the home-based rehabilitation program that usually lasts about 3 weeks.

Data source

Sociodemographic (age, sex, living alone, and help from home care services), health, and functional status characteristics including self-reported Katz²¹ basic activities of daily living and Lawton and Brody²² instrumental activities of daily living before hospital admission were retrieved from electronic medical records.

At admission to inpatient rehabilitation, a comprehensive geriatric assessment was performed to determine cognitive (using the Mini-Mental State Examination,²³ Montreal Cognitive Assessment,²⁴ or Mini-Cog²⁵), affective (4 item Geriatric Depression Scale²⁶), and self-care and mobility status (using items of the Functional Independence Measure).²⁷ Comorbidities were recorded using the Cumulative Illness Rating Scale.²⁸

Before discharge, self-care and mobility performance were also assessed using the Functional Independence Measure, allowing to measure each patient's self-care and mobility gain during the inpatient rehabilitation stay.

Discharge location and use of home-based rehabilitation were identified from the hospital database, as were also the length of the initial inpatient stay and 30-day readmission rate. Data on self-care and mobility are not routinely collected during the home-based rehabilitation program and were therefore not available for the current analysis.

Statistical analysis

The proportion of patients discharged to home-based rehabilitation among those discharged home was computed over the study period, overall and separately for the period before (18mo) and during the COVID-19 pandemic (18mo).

Bivariable analysis compared the characteristics of patients discharged to home-based rehabilitation with those of patients discharged home without this program, using chi-square tests and *t* tests for categorical and continuous variables, respectively.

A multivariable logistic regression analysis was performed to identify patients' characteristics that remained independently associated with the use of home-based rehabilitation. Beside age and comorbidity, candidate variables to enter the model were those significantly associated with the use of home-based rehabilitation in bivariable analysis. The goodness of fit and correct

List of abbreviations:

adjOR	adjusted odds ratio
BADL	basic activities of daily living
CI	confidence interval
CIRS	Cumulative Illness Rating Scale
COPD	chronic obstructive pulmonary disease
FIM	Functional Independence Measure
IADL	instrumental activities of daily living

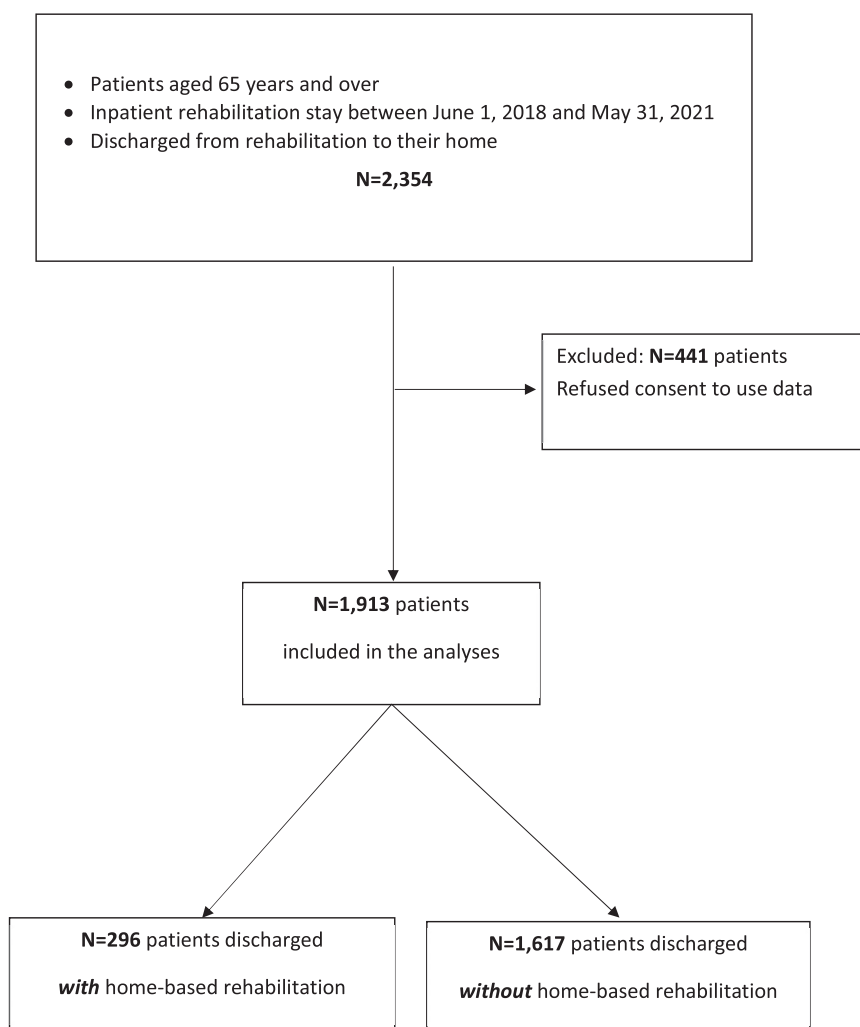


Fig 1 Flowchart describing the selection of study participants and the number of patients discharged with and without home-based rehabilitation.

specification of the model were checked using the Hosmer-Lemeshow test and Pregibon linktest, respectively.^{29,30}

Level of significance was set at $P < .05$, and all analyses were performed using Stata, version 17.^a

The study was approved by the Ethical Committee for Human Research of the Canton Vaud (protocol number: 2021-02197).

Results

Over the study period, 296 (15.5%) among 1913 patients were discharged to home-based rehabilitation (fig 2). A specific analysis that compared the use of home-based rehabilitation before and during the COVID-19 pandemic period (2018-2019 vs 2020-2021) revealed that the proportion of patients discharged to home-based rehabilitation was substantially higher during the pandemic period (12.4% vs 20.0%, $P < .001$). More specifically, this proportion increased by 1% each 6-month period over the first 18 months (June 2018-November 2019), then by 6% in early 2020 during the first COVID-19 pandemic wave, and by another 1% each 6-month period thereafter from June 2020 to June 2021.

Table 1 shows the characteristics of the total population of patients discharged home after their inpatient rehabilitation and provides results from the bivariable comparisons between those discharged or not to home-based rehabilitation. Chi-square tests indicated that, compared with the others, patients discharged to home-based rehabilitation were more frequently women and admitted after orthopedic surgery (elective or for fracture). As indicated by Student t tests, patients discharged to home-based rehabilitation had worse self-care and mobility performance at admission and discharge. In contrast, they showed greater gain in self-care and mobility during their inpatient stay. Length of stay was longer in patients discharged to home-based rehabilitation than in those who were discharged home without this program. There was no difference in 30-day readmission rate between patients discharged or not to home-based rehabilitation.

Results from the multivariable analysis are displayed in figure 3. Being a woman (adjusted odds ratio [adjOR], 1.36; 95% confidence interval [CI], 1.01-1.82; $P = .040$), being admitted after orthopedic surgery (adjOR, 2.32; 95% CI, 1.64-3.27; $P < .001$), being admitted for gait disorders or falls (adjOR, 1.38; 95% CI, 1.01-1.88; $P = .039$), and showing greater gain in mobility during the inpatient stay (adjOR, 1.12; 95% CI, 1.07-

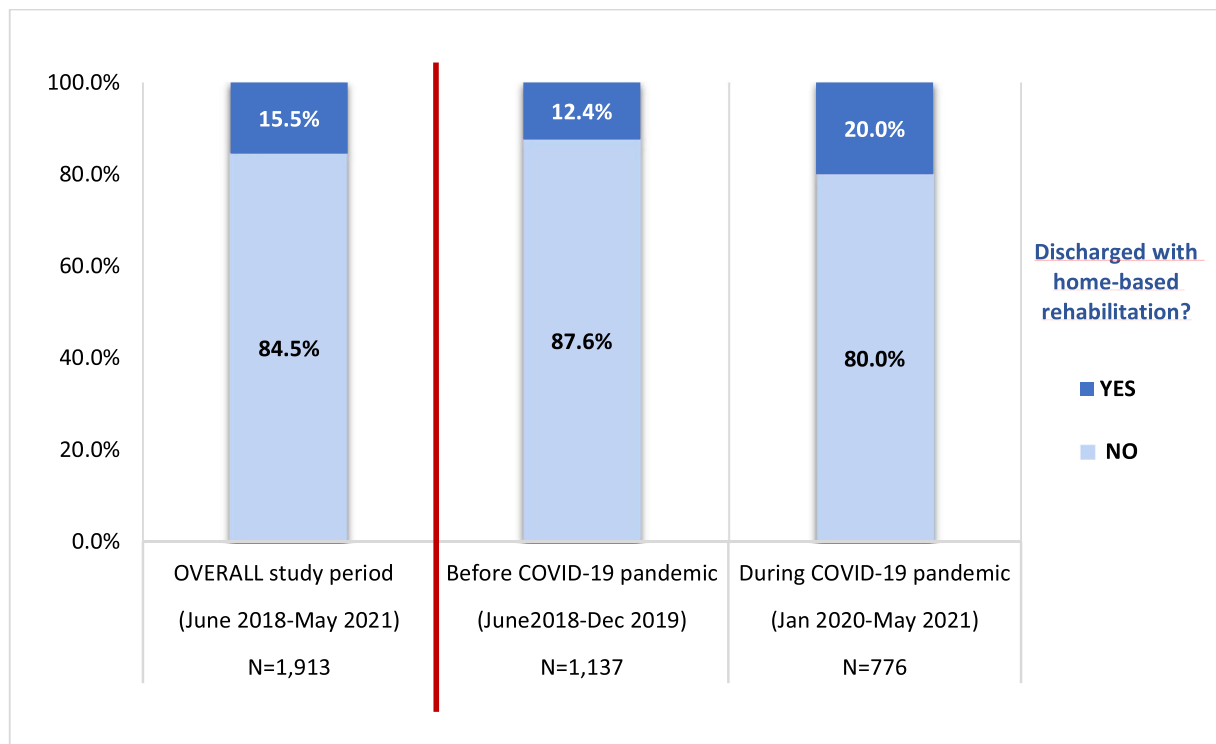


Fig 2 Proportion of patients discharged with or without home-based rehabilitation over the entire study period (left panel); and separately for the periods before (June 2018-December 2019) and during (January 2020-May 2021) the COVID-19 pandemic (right panel).

1.17; $P < .001$) remained predictors of discharge to home-based rehabilitation. In contrast, higher mobility at discharge decreased the odds of home-based rehabilitation (adjOR, 0.87; 95% CI, 0.83-0.91; $P < .001$). The associations between performance in self-care at discharge, gain in self-care performance, and length of inpatient rehabilitation stay with home-based rehabilitation that were observed in bivariable analysis did not remain after multivariable adjustment.

Patients admitted during the period of COVID-19 pandemic (2020-2021) also remained more likely to be discharged to home-based rehabilitation (adjOR, 1.66; 95% CI, 1.26-2.17; $P < .001$).

Discussion

This study shows that about 1 in 6 patients admitted to inpatient rehabilitation were discharged to home-based rehabilitation at the end of their stay. Results also show that patients characteristics such as being a woman, admission diagnosis, and mobility performance were associated with the likelihood of discharge to home-based rehabilitation.

A specific observation was the increased use of home-based rehabilitation during the COVID-19 pandemic. This finding is in line with the overloading of the hospital health care system and the need to find alternative solutions for patients with lighter rehabilitation needs during the pandemic period.^{31,32} As such, it also underlines the potential contribution of such a home-based rehabilitation program to the functioning of the health care system, although we were unable to observe any shortening of inpatient stays in the present study, unlike some previous studies.¹³

An original contribution of the present study is to provide new information on the relationship between patients' characteristics

and the likelihood of discharge to home-based rehabilitation. In particular, it highlights the complex interplay between patients' mobility performance and discharge destination. Although higher gain in mobility during the stay was associated with an increased probability of discharge to home-based rehabilitation, high-mobility performance at discharge was associated with a reduced probability of discharge to home-based rehabilitation. Although these results could seem contradictory at first glance, they strongly suggest that 2 dimensions of mobility, that is, gain during the inpatient stay and absolute performance level at discharge, are accounted for when deciding discharge destination. In other words, their good recovery during inpatient rehabilitation and the feeling of further potential for recovery seem to play a key role in the decision to discharge these patients with home-based rehabilitation. Unfortunately, we did not find any previous research that reported that patients should be oriented toward home-based rehabilitation and, to our knowledge, the present study is the first to report such specific information. These results enhance our understanding of mechanisms that likely underlie decisions to discharge patients toward home-based rehabilitation. They highlight the importance of incorporating mobility trajectory during the inpatient stay in these decisions, accounting for mobility gain as well as level of performance at discharge. On the contrary, no association remained between self-care performance (measured at admission, discharge, and the gain during inpatient stay) and discharge to home-based rehabilitation in multivariable analysis. This lack of association is likely explained by the comprehensive adjustment for the various characteristics available, including mobility.

The study results also indicate that, as hypothesized, patients admitted after orthopedic surgery or for gait disorders or falls were more likely to be discharged to home-based rehabilitation. This finding aligns with the substantial body of literature

Table 1 Description of patients' characteristics and comparison between patients discharged to home-based rehabilitation or not.

Patients' Characteristics	All Patients N=1913 (100%)	Discharged to Home-based Rehabilitation?		P Value*
		Yes N=296 (15.5%)	No N=1617 (84.5%)	
Baseline characteristics (before hospital admission)				
Age (y), mean (\pm SD)	83.3 (\pm 7.3)	83.8 (\pm 7.3)	83.2 (\pm 7.3)	.175
Women (%)	62.8	69.6	61.5	.008
Living alone (%)	61.8	64.5	61.4	.301
BADL impairment [†] (%)	45.5	49.0	44.8	.187
IADL impairment [‡] (%)	81.7	82.4	81.6	.724
In home care recipient (%)	61.0	63.5	60.5	.336
Characteristics at rehabilitation admission				
Depressive symptoms [§] (%)	34.4	35.0	34.3	.842
Cognitive impairment (%)	38.6	40.0	38.4	.612
CIRS [¶] , mean (\pm SD)	18.8 (\pm 5.6)	18.7 (\pm 5.7)	18.8 (\pm 5.5)	.915
Number of comorbidities, mean (\pm SD)	14.4 (\pm 5.1)	14.8 (\pm 5.3)	14.3 (\pm 5.1)	.087
Admitted for (%)				
Gait disorders or fall	32.6	33.8	32.3	<.001
After orthopedic surgery (fracture or arthritis)	18.3	30.1	16.1	
Pneumonia, COPD	6.7	4.7	7.1	
Heart failure	4.4	3.0	4.6	
Stroke	2.2	2.4	2.2	
Miscellaneous	35.8	26.0	37.6	
FIM self-care [#] , mean (\pm SD)	30.4 (\pm 6.9)	27.8 (\pm 7.3)	30.8 (\pm 6.7)	<.001
FIM mobility ^{**} , mean (\pm SD)	19.4 (\pm 5.0)	16.8 (\pm 5.0)	19.9 (\pm 4.9)	<.001
Characteristics at discharge				
Length of stay, mean (\pm SD)	21.0 (\pm 9.1)	23.1 (\pm 10.4)	20.6 (\pm 8.8)	<.001
FIM self-care [#] , mean (\pm SD)	34.8 (\pm 5.8)	32.8 (\pm 6.1)	35.2 (\pm 5.7)	<.001
FIM mobility ^{**} , mean (\pm SD)	26.5 (\pm 4.3)	24.8 (\pm 4.4)	26.8 (\pm 4.2)	<.001
FIM self-care [#] or gain ^{††} , mean (\pm SD)	4.5 (\pm 4.8)	5.0 (\pm 4.8)	4.4 (\pm 4.7)	0.038
FIM mobility ^{**} or gain ^{††} , mean (\pm SD)	7.1 (\pm 4.5)	8.0 (\pm 4.7)	6.9 (\pm 4.4)	<.001
Discharged during COVID period (2020-2021) vs (2018-2019) (%)	40.6	52.4	38.4	<.001
Rehospitalized at 30 d from rehab discharge (%)	14.5	15.2	14.4	.722

Abbreviations: BADL, basic activities of daily living; CIRS, Cumulative Illness Rating Scale; COPD, chronic obstructive pulmonary disease; FIM, Functional Independence Measure; IADL, instrumental activities of daily living.

* P value from Pearson chi-squared test (categorical variables) or Student *t* test (continuous variables).

[†] Katz BADL score <6/6.

[‡] Lawton IADL score <8/8.

[§] Mini-Geriatric Depression Scale score >0/4.

^{||} Mini-Mental State Examination score <24/30 or Montreal Cognitive Assessment score <26/30 or Mini-Cog score <3/5.

[¶] CIRS: scores range from 5 to 56, with higher scores indicating higher comorbidity.

[#] FIM score on self-care items (eating, grooming, bathing, getting upper/lower body dressed, toileting). Score in (6-42).

^{**} FIM score on mobility items (transfers bed/chair/wheelchair, transfers toilet, transfers bath/shower, walk/wheelchair, stairs). Score in (5-35).

^{††} FIM self-care, or mobility, gain: difference between score at discharge and score at admission.

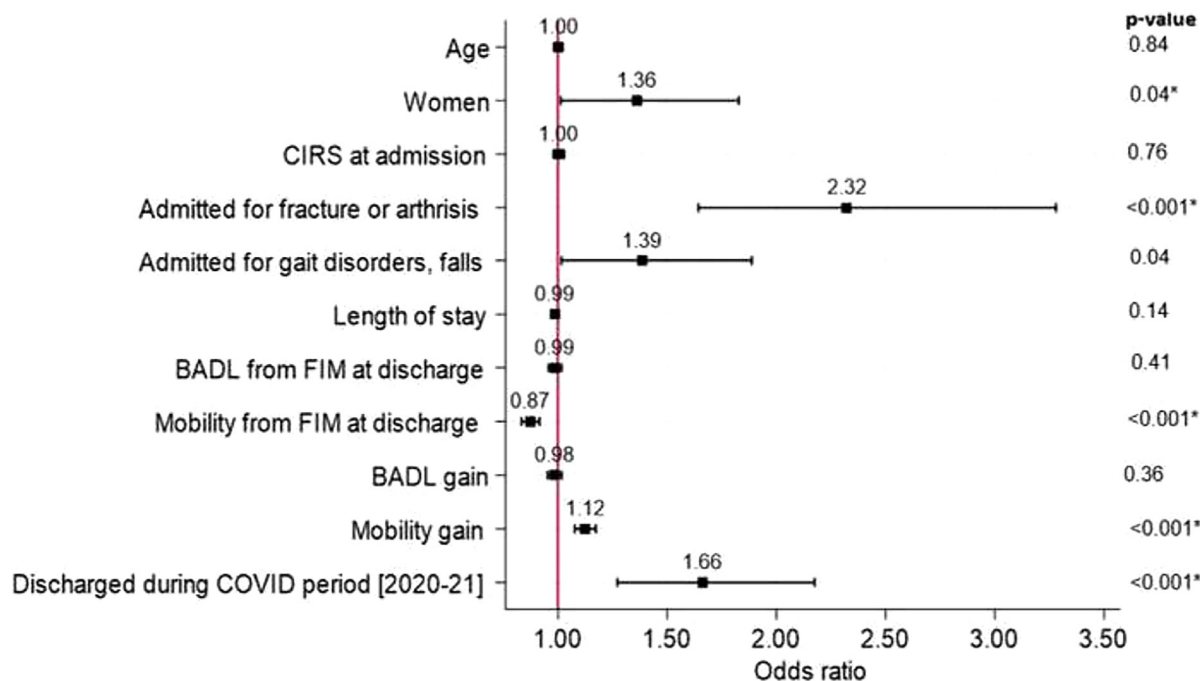


Fig 3 Results of the multivariable analysis investigating patients' characteristics associated with discharge to home-based rehabilitation. Abbreviations: BADL, basic activities of daily living; CIRS, Cumulative Illness Rating Scale; FIM, Functional Independence Measure.

supporting the benefits from home-based rehabilitation for these patients.^{9,10,33,34}

In contrast, the observation that women were more likely to be discharged to home-based rehabilitation was unexpected. This association remained even after adjusting for potential confounders such as admitting diagnoses and functional performance. Social or affective health determinants could potentially have explained this finding, as suggested by a prior study, which reported that the presence of a caregiver was a strong predictor of discharge destination.³⁵ However, no association was observed neither with living arrangement (living alone), nor with affective (Geriatric Depression Scale) measures, making this explanation unlikely. Future studies should investigate this issue further to determine if it can be replicated.

Study limitations

Study limitations include the observational design that precludes causal inference, and the single-center design that limits the generalizability of the findings. The lack of information on functional and mobility outcomes at the end of home-based rehabilitation prevents the assessment of the appropriateness of the decision to refer the patients. This study also has several strengths such as the use of real-world data systematically collected over an extended period with standardized instruments, the large population included with few exclusion criteria, and the rich set of characteristics available for the analyses.

Conclusions

In conclusion, about 1 in 6 patients were discharged with home-based rehabilitation after their inpatient rehabilitation stay. The higher proportion observed during the COVID-19 pandemic highlights the pertinence of such programs in

alleviating hospital overload, while offering a valuable alternative to older patients who prefer to return rapidly to their home, considered as a safer place.

Although these patients had poorer functional and mobility performance at admission and discharge, they showed greater mobility improvement over their inpatient stay, suggesting that their good recovery potential was a key factor in the decision to referring them to home-based rehabilitation.

Supplier

a. Stata, version 17; StataCorp

Keywords

Functional performance; Home-based rehabilitation; Mobility performance; Older patients

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References

1. McCusker J, Kakuma R, Abrahamowicz M. Predictors of functional decline in hospitalized elderly patients: a systematic review. *J Gerontol A Biol Sci Med Sci* 2002;57:M569-77.

2. Boyd CM, Landefeld CS, Counsell SR, et al. Recovery of activities of daily living in older adults after hospitalization for acute medical illness. *J Am Geriatr Soc* 2008;56:2171–9.
3. Palese A, Gonella S, Moreale R, et al. Hospital-acquired functional decline in older patients cared for in acute medical wards and predictors: findings from a multicentre longitudinal study. *Geriatr Nurs* 2016;37:192–9.
4. Basic D, Ní Chróinín D, Conforti D, Shanley C. Predictors on admission of functional decline among older patients hospitalised for acute care: a prospective observational study. *Australas J Ageing* 2017;36: E57–63.
5. D’Onofrio A, Büla C, Rubli E, Butrognio F, Morin D. Functional trajectories of older patients admitted to an Acute Care Unit for Elders. *Int J Older People Nurs* 2018;13:e12164.
6. Grund S, Gordon AL, van Balen R, et al. European consensus on core principles and future priorities for geriatric rehabilitation: consensus statement. *Eur Geriatr Med* 2020;11:233–8.
7. O’Brien SR, Xue Y, Ingersoll G, Kelly A. Shorter length of stay is associated with worse functional outcomes for medicare beneficiaries with stroke. *Phys Ther* 2013;93:1592–602.
8. Zidén L, Frändin K, Kreuter M. Home rehabilitation after hip fracture. A randomized controlled study on balance confidence, physical function and everyday activities. *Clin Rehabil* 2008;22:1019–33.
9. Chen B, Hu N, Tan JH. Efficacy of home-based exercise programme on physical function after hip fracture: a systematic review and meta-analysis of randomised controlled trials. *Int Wound J* 2020;17:45–54.
10. Wu D, Zhu X, Zhang S. Effect of home-based rehabilitation for hip fracture: a meta-analysis of randomized controlled trials. *J Rehabil Med* 2018;50:481–6.
11. Buhagiar MA, Naylor JM, Harris IA, et al. Effect of inpatient rehabilitation vs a monitored home-based program on mobility in patients with total knee arthroplasty: the HIHO randomized clinical trial. *JAMA* 2017;317:1037–46.
12. Khan F, Ng L, Gonzalez S, Hale T, Turner-Stokes L. Multidisciplinary rehabilitation programmes following joint replacement at the hip and knee in chronic arthropathy. *Cochrane Database Syst Rev* 2008;2008: CD004957.
13. Preitschopf A, Holstege M, Ligthart A, et al. Effectiveness of outpatient geriatric rehabilitation after inpatient geriatric rehabilitation or hospitalisation: a systematic review and meta-analysis. *Age Ageing* 2023;52:afac300.
14. Edgren J, Salpakoski A, Sihvonen SE, et al. Effects of a home-based physical rehabilitation program on physical disability after hip fracture: a randomized controlled trial. *J Am Med Dir Assoc* 2015;16: 350.e1–7.
15. Orwig DL, Hochberg M, Yu-Yahiro J, et al. Delivery and outcomes of a yearlong home exercise program after hip fracture: a randomized controlled trial. *Arch Intern Med* 2011;171:323–31.
16. Salpakoski A, Törmäkangas T, Edgren J, et al. Effects of a multicomponent home-based physical rehabilitation program on mobility recovery after hip fracture: a randomized controlled trial. *J Am Med Dir Assoc* 2014;15:361–8.
17. Chen YC, Chou W, Hong RB, Lee JH, Chang JH. Home-based rehabilitation versus hospital-based rehabilitation for stroke patients in post-acute care stage: comparison on the quality of life. *J Formos Med Assoc* 2023;122:862–71.
18. Latham NK, Harris BA, Bean JF, et al. Effect of a home-based exercise program on functional recovery following rehabilitation after hip fracture: a randomized clinical trial. *JAMA* 2014;311: 700–8.
19. Seematter-Bagnoud L, Lécureux E, Rochat S, Monod S, Lenoble-Hoskovec C, Büla CJ. Predictors of functional recovery in patients admitted to geriatric postacute rehabilitation. *Arch Phys Med Rehabil* 2013;94:2373–80.
20. Seematter-Bagnoud L, Frascarolo S, Büla CJ. How much do combined affective and cognitive impairments worsen rehabilitation outcomes after hip fracture? *BMC Geriatr* 2018;18:71.
21. Katz S. Assessing self-maintenance: activities of daily living, mobility, and instrumental activities of daily living. *J Am Geriatr Soc* 1983;31:721–7.
22. Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist* 1969;9:179–86.
23. Folstein MF, Folstein SE, McHugh PR. “Mini-mental state”: A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res* 1975;12:189–98.
24. Nasreddine ZS, Phillips NA, Bédirian V, et al. The Montreal Cognitive Assessment, MoCA: a brief screening tool for mild cognitive impairment. *J Am Geriatr Soc* 2005;53:695–9.
25. Borson S, Scanlan J, Brush M, Vitaliano P, Dokmak A. The mini-Cog: a cognitive “vital signs” measure for dementia screening in multi-lingual elderly. *Int J Geriatr Psychiatry* 2000;15:1021–7.
26. Clément JP, Nassif RF, Léger JM, Marchan F. [Development and contribution to the validation of a brief French version of the Yesavage Geriatric Depression Scale] [French]. *Encephale* 1997;23: 91–9.
27. Keith RA, Granger CV, Hamilton BB, Sherwin FS. The functional independence measure: a new tool for rehabilitation. *Adv Clin Rehabil* 1987;1:6–18.
28. Salvi F, Miller MD, Grilli A, et al. A manual of guidelines to score the modified cumulative illness rating scale and its validation in acute hospitalized elderly patients. *J Am Geriatr Soc* 2008;56:1926–31.
29. Hosmer Jr DW, Lemeshow S, Sturdivant RX. *Applied logistic regression*. 3rd ed. New York: Wiley; 2013.
30. Pregibon D. Goodness of link tests for generalized linear models. *J R Stat Soc Ser C Appl Stat* 1980;29:15–24.
31. Bossuyt FM, Bogdanova Y, Kingsley KT, et al. Evolution of rehabilitation services in response to a global pandemic: reflection on opportunities and challenges ahead. *Front Rehabil Sci* 2023;4:1173558.
32. Azhari A, Parsa A. COVID-19 outbreak highlights: importance of home-based rehabilitation in orthopedic surgery. *Arch Bone Jt Surg* 2020;8(Suppl 1):317–8.
33. Auais MA, Eilayyan O, Mayo NE. Extended exercise rehabilitation after hip fracture improves patients’ physical function: a systematic review and meta-analysis. *Phys Ther* 2012;92:1437–51.
34. Kuijlaars IAR, Sweerts L, Nijhuis-van der Sanden MWG, et al. Effectiveness of supervised home-based exercise therapy compared to a control intervention on functions, activities, and participation in older patients after hip fracture: a systematic review and meta-analysis. *Arch Phys Med Rehabil* 2019;100:101–114.e6.
35. Herbold J, Elmohsen E, Gutierrez G, Helgesen M, Babyar S. Prediction of discharge destination after inpatient rehabilitation for stroke using mobility and self-care assessment in Section GG of the inpatient rehabilitation facility – patient assessment instrument. *Arch Rehabil Res Clin Transl* 2023;5:100292.