

Profiling the geriatric patient: Implications for future pathways of patient-centred care in geriatrics

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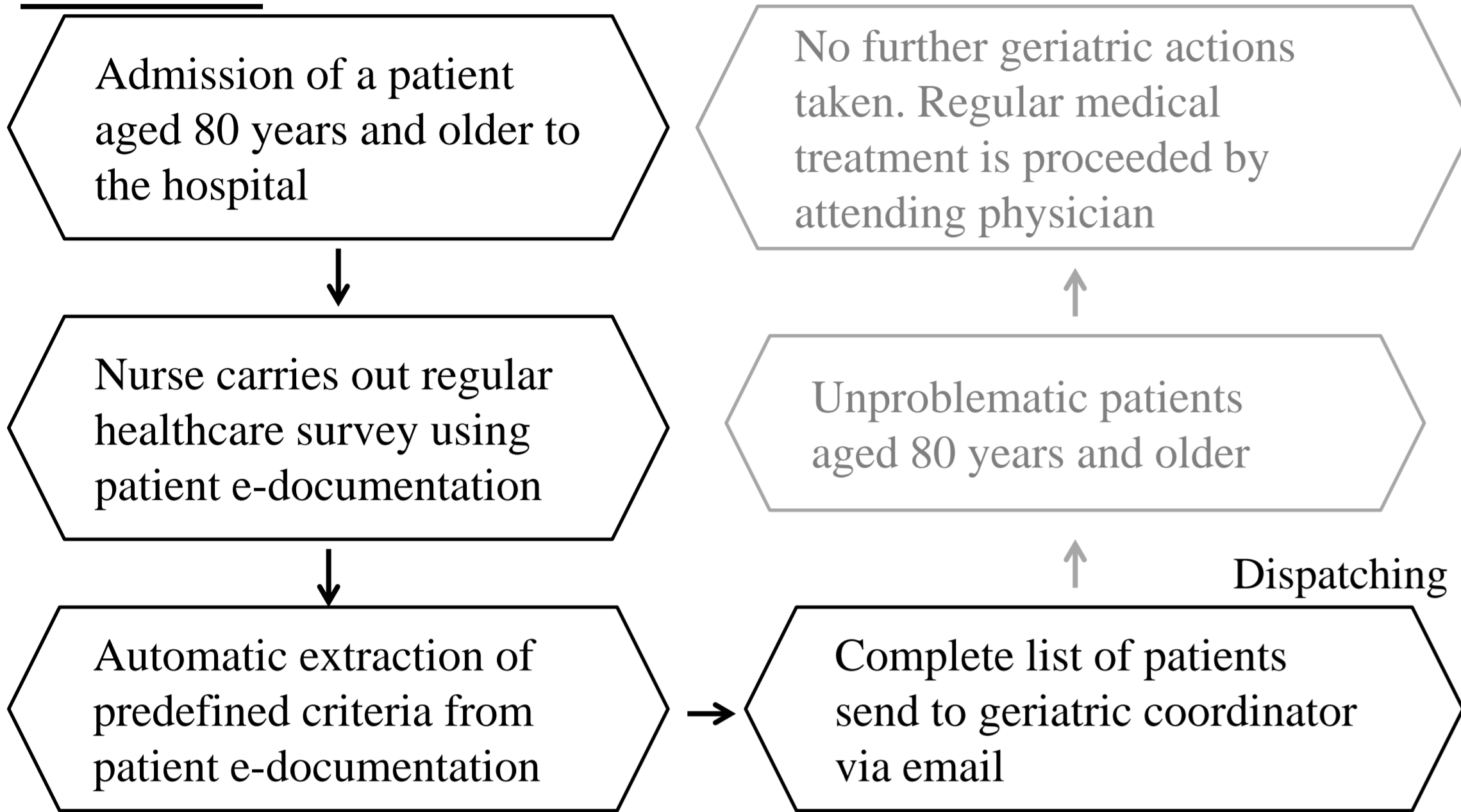
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Theoretical Background

Previous research indicates that after admission to a hospital, up to two-thirds of patients aged 80 years and more face functional decline during their stay, increasing morbidity and mortality (Covinsky et al.; 2003). Various interrelated factors have been identified to play a key role in this process (e.g., the acute disease, the patient's frailty status and appending geriatric syndromes with cognitive, emotional, functional concerns). Additionally and as stressed by the I.A.G.G/A.M.P.A. Task Force, hospital organizations seem currently unable to improve functional status in old patients, as they are designed to deliver rapid and effective care (Lafont et al., 2011). Importantly, to optimize hospital organization addressing specific geriatric needs of the patient, identification of inter-individual differences and appending vulnerabilities is vital.

Methods

Procedure



Aims of the study

The present pilot study investigates profiles of (pre-)frail hospitalized adults aged 80 years and older aiming at differentiating subgroups of geriatric inpatients. Based on this knowledge, services and organizational structures to prevent and to remediate functional declines can be developed and adapted.

Sample, Statistical analysis, cluster extraction

The sample investigated for the present research report is composed of $N = 83$, with a mean age of 86.8 years ($SD=4.5$, range=79-100). Participants included in the study were either planned admissions (13.3%) (i.e., surgery) or were admitted as an emergency (86.7%) to the present community hospital. Hierarchical cluster analysis (Ward's method) with squared Euclidian distances were performed. The inspection of the dendrogram suggests a four cluster solution.

Instrument

The development of our comprehensive geriatric assessment was informed by common risk factors that have previously been identified to play a key role in functional decline of older adults during hospitalization (e.g., Lafont et al., 2011). Our instrument focuses on a number of medical, physical/mobility, cognitive, social and functional parameters. Noteworthy, the development process was closely guided by attending physicians and therapists to guarantee (1) a complete record of the most important information and (2) a broad acceptance of the instrument across the multidisciplinary team.

Results

The four-cluster-solution represents the data most adequately. Profiles are confirmed using post-hoc Bonferroni corrected mean comparisons, revealing significant differences on 16 out of the 24 comparisons (ps range from $< .02$ to $< .001$). More precisely, patient profile 4 demonstrates the most deficient nutritional, functional, and cognitive status differing significantly from the remaining three profiles. The mobility status of patients in profiles 1 and 4 are equally deteriorated. The least deficient functions are observed among patients belonging to profile 2, with an intact cognitive status and a relatively proficient functional and nutritional status. We furthermore observe positive ISAR scores (≥ 2) for the four profiles with a general performance score (ECOG measure) being most deficient for patients belonging to profiles 1 and 4. Maximal handgrip strength (see table 1) as one sensitive biomarker for frailty (among other) is highest in patients belonging to profiles 2 and 3 ($ps < .03$), thus confirming the overall differences observed among the four patient profiles. Crucially however, given important differences in underlying geriatric profiles, no differences are observed in patient's age, the number of acute health concerns at admission to the hospital, and the number of comorbidities.

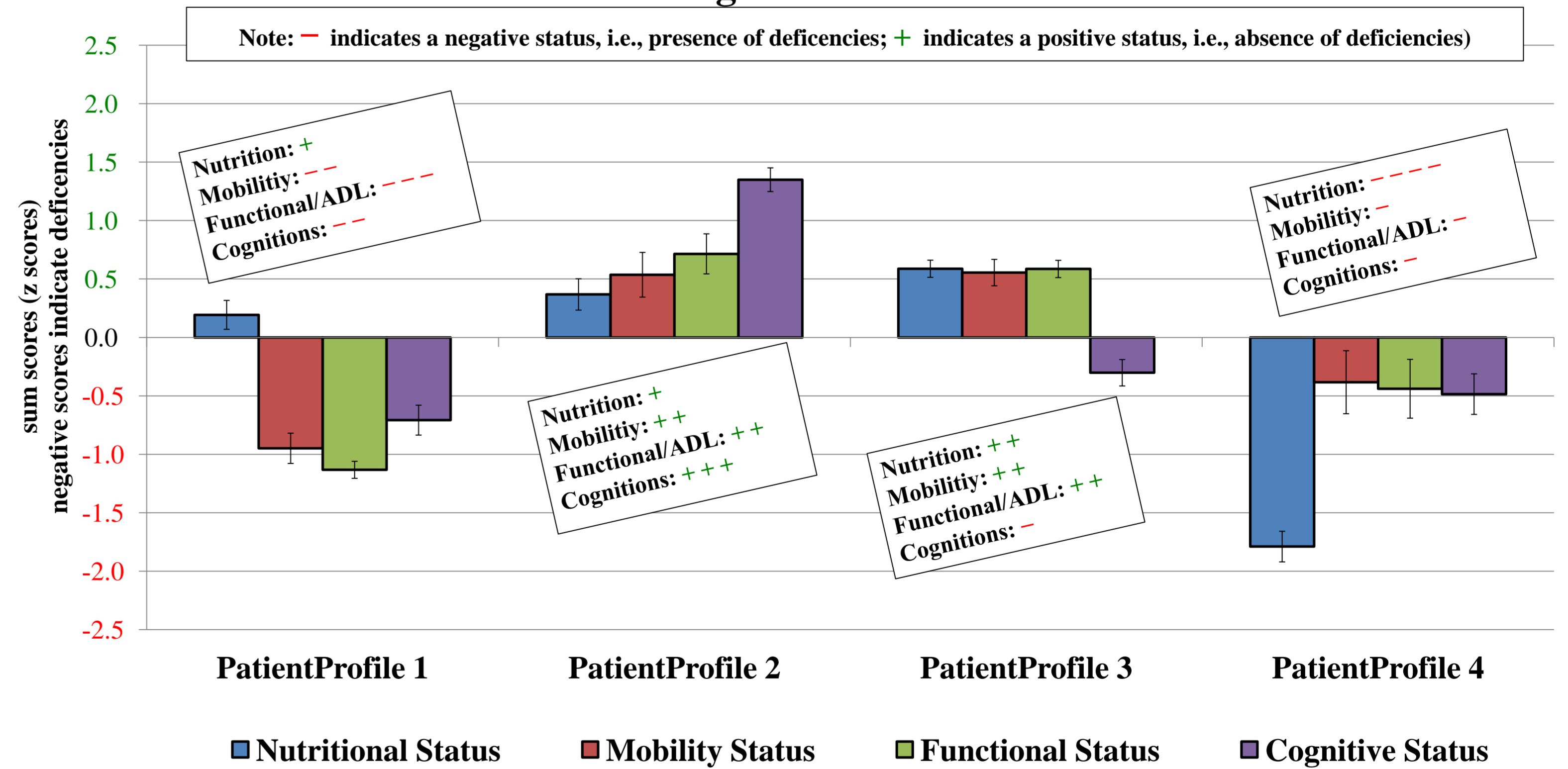
Table 1. Overview of the four identified patient profiles

	Patient Profile			
	1	2	3	4
n (% of total sample)	21 (25.3)	22 (26.5)	25 (30.1)	15 (18.1)
Age, mean (SD)	87.1 (4.5)	85.4 (4.2)	87.0 (4.4)	88.4 (4.9)
Admission				
Emergency/Planned (in %)	90.5/9.5	81.8/18.2	84.0/16.0	93.3/6.7
Mean number of acute health concerns (SD)	1.0 (.5)	1.1 (.9)	1.4 (.7)	1.3 (.5)
Mean number of comorbidities (SD)	2.7 (1.3)	2.3 (1.3)	2.7 (1.3)	2.3 (1.0)
Mean number of medications/day (SD)	8.4 (3.9)	8.3 (2.8)	8.4 (4.1)	8.7 (3.3)
Neuroleptic drug taken, daily Yes/No (in %)	0/100	13.6/86.4	24.0/76.0	13.3/86.7
Max. Handgrip strength (in kg) (SD) (in patients capable to follow the instructions)	9.0 (5.8)	17.8 (9.2)	12.7 (5.5)	9.1 (7.1)
Type of residence before admission (in %)				
At home	33.3	54.5	48.0	64.3
Senior residence/assisted living	19.0	0.0	8.0	0.0
Nursing home	47.7	45.5	44.0	35.7

Discussion

The preliminary findings of this ongoing research suggest the identification of four subgroups of frail geriatric patients. Patients differ significantly on a number of parameters (e.g., ADLs, mobility, cognition, grip strength, general performance) other than their immediate gravity of health status at hospital admission (see table 1). These preliminary findings are crucial as they confirm the need to develop different pathways aiming at providing specialised *geriatric care* to the patient in the present community hospital (e.g., acute geriatric care, geriatric rehabilitation, memory or mobility clinic), to either prevent further decline, to restore adequate quality of life, and if possible discharge the patient from hospital to home.

Geriatric patient profiles based on nutritional, functional, and cognitive status



ISAR Scores and ECOG Performance Status of the four identified geriatric patient profiles

