ORIGINAL RESEARCH

Factors Influencing Outcomes of a Telehealth-Based Physical Activity Program in Older Veterans Postdischarge

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Background: Hospital-to-home transitions are influenced by hospitalization factors, associated posthospital syndromes, and postdischarge health care application. The objective of this study was to examine how these factors influenced outcomes of a pilot intervention using Veterans Affairs Video Connect (VVC) to enhance function and physical activity in older adults posthospital discharge.

Methods: Twenty-four older adults (mean age, 74 years) participated in a 6-month pilot VVC physical activity intervention designed to enhance functional ability, physical performance, and physical activity.

Results: Participants with mild to moderate cognitive impairment had less improvement in activities of daily living (median, 0; IQR, 0 to 1) than those with no impairment (median, 0; IQR, -0.75 to 0; effect size [ES], -1.1; *P* = .04). Participants with ≥ 1 readmission experienced a greater increase in Rosow-Breslau mobility disability score (median, 0; IQR, -0.5 to 1) than participants who were not readmitted (median, 0; IQR, -1.25 to 0.25; ES, 1.0; *P* = .03). Longer hospital length of stay was correlated with an increase in Nagi score (ρ, 0.45; 95% CI, 0.01 to 0.75), and higher number of medication changes was correlated with a decrease in Rosow-Breslau mobility disability score (ρ, -0.47; 95% CI, -0.76 to -0.02).

Conclusions: In a cohort of older adults undergoing a 6-month pilot VVC-based physical activity intervention posthospital discharge, improvements in mobility and disability were most likely in those who had no cognitive impairment and were not readmitted. Larger sample and qualitative investigations are necessary to optimize outcomes for those who meet these clinical profiles.

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Deconditioning among hospitalized older adults contributes to significant decline in posthospitalization functional ability, physical performance, and physical activity.[1-10] Previous hospital-to-home interventions have targeted improving function and physical activity, including recent programs leveraging home telehealth as a feasible and potentially effective mode of delivering in-home exercise and rehabilitation.[11-14] However, pilot interventions have shown mixed effectiveness.[11,12,14] This study expands on a previously published intervention describing a pilot home telehealth program for veterans posthospital discharge that demonstrated significant 6-month improvement in physical activity as well as trends in physical function improvement, including among those with cognitive impairment.[15] Factors that contribute to improved outcomes are the focus of the present study.

Key factors underlying the complexity of hospital-to-home transitions include hospitalization elements (ie, reason for admission and length of stay), associated posthospital syndromes (ie, postdischarge falls, medication changes, cognitive impairment, and pain), and postdischarge health care application (ie, physical therapy and hospital readmission).[16-18] These factors may be associated with postdischarge functional ability, physical performance, and physical activity, but their direct influence on intervention outcomes is unclear (Figure 1).[5,7,9,16-20] The objective of this study was to examine the influence of hospitalization, posthospital syndrome, and postdischarge health care application factors on outcomes of a US Department of Veterans Affairs (VA) Video Connect (VVC) intervention to enhance function and physical activity in older adults posthospital discharge.

METHODS

The previous analysis reported on patient characteristics, program feasibility, and preliminary outcomes.[13,15] The current study reports on relationships between hospitalization, posthospital syndrome, and postdischarge health care application factors and change in key outcomes, namely postdischarge self-reported functional ability, physical performance, and physical activity from baseline to endpoint.

Participants provided written informed consent. The protocol and consent forms were approved by the VA Ann Arbor Healthcare System (VAAAHS) Research and Development Committee, and the project was registered on clinicaltrials.gov (NCT04045054).

Intervention

The pilot program targeted older adults following recent hospital discharge from VAAAHS. Participants were eligible if they were aged ≥ 50 years, had been discharged following an inpatient stay in the past 1 to 2 weeks, evaluated by physical therapy during hospitalization with stated rehabilitation goals on discharge, and followed by a VAAAHS primary care physician. Participants were either recruited during hospital admission or shortly after discharge.[13]

An experienced physical activity trainer (PAT) supported the progression of participants' rehabilitation goals via a home exercise program and coached the patient and caregiver to optimize functional ability, physical performance, and physical activity. The PAT was a nonlicensed research assistant with extensive experience in applying standard physical activity enhancement protocols (eg, increased walking) to older adults with comorbities. Participation in the program lasted about 6 months. Initiation of the PAT program was delayed if the patient was already receiving postdischarge home-based or outpatient physical therapy. The PAT contacted the patient weekly via VVC for the first 6 weeks, then monthly for a total of 6 months. Each contact included information on optimal walking form, injury prevention, program progression, and ways to incorporate sit-to-stand transitions, nonsitting behavior, and walking into daily routines. The initial VVC contact lasted about 60 minutes and subsequent sessions lasted about 30 minutes.[13]

Demographic characteristics were self-reported by participants and included age, sex, race, years of education, and marital status. Clinical characteristics were obtained from each participant's electronic health record (EHR), including copay status, index hospitalization length of stay, admission diagnosis, and postsurgery status (postsurgery vs nonpostsurgery). Intervention adherence was tracked as the number of PAT sessions attended.

Posthospital Syndrome Factors

Participant falls (categorized as those who reported a fall vs those who did not) and medication changes (number of changes reported, including new medication, discontinued medication, dose changes, medication changes, or changes in medication schedule) were reported by participants or caregivers during each VVC contact. Participants completed the Montreal Cognitive Assessment (MoCA) at baseline, and were dichotomized into 2 groups: no cognitive impairment (MoCA score ≥ 26) and mild to moderate cognitive impairment (MoCA score 10-25).[13,21]

Participants rated how much pain interfered with their normal daily activities since the previous VVC session on a 5-point Likert scale (1, not at all; to 5, extremely).[22] Similar to prior research, participants were placed into 2 groups based on their mean pain interference score (individuals with scores from 1.0 to 2.0 in 1 group, and individuals with > 2.0 in another).[23-25] Participants were separated into a no or mild pain interference group and a moderate to severe pain interference group. Hospital readmissions (VA and non-VA) and postdischarge physical therapy outcomes were obtained from the participant's EHR, including primary care visits.

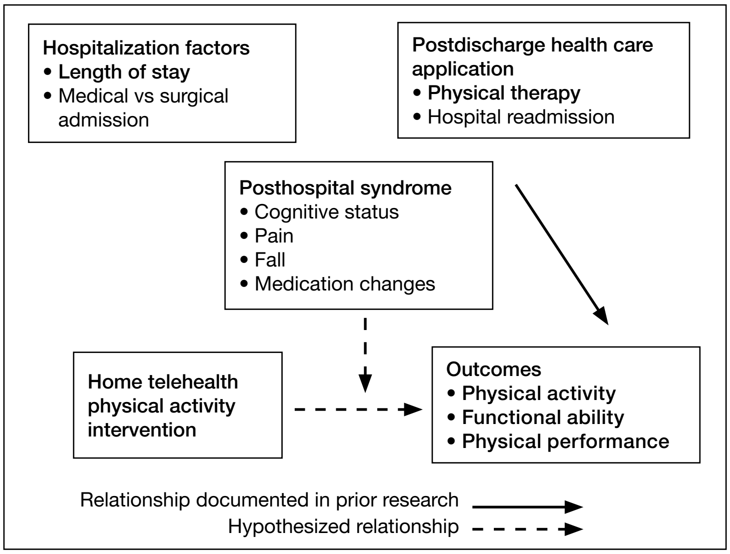

FIGURE. Hospitalization, posthospital syndrome, and postdischarge health care application factors on physical activity, functional ability, and physical performance intervention outcomes.

Outcomes

Outcomes were collected at baseline (posthospital discharge) and 6 months postenrollment. *Self-Reported Functional Ability*. This measure is provided by participants or caregivers and measured by the Katz Index of

TABLE 1. Participant Demographics and Clinical Characteristics (N = 24)

Characteristic	No. (%)
Age, mean (SD) [range], y	73.6 (8.1) [64-93]
Male sex	23 (96)
White race	23 (96)
Education[a]	
< 12 y	1 (5)
12 y	8 (36)
> 12 y	13 (59)
Married	17 (71)
Copay status: exempt	14 (58)
Admission diagnosis	
Vascular/pulmonary	6 (25)
Gastrointestinal/renal/urological	4 (17)
Metabolic	2 (8)
Orthopedic/musculoskeletal	9 (38)
Infection	3 (13)

[a]Two participants did not provide data on education level.

Independence in Activities of Daily Living (ADL), Lawton and Brody Instrumental ADL Scale (IADL), Nagi Disability Model, and Rosow-Breslau Scale. The Katz ADL assesses the ability to complete 6 self-care activities and awards 1 point for independence and 0 if the individual is dependent (total score range, 0-6).[26] The Lawton and Brody IADL measures an individual's independence in 8 instrumental ADLs; it awards 1 point for independence and 0 if the individual is dependent (total score range, 0-8).[27] The Nagi Disability Model evaluates an individual's difficulty performing 5 tasks (total score range, 0-5) and tallies the number of items with a response other than "no difficulty at all" (higher total score indicates greater difficulty).[28] The Rosow-Breslau Scale is a 3-item measure of mobility disability; individual responses are 0 (no help) and 1 (requires help or unable); higher total score (range, 0-3) indicates greater disability.[29]

Physical Performance. Measured using the Short Physical Performance Battery (SPPB), which evaluates standing balance, sit to stand, and walking performance. Scores range from 0 to 4 on the balance, gait speed, and chair stand tests, for a total composite score between 0 and 12 (higher score indicates better performance).[30]

Physical Activity. Measured using actigraphy, namely a physical activity monitor adherent to the thigh (activ-PAL3TM, PAL Technologies Ltd., Glasgow, UK).[31] Participants were instructed to wear the activPal for ≥ 1 week. Participants with a minimum of 5 days of wear were included in this analysis.

Data Analyses

Analyses were performed using SPSS software version 29.0.[32] Continuous variables were summarized using mean (SD) or median and IQR using the weighted average method; categorical variables were summarized using frequencies and percentages. Baseline scores on outcome variables were compared by categorical hospitalization, posthospital syndrome, and postdischarge health care application factor variables using Mann-Whitney *U* tests. The differences between outcome variables from baseline to endpoint were then calculated to produce change scores. Relationships between the number of PAT sessions attended and baseline outcomes and outcome change scores were estimated using Spearman correlations. Relationships between categorical factors (hospitalization, posthospital syndrome, and postdischarge health care application) and outcome variable change scores (which were normally distributed) were examined using Mann-Whitney *U* tests. Relationships with continuous hospitalization (length of stay) and posthospital syndrome factors (medication changes) were estimated using Spearman correlations. Effect sizes (ES) were estimated with Cohen d; small ($d = 0.2$), medium ($d = 0.5$), or large ($d \geq 0.8$). Missing data were handled using pairwise deletion.[33] Therefore, sample sizes were reported for each analysis. For all statistical tests, $P < .05$ was considered significant.

RESULTS

Twenty-four individuals completed the pilot intervention.[15] Mean (SD) age was 73.6 (8.1) years (range, 64-93 years) and participants were predominantly White males (Table 1). Eight participants had a high school education only and 13 had more than a high school education. Diagnoses at admission included 9 patients with orthopedic/musculoskeletal conditions (6 were for joint replacement), 6 patients with vascular/pulmonary conditions, and

TABLE 2. Baseline Scores[a]

Variable	No.	Postsurgery, median (IQR)[b]	No.	Nonpostsurgery, median (IQR)	*P* value[c]
ADL	10	6 (5-6)	13	6 (3-6)	.74
Instrumental ADL	10	6 (3-8)	13	6 (3.5-8)	.78
Nagi score[d]	10	2 (1-2.5)	12	2 (2-3)	.06
Rosow-Breslau score[d]	10	1 (0.5-2)	12	2 (1-2.5)	.23
SPPB	11	4 (3-6.5)	12	4 (2-7)	.88
No. of steps	10	1688.8 (1207-3171.2)	10	2262.8 (1061.7-3479.2)	.74
		Fall, median (IQR)		**No fall, median (IQR)**	
ADL	7	6 (3-6)	13	6 (4-6)	.59
Instrumental ADL	7	8 (3-8)	13	6 (3.5-7.5)	.54
Nagi score[d]	7	2 (2-3)	13	2 (1-3)	.44
Rosow-Breslau score[d]	7	1 (1-2)	13	2 (1-2)	.70
SPPB	8	5 (3-6)	12	4 (2-7.5)	> .99
No. of steps	8	1016 (344.9-2435.7)	10	2262.8 (1443-3825.5)	.07
		Moderate to severe pain interference, median (IQR)		**No or mild pain interference, median (IQR)**	
ADL	9	5 (3-6)	8	6 (6-6)	.20
Instrumental ADL	9	4 (2-7)	8	8 (7-8)	.02
Nagi score[d]	9	2 (2-3)	8	2 (1-2)	.11
Rosow-Breslau score[d]	9	2 (1-3)	8	1 (0-2)	.17
SPPB	9	3 (1-5)	8	6 (3-8)	.07
No. of steps	7	2126.3 (736.3-3558)	9	2435.7 (1016-3400.3)	.54
		Cognitive impairment, median (IQR)[e]		**No cognitive impairment, median (IQR)**	
ADL	16	5.5 (3.5-6)	7	6 (5.25-6)	.10
Instrumental ADL	16	6 (2.25-8)	7	7 (4.75-8)	.31
Nagi score[d]	15	2 (1.25-3)	7	2 (0.75-3)	.84
Rosow-Breslau score[d]	15	1 (1-2)	7	2 (0.75-2.25)	.33
SPPB	15	4 (3-6)	8	5.5 (0.75-10)	.51
No. of steps	13	2175.1 (1420.5-3694.1)	7	1825 (848.2-2802.26)	.39
		Physical therapy, median (IQR)[f]		**No physical therapy, median (IQR)**	
ADL	15	6 (5-6)	8	6 (3-6)	> .99
Instrumental ADL	15	6 (4-8)	8	6.5 (2.75-8)	.55
Nagi score[d]	14	2 (1-3)	8	2 (2-2.25)	.71
Rosow-Breslau score[d]	14	1.5 (1-2)	8	1.5 (1-2.25)	.92
SPPB	16	5 (3-7.75)	7	3.5 (2.5-5.25)	.62
No. of steps	13	1956.4 (1389.9-3201)	7	2194.5 (591.6-3731.2)	.82
		Readmitted, median (IQR)[g]		**Not readmitted, median (IQR)**	
ADL	10	6 (2.75-6)	11	5.5 (4.5-6)	.43
Instrumental ADL	10	6 (3.5-7.25)	11	6 (2.75-8)	.92
Nagi score[d]	9	2.5 (1.5-3.25)	11	2 (1-3)	.94
Rosow-Breslau score[d]	9	2 (1-2.25)	11	1.5 (0.75-2.25)	> .99
SPPB	10	3.5 (0.75-7)	11	4 (3-7.25)	.61
No. of steps	8	2243.4 (1126.6-2477.5)	10	1907.5 (1302.5-3867.3)	.27

Abbreviations: ADL, activities of daily living; SPPB, Short Physical Performance Battery.
[a]Mann-Whitney *U* test compared baseline scores between groups. Median and IQR calculated using weighted average method.
[b]Individuals who were postsurgery during index hospitalization.
[c]$P < .05$ considered significant.
[d]Higher score indicates less desirable outcome.
[e]Mild to moderate cognitive status determined by the Montreal Cognitive Assessment.
[f]Participated in postdischarge physical therapy prior to beginning pilot program.
[g]Any hospitalization during the duration of the program.

4 with gastrointestinal/renal/urological conditions. Of the 11 postsurgery participants, 7 were orthopedic, 4 were gastrointestinal, and 1 was peripheral vascular.

Baseline outcome scores did not differ significantly between groups, except individuals with moderate to severe pain interference reported a significantly lower IADL score (median [IQR] 4 [2-7]) than individuals with mild or moderate pain interference (median [IQR] 8 [7-8]; $P = .02$) (Table 2). The mean (SD) number of PAT sessions attended was 9.3 (3.7) (range, 3-19). There were no significant relationships between number of

TABLE 3. Change in Outcomes by Hospitalization, Posthospital Syndrome, and Postdischarge Health Care Application Factors[a]

Change in outcomes	No.	Postsurgery, median (IQR)[b]	No.	Nonpostsurgery, median (IQR)	Effect size	*P* value[c]
ADL	9	0 (0 to 1.5)	13	0 (-0.75 to 0)	0.6	.10
Instrumental ADL	9	1 (0 to 1.5)	13	0 (-0.75 to 2.5)	-0.2	.74
Nagi score[d]	10	0 (-2 to 0.5)	12	-0.5 (-1.75 to 0.75)	0	.92
Rosow-Breslau score[d]	10	0 (-0.5 to 1)	12	0 (-1.5 to 0)	0	.97
SPPB	11	2 (1.5 to 9)	12	-1.5 (-3.5 to 3)	0.9	.07
No. of steps	7	799.4 (121.5 to 6887.3)	8	319.9 (-125.4 to 962.7)	0.4	.40
		Cognitive impairment, median (IQR)[e]		**No cognitive impairment, median (IQR)**		
ADL	15	0 (0 to 1)	7	0 (-0.75 to 0)	-1.1	.04
Instrumental ADL	15	0 (0 to 2)	7	0.5 (-0.75 to 1.5)	-0.4	.45
Nagi score[d]	15	0 (-2 to 0)	7	-0.5 (-2 to 1.25)	0.2	.68
Rosow-Breslau score[d]	15	0 (-1 to 0)	7	0 (-0.5 to 1)	0.4	.49
SPPB	15	2 (-2 to 3)	8	0.5 (-2.5 to 5.25)	-0.1	.39
No. of steps	8	799.4 (42.3 to 5931.8)	7	238.8 (-136.1 to 2471)	-0.3	.28
		Physical therapy, median (IQR)[f]		**No physical therapy, median (IQR)**		
ADL	14	0 (0 to 0)	8	0 (-0.75 to 1.5)	-0.7	.24
Instrumental ADL	14	0 (-0.5 to 1.5)	8	1 (0.25 to 3.25)	-0.7	.11
Nagi score[d]	14	0 (-1.5 to 0.5)	8	-1 (-2.75 to 0.75)	0.3	.37
Rosow-Breslau score[d]	14	0 (-0.5 to 1)	8	0 (-1.5 to 0)	0.2	.71
SPPB	16	2 (-3 to 4.5)	7	2 (-1.25 to 3)	-0.5	.15
No. of steps	11	597.5 (-123.5 to 3494.3)	4	543.1 (-837.6 to 5920.3)	-0.1	> .99
		Readmitted, median (IQR)[g]		**Not readmitted, median (IQR)**		
ADL	10	0 (0 to 0)	10	0 (-0.75 to 1.25)	-0.2	.58
Instrumental ADL	10	0.5 (-1.5 to 1.5)	10	0.5 (0 to 2.5)	0.1	.58
Nagi score[d]	9	-0.5 (-1.25 to 1.25)	11	-1 (-2.25 to 0)	0.7	.26
Rosow-Breslau score[d]	9	0 (-0.5 to 1)	11	0 (-1.25 to 0.25)	1.0	.03
SPPB	10	1 (-4 to 5.25)	11	2 (0.25 to 3.75)	-0.5	.17
No. of steps	7	319.9 (-136.1 to 774.5)	7	3365.6 (274.4 to 7710.9)	-1.3	.05

Abbreviations: ADL, activities of daily living; SPPB, Short Physical Performance Battery.
[a]Mann-Whitney *U* tests compared baseline scores between groups. Median and IQR calculated using weighted average method.
[b]Indicates individuals were postsurgery during their index hospitalization.
[c]$P < .05$ considered significant.
[d]Higher score indicates less desirable outcome.
[e]Mild to moderate cognitive status determined by the Montreal Cognitive Assessment.
[f]Indicates participation in postdischarge physical therapy prior to beginning pilot program activities.
[g]Any hospitalization during the duration of the program.

sessions attended and any baseline outcome variables or outcome change scores.

Hospitalization Factors

Participants who were postsurgery tended to have greater improvement than individuals who were nonpostsurgery in ADLs (median [IQR] 0 [0-1.5]; ES, 0.6; *P* = .10) and SPPB (median [IQR] 2 [1.5-9]; ES, 0.9; *P* = .07), but the improvements were not statistically significant (Table 3). Mean (SD) length of stay of the index hospitalization was 6.7 (6.1) days. Longer length of stay was significantly correlated with an increase in Nagi score (ρ, 0.45; 95% CI, 0.01-0.75). There were no other significant or trending relationships between length of stay and outcome variables.

Posthospital Syndrome Factors

The 16 participants with mild to moderate cognitive impairment had less improvement in ADLs (median [IQR] 0 [0-1]) than the 8 participants with no impairment (median [IQR] 0 [-0.75 to 0]; ES, -1.1; *P* = .04). Change in outcome variables from baseline to endpoint did not significantly differ between the 8 patients who reported a fall compared with the 13 who did not, nor were any trends observed. Change in outcome variables from baseline to endpoint also did not significantly differ between the 8 participants who reported no or mild pain interference compared with the 10 patients with moderate to severe pain interference, nor were any trends observed. Mean (SD) number of medication changes was 2.5 (1.6). Higher number of medication changes was significantly correlated with a decrease in Rosow-Breslau score (ρ, -0.47; 95% CI, -0.76 to -0.02). There were no other significant or trending relationships between number of medication changes and outcome variables.

Postdischarge Health Care Application Factors

The 16 participants who attended posthospital physical therapy trended towards less improvement in IADLs (median [IQR] 0 [-0.5 to 1.5]; ES, -0.7; *P* = .11) and SPPB (median [IQR] 2 [-3.0 to 4.5]; ES, -0.5; *P* = .15) than the 8 patients with no postdischarge physical therapy. Eleven participants were readmitted, while 13 had no readmissions in their medical records between baseline and endpoint. Participants with ≥ 1 readmission experienced a greater increase in Rosow-Breslau score (median [IQR] 0 [-0.5 to 1.0]) than those not readmitted (median [IQR] 0 [-1.25 to 0.25]; ES, 1.0; *P* = .03). Borderline greater improvement in number of steps was found in those not readmitted (median [IQR] 3365.6 [274.4-7710.9]) compared with those readmitted (median [IQR] 319.9 [-136.1 to 774.5]; ES, -1.3; *P* = .05). Patients who were readmitted also tended to have lower and not statistically significant improvements in SPPB (median [IQR] 1 [-4.0 to 5.3]) compared with those not readmitted (median [IQR] 2 [0.3-3.8]; ES, -0.5; *P* = .17) (Table 3).

DISCUSSION

This study examined the association between hospitalization, posthospital syndrome, and postdischarge health care use in patients undergoing a VVC-based intervention following hospital discharge. Participants who had no or mild cognitive impairment, no readmissions, higher medication changes, and a shorter hospital length of stay tended to experience lower disability, including in mobility and ADLs. This suggests individuals who are less clinically complex may be more likely to benefit from this type of virtual rehabilitation program. These findings are consistent with clinical experiences; home-based programs to improve physical activity posthospital discharge can be challenging for those who were medically ill (and did not undergo a specific surgical procedure), cognitively impaired, and become acutely ill and trigger hospital readmission.[15] For example, the sample in this study had higher rates of falls, pain, and readmissions compared to previous research.[2,3,34-39]

The importance of posthospital syndrome in the context of recovery of function and health at home following hospitalization is well documented.[16-18] The potential impact of posthospital syndrome on physical activity-focused interventions is less understood. In our analysis, participants with mild or moderate cognitive impairment tended to become more dependent in their ADLs, while those with no cognitive impairment tended to become more independent in their ADLs. This functional decline over time is perhaps expected in persons with cognitive impairment, but the significant difference with a large ES warrants further consideration on how to tailor interventions to better promote functional recovery in these individuals.[40,41] While some cognitive decline may not be preventable, this finding supports the need to promote healthy cognitive aging, identify declines in cognition, and work to mitigate additional decline. Programs specifically designed to promote function and physical activity in older adults with cognitive impairment are needed, especially during care transitions.[41-43]

While participants reported that falls and pain interference did not have a significant impact on change in outcomes between baseline and endpoint, these areas need further investigation. Falls and pain have been associated with function and physical activity in older adults.[42-46] Pain is common, yet underappreciated during older adult hospital-to-home transitions.[11,12,45,46] There is a need for more comprehensive assessment of pain (including pain intensity) and qualitative research.

Hospitalization and postdischarge health care application factors may have a significant impact on home-telehealth physical activity intervention success. Individuals who were postsurgery tended to have greater improvements in ADLs and physical performance. Most postsurgery participants had joint replacement surgery. Postsurgery status may not be modifiable, but it is important to note expected differences in recovery between medical and surgical admissions and the need to tailor care based on admission diagnosis. Those with a longer length of hospital stay may be considered at higher risk of suboptimal outcomes postdischarge, which indicates an opportunity for targeting resources and support, in addition to efforts of reducing length of stay where possible.[47]

Readmissions were significantly related to a change in Rosow-Breslau mobility disability score. This may indicate the detrimental impact a readmission can have on increasing mobility and physical activity postdischarge, or the potential of this pilot program to impact readmissions by increasing mobility and physical activity, contrary to prior physical exercise interventions.[5,7,9,48] With 5% to 79% of readmissions considered preventable, continued efforts and program dissemination and implementation to address preventable readmissions are warranted.[49] Individuals with postdischarge physical therapy (prior to beginning the pilot program) tended to demonstrate less improvement in disability and physical performance. This relationship needs further investigation; the 2 groups did not appear to have significant differences at baseline, albeit with a small sample size. It is possible they experienced initial improvements with postdischarge physical therapy and plateaued or had little further reserve to improve upon entering the VVC program.

Strengths and Limitations

This pilot program provided evaluative data on the use of VVC to enhance function and physical activity in older adults posthospital discharge. It included individual (eg, fall, pain, cognitive impairment) and health service (eg, readmission, physical therapy) level factors as predictors of function and physical activity posthospitalization.[5,7,9,15-19]

The results of this pilot project stem from a small sample lacking diversity in terms of race, ethnicity, and sex. There was some variation in baseline and endpoints between participants, and when hospitalization, posthospital syndrome, and postdischarge health care application factors were collected. The majority of participants were recruited within a month postdischarge, and the program lasted about 6 months. Data collection was attempted at regular PAT contacts, but there was some variation in when visits occurred based on participant availability and preference. Some participants had missing data, which was handled using pairwise deletion.[33] Larger studies are needed to confirm the findings of this study, particularly the trends that did not reach statistical significance. Home health services other than physical therapy (eg, nursing, occupational therapy) were not fully accounted for and should be considered in future research.

CONCLUSIONS

In patients undergoing a 6-month pilot VVC-based physical activity intervention posthospital discharge, improvements in mobility and disability were most likely in those who had no cognitive impairment and were not readmitted. Larger sample and qualitative investigations are necessary to optimize outcomes for patients who meet these clinical profiles.

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Ethics and consent

The protocol and consent forms were approved by the Ann Arbor VA Research and Development Committee, and the program was registered on clinicaltrials.gov (NCT04045054). Participants provided written informed consent.

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