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ORIGINAL ARTICLE

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Functional trajectories of older patients admitted to an Acute Care Unit for Elders

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Aims and objectives: To describe the functional trajectories of older medical inpatients and to identify factors associated with overall and in-hospital functional decline.

Background: Functional decline during a hospital stay is an important clinical outcome because independence remains a major determinant of older persons' quality of life and health care demands.

Design and methods: Participants (n = 189) were admitted to the Acute Care Unit for Elders of a Swiss academic hospital and were aged 65 years and older. Performance in basic activities of daily living at home (self-reported), at hospital admission (observed) and at discharge (observed) was collected. Differences in scores for basic activities daily living between baseline and admission, between admission and discharge, and between baseline and discharge were used to define pre-admission, in-hospital and overall functional decline. Predictors of in-hospital and overall decline were identified using bivariate and multivariate logistic regression analyses.

Results: Pre-admission, in-hospital and overall functional decline occurred in 56.1%, 17.5% and 43.4% of the participants, respectively. In contrast, in-hospital functional improvement occurred in 40.2% of the participants. No predictors of pre-admission decline were identified, whereas pre-admission performance in instrumental activities of daily living was associated with in-hospital decline. Male gender and in-hospital delirium were associated with overall functional decline.

Conclusions: Most older inpatients experienced functional decline before their hospital admission, but only a minority experienced decline during their stay. Importantly, delirium was a strong predictor of overall functional decline.

Implications for practice: Low performance in instrumental activities of daily living prior to admission and delirium occurrence identified older patients at higher risk for in-hospital and overall functional decline. Gerontological nurses should play a key role in identifying these patients to provide preventative interventions and recovery care to preserve or restore their functional independence.

KEYWORDS
delirium, hospital-related functional decline, nursing care, risk factor

1 | INTRODUCTION AND BACKGROUND

The global demographical transition presents multiple challenges for health care systems as the number of aged patients continues to grow. For example, in Switzerland, the proportion of persons aged 80 years and over is expected to increase from 4.8% in 2010 to 12.3% in 2060 (Allen & Lanzieri, 2011). These changes are mounting pressures on health care systems in general, including acute hospitals, as increasing attention is devoted to the preservation of functional independence in older people (Brown, Friedkin, & Inouye, 2004; Covinsky, Pierluissi, & Johnston, 2011).

Acutely ill older patients frequently experience functional decline when hospitalised, with figures ranging from 30% to 60% in previous studies (Boyd et al., 2008, 2009; Covinsky et al., 2003; Creditor, 1993; Hoogerduijn, Grobbee, & Schuurmans, 2014; Mudge, O'Rourke, & Denaro, 2010; Sager & Rudberg, 1998; Sager et al., 1996; Wakefield & Holman, 2007; Zisberg et al., 2011). However, these studies measured functional change over varying time-frames that ranged from before or at hospital admission to hospital discharge or up to 3 months after discharge. Only four studies reported changes in basic activities of daily living (BADL) that specifically occurred during the hospital stay. In these studies, functional decline between hospital admission and discharge occurred in 7% to 17% of older inpatients (Barnes et al., 2012; Covinsky et al., 2003; Mudge et al., 2010; Wakefield & Holman, 2007). However, as these studies were conducted in countries with different health care systems, generalisation is limited (Zelada, Salinas, & Baztàn, 2007 [Peru], Boyd et al., 2008 [United States], Mudge et al., 2010 [Australia], Huang, Chang, Liu, Lin, & Chen, 2013 [Taiwan]). A better understanding of functional trajectories in older patients hospitalised within a specific health care system is a necessary step towards developing interventions to prevent or limit decline during hospitalisation. Indeed, several meta-analyses support the role of geriatric acute care units in preventing functional decline during the hospital stay (VanCraen et al., 2009), decreasing the likelihood of discharge to a skilled nursing facility (Ellis, Whitehead, Robinson, O'Neill, & Langhorne, 2011; VanCraen et al., 2009) and improving the probability of living at home 6–12 months after hospital discharge (Ellis et al., 2011).

Systematic reviews identified several predictors of functional decline in hospitalised older patients such as age, cognitive impairment, delirium, dependency in basic activities of daily living (BADL), pre-admission disability in instrumental ADL (IADL), depression and length of stay (Hoogerduijn, Schuurmans, Duijnstee, De Rooij, & Grypdonck, 2007; McCusker, Kakuma, & Abrahamowicz, 2002; de Saint-Hubert, Schoevaerdts, Poulain, Cornette, & Swine, 2009; Sutton, Grimmer-Somers, & Jeffries, 2008). These reviews explored the association between these factors and functional decline over varying time-frames (before admission, during hospitalisation, from home to hospital discharge). Other studies identified factors associated with functional decline without specification of the time-frame. For instance, pre-hospital functional decline (Mudge et al., 2010; Zisberg et al., 2011), multimorbidity (Mudge et al., 2010), low mobility (Brown et al., 2004; Zisberg et al., 2011), malnutrition (Mudge et al., 2010), a fall in the last 12 months (Mudge et al., 2010) and unsteadiness (Lindenberger et al., 2003) have all been identified as predictors of decline, but uncertainty remains about the specific time-frame of these associations.

"Acute Care for Elders" (ACE) units are dedicated geriatric wards that were developed with a specific aim to prevent functional decline and other adverse consequences of acute hospitalisation in older patients (Ahmed & Pearce, 2010; Steele, 2010). The process of care developed in these units has a strong focus on promoting mobility and functional rehabilitation ("pre-rehabilitation") and includes patient-centred care, medical review and an interdisciplinary team plan of care with early discharge planning (Landefeld, Palmer, Kresevic, Fortinsky, & Kowal, 1995; Palmer, Counsell, & Landefeld, 1998). Nurses play an important role in patient-centred care such as in assessing and managing nutrition, hydration, self-care ability, skin integrity and pain as well as in promoting mobility and fall prevention. They also actively contribute to all function-focused interventions to prepare patients'

What does this research add to existing knowledge in gerontology?

- This observational study provides a better understanding of functional trajectories and risk factors associated with functional decline in older patients hospitalised within a specific health care system.

What are the implications of this new knowledge for nursing care with older people?

- Self-reported decline before admission contributes to identify patients at increased risk for further decline during their hospital stay and in turn contributes to better targeting individuals who could most benefit from preventative strategies.
- The prevention and improved management of delirium through early adjustment of the care plan should contribute to prevent or limit functional decline in these older patients.

How could the findings be used to influence policy, practice, research or education?

- The results further emphasise the need to integrate traditional disease-oriented approaches with a functional and pre-rehabilitation approach when caring for hospitalised older patients.

transition to other levels of care or to restore their functional independence (Boltz, Capezuti, & Shabbat, 2010; Boltz, Resnick, Capezuti, Shuluk, & Secic, 2012; Palmer, 1995).

Following several observations about gaps in detection and management of frequent geriatric syndromes in the Swiss acute care setting (Büla, Wietlisbach, Burnand, & Yersin, 2001; Joray, Wietlisbach, & Büla, 2004; Pouget, Yersin, Wietlisbach, Bumand, & Büla, 2000), an ACE unit was implemented in an academic hospital. This unit is based on the same concept of care that promotes pre-rehabilitation to prevent functional decline and other complications in acutely ill older patients when hospitalised.

The aim of the present study was to describe functional trajectories of older medical inpatients admitted to this "Acute Care for Elders" (ACE) unit. A second objective was to investigate factors associated with functional decline over different time-periods.

2 | METHODS

2.1 | Design and participants

This observational study included all patients aged 65 years and older consecutively admitted to the "Acute Care Unit for the Elders" (ACE) unit of a Swiss academic hospital over a 6-month period (August 2011 to January 2012). This 28-bed unit is dedicated to the care of acutely ill older medical patients who suffer from multiple conditions. Processes of care in this unit include the usual components implemented in ACE units (Fox et al., 2013). An initial comprehensive geriatric assessment performed within 48 hr after admission by different professionals (physicians, nurses, physical and occupational therapist, dietician) allows for developing a patient-centred plan of care that is revised bi-weekly during a team meeting. In addition to the management of the acute medical condition, specific function-focused interventions are proposed daily to promote mobility and enhance functional recovery in activities of daily living (ADLs).

To be admitted to the unit, patients have to suffer an acute illness and must present at least one of the following characteristics: (i) admission after a fall or fall history in the past 12 months; (ii) diagnosis of dementia, delirium or other non-specified cognitive impairment; (iii) hospital admission within the previous 3 months or (iv) presence of multiple comorbidities.

The study was approved by the Canton of Vaud ethics committee on human research (protocol #334/11). As the study used only routinely collected administrative and clinical data from the institutional database, this permission was granted without requesting a formal written informed consent from patients.

2.2 | Measures

2.2.1 | Socio-demographic and health-related measures

Data on socio-demographic variables (age, gender and living situation) were collected from the administrative database. Data on cognitive, affective and health status were collected using French versions of previously validated instruments. Specifically, cognitive status was assessed by the physician in charge of the patient within 48 hr of admission, using the mini-Cog (Borson, Scanlan, Brush, Vitaliano, & Dokmak, 2000). The Mini-Cog was scored on a 5-point scale and comprises three-word registration, a clock-drawing task (0 or 2 points) and three-word recall (0–3 points). It has been shown to have high sensitivity and specificity (99% and 93%, respectively) in detecting dementia (Borson et al., 2000). Assessment of delirium was performed by the nurse in charge of the patient, using the Confusion Assessment Method (CAM). Initial assessment was conducted within 48 hr of admission and repeated daily afterwards (Inouye et al., 1990; Laplante, Cole, McCusker, Singh, & Ouimet, 2005). The CAM comprises four criteria (acute onset and fluctuating course, inattention, disorganised thinking and altered level of consciousness) (Inouye et al., 1990). The CAM algorithm for delirium detection requires the presence of both the first and second criteria and either the third or the fourth criterion. CAM sensitivity and specificity have been shown to amount to 94–100% and 90–95%, respectively (Inouye et al., 1990). Affective status was also assessed within 48 hr of admission by the physician in charge using the French version of the Short Geriatric Depression Scale (mini-GDS) (Clément, Nassif, Leger, & Marchan, 1997). The scale comprises four questions ("Are you basically satisfied with your life?"; "Do you feel your life is empty?"; "Are you afraid that something bad is going to happen to you?"; "Do you feel happy most of the time?"), with each depressive answer counting for one point. A score of 1 or more has a sensitivity of 69% and specificity of 80% in detecting depression (Clément et al., 1997). Health status data included a measure of multimorbidity by the physician in charge, using the Cumulative Illness Rating Scale for Geriatric (CIRS-G) (Salvi et al., 2008). The CIRS-G measures the burden of chronic illnesses while taking into account their severity. The CIRS-G includes 14 items that assess body systems on a 0–4 grading scale of impairment, with a higher score indicating higher comorbidity.

2.2.2 | Functional performance and measures of functional decline

Functional performance in BADL and IADL was assessed by nursing staff using Katz's (Katz & Akpom, 1976) and Lawton indexes (Lawton & Brody, 1969), respectively. Both instruments assess adaptive functioning versus inability to perform using a dichotomous scale (each function scores as 0 = dependent or 1 = independent). The BADL scale includes items on bathing, dressing, toileting, transferring, feeding and continence, with a maximum score of 6 in fully independent participants. The IADL scale assesses the ability to use the phone, shop, prepare food, do housekeeping, do laundry, use public transportation, take medications properly and handle finances, with a maximum score of 8 in fully independent participants. Information about pre-admission (baseline) functional status was collected at hospital admission by the nurse in charge of collecting functional data. Patients (their proxy in case of lack of reliability) were prompted to describe their functional ability in daily activities prior the event leading to hospital

admission. Functional status at discharge was defined as the last assessment before discharge (i.e., at least within 48 hr of discharge).

Functional decline was defined as any decline (1 or more points) in BADL score at follow-up during any of the three time-periods. Therefore, (i) *pre-admission decline* was defined as a decline in BADL between baseline and admission; (ii) *in-hospital decline* was defined as a decline between hospital admission and discharge; (iii) *overall decline* was defined as a decline between baseline and hospital discharge. Patients with stable or improved BADL were combined into one group for the analyses of factors associated with functional decline. Patients who died during their hospital stay were included in the group with functional decline; sensitivity analyses were performed after excluding these patients (Figure 1).

2.3 | Analyses

Patients' characteristics are reported using descriptive statistics. Participants were grouped according to the presence or absence of functional decline (i.e., declined versus remained stable or improved). Bivariate associations between functional decline and covariates were assessed using Wilcoxon–Mann–Whitney's and chi-square tests for continuous and categorical variables, respectively. Then, multivariate analyses using logistic regression models were performed that included all variables identified from bivariate analyses in addition to age and gender. In these analyses, the measure of IADLs was used as a continuous variable. The presence of delirium at hospital admission (i.e., prevalent delirium) was used as an independent variable in the regression model that investigated factors associated with pre-admission decline. Occurrence of a new episode of delirium (i.e., incident delirium) was used in the regression model for in-hospital decline. Finally, the presence of any delirium (i.e., prevalent and incident) was used in the analysis of overall functional decline.

Analyses were first performed on each separate time-period (i.e., pre-admission and in-hospital functional decline) separately and then for overall functional decline (i.e., from baseline to hospital discharge). As previously mentioned, analyses of in-hospital and overall decline were repeated after exclusion of patients who died during their stay from the group with decline. All analyses were performed using STATA© version 14.0 (StataCorp, 2009).

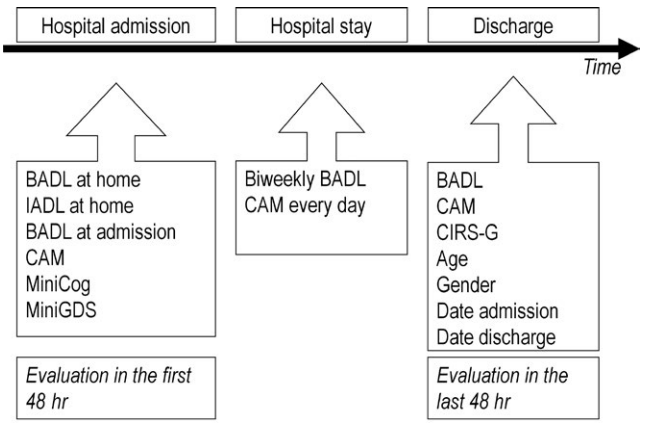

FIGURE 1 Flowchart describing data collection

3 | RESULTS

Over the 6-month study period, 232 patients were consecutively admitted to the ACE unit. Six patients were transferred to another unit, and data on BADL were missing for 37, leaving a total of 189 patients (189/232, 81.5%) whose data were finally included in the analysis (Figure 2). Comparisons of socio-demographic (age gender, living situation) and clinical (CIRS-G, in-home BADL and IADL, CAM at admission, Mini-Cog, mini-GDS, length of hospital stay) characteristics in patients with (N = 37) and without (N = 189) missing BADL did not show any statistically significant difference. However, the proportion of patients with depressive symptoms (i.e., abnormal mini-GDS) tended to be lower in patients with than in those without missing BADL (29.2% vs. 48.9%, $p = .073$).

The characteristics of the study participants are presented in Table 1. In addition to the data shown, approximately two-thirds (60.9%) of the participants were dependent in six or more IADL, and 83.1% received professional in-home help prior to their admission. Length of stay averaged 13.8 days (*SD* 8.6; median 12 days, IQR 8–17 days). Delirium prevalence at hospital admission was 20.1% (38/189), and 19.2% (29/151) of the patients developed delirium after admission. Overall, 13 patients died during their stay in the ACE unit.

3.1 | Functional decline

Participants dependent in BADL at home (pre-admission), at admission and at discharge amounted to 90 (47.6%), 121 (64.0%) and 98 (51.9%) patients, respectively. BADL mean scores (standard deviations [*SD*]) at home, at admission and at discharge were 4.1 (*SD* 2.0), 3.1 (*SD* 2.2) and 3.8 (*SD* 2.2), respectively.

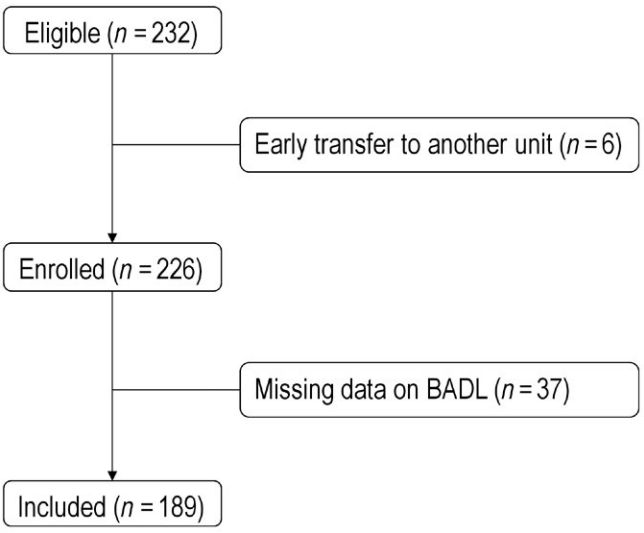

FIGURE 2 Flowchart describing enrolment of the study participants

TABLE 1 Description of the study population (N = 189)

Characteristics	
Age, mean (*SD*), years	85.2 (7.3)
Women, % (*n*)	70.9 (134)
Living alone [a], % (*n*)	58.2 (110)
IADL[b,e], mean (*SD*) [range 0–8]	2.2 (2.2)
BADL home[f], mean (*SD*) [range 0–6]	4.1 (2.0)
BADL at admission[f], mean (*SD*) [range 0–6]	3.1 (2.2)
Delirium at admission[g], % (*n*)	20.1 (38)
Cognitive impairment[c,h], % (*n*)	57.7 (109)
Depressive symptoms[d,i], % (*n*)	36.0 (68)
CIRS-G[j], mean (*SD*) [range 0–56]	16.5 (4.7)
Length of stay, mean (*SD*), days	13.8 (8.6)

[a]Three missing values; [b]13 missing values; [c]34 were not performed because patient had active delirium; [d]50 missing values.
[e]IADL measures functional ability in instrumental activities of daily living (from dependence to independence); scores range from 0 to 8 with higher score indicating better function (Lawton & Brody, 1969).
[f]BADL measures functional ability in basic activities of daily living (from dependence to independence): a higher score (maximum 6) indicates better function (Katz & Akpom, 1976).
[g]Delirium screened with the Confusion Assessment Method (CAM) (Inouye et al., 1990).
[h]Cognitive impairment screened with the Mini-Cog (Borson et al., 2000).
[i]Depressive symptoms screened with the mini-GDS (Clément et al., 1997).
[j]Cumulative Illness Rating Scale—Geriatric: a measure of comorbid conditions, scores range from 0 to 56, with higher score indicating higher comorbidity (Salvi et al., 2008).

Proportions of pre-admission, in-hospital and overall functional decline are presented in Figure 3. The proportion of participants with functional decline was most important in the pre-admission period (56.1%), whereas in-hospital decline occurred only in a minority (17.5%) of the participants. In contrast, functional improvement occurred during the hospital stay in a significant proportion (40.2%) of participants. Finally, overall functional decline occurred in 82/189 (43.4%) of the participants, whereas approximately one-third (32.3%) remained stable.

Detailed functional trajectories are presented in Figure 4. During hospitalisation, among the 83 participants without functional decline

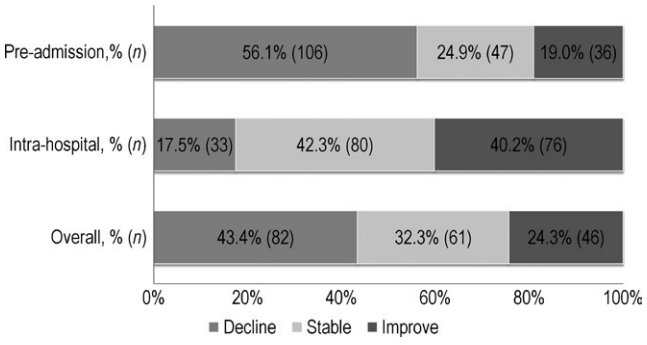

FIGURE 3 Proportions of study participants according to their functional evolution over time, from pre-admission to hospital discharge (*n* = 189)

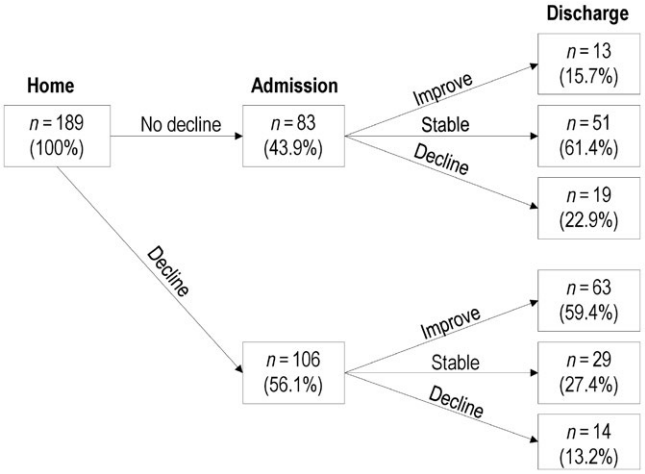

FIGURE 4 Functional trajectories of study participants between pre-admission and discharge

before admission, the majority remained stable (61.4%) or improved (15.7%), whereas 19 (22.9%) experienced subsequent decline or died during their stay. Among the 106 participants who declined before admission, 14 (13.2%) further declined or died during their stay, whereas 63 (59.4%) participants improved their functional status.

Results of sensitivity analyses after exclusion of participants who died during their hospital stay were unchanged.

3.2 | Factors associated with functional decline

Results of multivariate analyses investigating the relationships between patient's characteristics and pre-admission, in-hospital and overall functional decline are presented in Table 2. In the analysis of pre-admission functional decline, comorbidity (measured by the CIRS-G) was the only characteristic associated with slightly increased odds of decline (adjOR 1.07, 95% CI [1.00–1.15, p = .057]), but this association was short of statistical significance. None of the other patients' characteristics predicted pre-admission decline.

In turn, higher IADL performance was associated with significantly lower adjusted odds (adjOR 0.71, 95% CI [0.51–0.99], p = .045) of decline during the hospital stay. In addition, incident delirium during the stay was associated with three times higher odds of decline (adjOR 3.00, 95% CI [0.95–9.50], p = .061), but again, this association was short of statistical significance. Finally, the presence of any episode of delirium (prevalent or/and incident) during the hospital stay was associated with three times higher odds (adjOR 3.21, 95%CI [1.57–6.56], p = .001) of overall functional decline. Inversely, women had significantly lower odds (adjOR 0.35, 95% CI [0.17–0.73], p = .006) of overall decline.

4 | DISCUSSION

The current study showed that 43.4% of older patients admitted to the "Acute Care for Elders" in a Swiss academic hospital experienced a

TABLE 2 Results of multivariate logistic regression analyses predicting functional decline at different time points

	Pre-admission functional decline (*n* = 174)		Intra-hospital functional decline (*n* = 137)		Overall functional decline (*n* = 174)	
Characteristics	**OR [95% CI]**	***p***	**OR [95% CI]**	***p***	**OR [95% CI]**	***p***
Delirium prevalent	1.59 [0.71–3.58]	.259	–	–	–	–
Delirium incident	–	–	3.00 [0.95–9.50]	0.061	–	–
Any delirium	–	–	–	–	**3.21 [1.57–6.56]**	**0.001**
Age	1.01 [0.97–1.06]	.621	1.02 [0.95–1.10]	0.624	1.04 [0.99–1.09]	0.141
Gender (women)	0.70 [0.34–1.44]	.337	0.76 [0.24–2.39]	0.639	**0.35 [0.17–0.73]**	**0.006**
Living alone	1.40 [0.68–2.88]	.354	1.00 [0.31–3.16]	0.996	1.55 [0.71–3.39]	0.271
CIRS-G	1.07 [1.00–1.15]	.057	1.04 [0.93–1.16]	0.485	1.05 [0.98–1.12]	0.190
IADL	1.10 [0.94–1.29]	.221	**0.71 [0.51–0.99]**	**0.045**	0.98 [0.83–1.16]	0.813

Statically significant associations are shown in bold.

trajectory of overall functional decline from pre-admission to hospital discharge. An important contribution of the present study is to highlight that most of this decline occurred in the pre-admission period as more than half of the patients (56.1%) had already declined before their hospital admission. Moreover, unlike most previous studies, the present study was able to show that only a minority of patients (17.5%) further declined during their hospital stay, whereas approximately 40.2% improved. Overall, these results extend our understanding of the complex dynamic of functional trajectories in older persons who face an acute illness leading to a hospitalisation.

An additional contribution of the current study is also to indirectly provide support for the concepts of pre-rehabilitation (or early rehabilitation), early mobilisation programme for older inpatients and function-focused care approaches that all underlie the process of care in ACE unit models (Boltz et al., 2012; Brown et al., 2016; Ellis et al., 2011; Zisberg et al., 2011), In this regard, the 17.5% incidence of in-hospital decline compares favourably with previous studies where this proportion ranged from 7% to 31% (Barnes et al., 2012; Covinsky et al., 2003; Mudge et al., 2010; Wakefield & Holman, 2007). Moreover, the proportion of patients in the present study who improved their BADL performance during their stay (40.2%) is higher than that observed in most previous studies, where rates of improvement ranged from 10% to 33% (Covinsky et al., 2003; Maziere et al., 2011; Sager et al., 1996; Wakefield & Holman, 2007). Indeed, only one other study (Mudge et al., 2010) reported similar rates of patients with functional improvement (42%) as well as decline (7%) during their hospital stay. Interestingly, although not measured in the present study, some of the structure and processes characteristics described in the Mudge et al. study (multidisciplinary team, daily clinical meetings with emphasis on function, early discharge planning, etc.) appear to be quite similar to those offered in the ACE unit where the current study occurred. Although the large proportion of patients who already declined before their admission might explain these favourable figures, most patients were still at high risk for further decline, as suggested by their average basic ADLs score at hospital admission (Table 1). Thus, these results suggest that the pre-rehabilitation process implemented in this unit might have contributed to achieve its objective of preventing functional decline during hospitalisation and promoting functional recovery.

The analyses of factors associated with functional decline at different time points also provided important information although some of the observed associations were just short of statistical significance. Nevertheless, these associations between functional decline at different time points and comorbidity (pre-admission decline), IADLs performance (in-hospital decline) and delirium (in-hospital and overall decline) add to previous evidence supporting the importance of performing a comprehensive assessment to improve the identification of vulnerable older patients at increased risk of functional decline when hospitalised. In this regard, gerontological nurses should play a critical role in assessing and supporting functional ability as well as implementing function-focused care (Boltz et al., 2012).

However, despite these function-focused interventions implemented in this unit, we cannot exclude that the relatively long length of stay observed also played a role in promoting decline in some patients. Finally, the results of this study also highlight once again the likely deleterious role of delirium in functional trajectories of older medical inpatients, as observed in other studies (Inouye, Rushing, Foreman, Palmer, & Pompei, 1998). Non-pharmacological interventions to prevent delirium were part of the specific process of care implemented in this unit and likely contributed to favourable results in terms of functional decline prevention (Fox et al., 2012, 2013; Martins & Fernandes, 2012). The inverse association between functional decline and female gender further points to the higher risk of decline in men, likely related to their poorer health status. Indeed, although we adjusted for comorbidity (CIRS-G) in the multivariate model, residual confounding could still have occurred.

4.1 | Limitations

A limitation of this study is the absence of follow-up data on function after discharge (e.g., at 3-month post-discharge). We are therefore unable to provide information on functional trajectories after the time of hospital discharge.

Another limitation is the relatively small sample size of our population that limited the statistical power to detect some relevant

associations in the analyses of the predictors of functional decline. In particular, this lack of power likely explains the borderline significance of the association between incident delirium and in-hospital decline.

Self-reported or surrogate reports of BADL were used in the current study to determine baseline functional status, a well-known limitation (Rubenstein, Schairer, Wieland, & Kane, 1984). Biases are likely to occur in both directions (over and underestimation) depending on the issues at stake for the patient as well as his/her caregiver.

Several professionals (physicians and nurses in charge) collected data about patients, and we cannot exclude variations in the quality of data collection, despite on-going training and supervision. Another limitation was the missing data on cognitive and affective status in a sizeable proportion of patients. These missing data prevented our ability to fully adjust for these dimensions in the multivariate regression models.

Finally, participants were those admitted to the ACE unit, a unit that developed specific processes of care (e.g., pre-rehabilitation, patient-centred care), thus limiting the generalisability of our findings.

5 | CONCLUSION

This study provides unique information regarding the dynamic of functional status changes over time among older patients admitted to an ACE unit. The results also highlight that most patients declined in the pre-admission period, whereas only a minority further declined during their hospital stay. Delirium was the strongest predictor of overall decline and thus appears as an important marker to consider when identifying at-risk older patients to target them for preventative in-hospital interventions.

Approximately, 17% of the patients did not recover their previous level of function at hospital discharge. These results emphasise once again the continuous need for improving in-hospital care processes to prevent functional decline and enhance functional recovery.

Implications for practice

- Nurses working in acute geriatric wards can actively contribute to the prevention of in-hospital functional decline in older patients.
- To achieve this aim, gerontological nurses should perform routine systematic, structured, and standardized functional assessments to identify older patients at high risk for in-hospital functional decline.
- These assessments are necessary to determine these older patients' needs and self-care resources as well as to develop an individualized plan of care, coordinated with other health professionals, to prevent delirium and improve these patients' self-care capacity (early rehabilitation).

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CONFLICT OF INTEREST

The authors have no competing interests to declare.

AUTHOR CONTRIBUTION

AD designed the study with input from CB and DM. Data analysis was conducted by AD, CB, BF and DM. Data collection was conducted by AD and ER. All authors contributed to the preparation of the paper: AD and CB wrote the first draft; DM and ER revised.

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