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RESEARCH ARTICLE (ORIGINAL)

Effectiveness of the implementation of function-focused care in functional decline: a quasi-experimental study

Eficácia da implementação do cuidado centrado na funcionalidade no declínio funcional: um estudo quase-experimental

Eficacia de la Implementación de los cuidados centrados en la funcionalidad en el deterioro funcional: un estudio cuasiexperimental

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Abstract
Background: Function-focused care (FFC) has shown positive results in preventing functional decline (FD) among hospitalized older adults.
Objective: To assess the effectiveness of nurses' implementation of FFC in promoting function and preventing FD among hospitalized older adults.
Methodology: Prospective quasi-experimental study with 101 hospitalized older adults and 94 nurses from 4 wards. FFC was implemented in the experimental group. FFC and FD were assessed at 3 intervals: baseline-discharge (t0), discharge-follow up (t1), and baseline-follow-up (t2).
Results: The promotion of FFC was 0.46 ± 0.22. Statistically significant differences were found in FFC between groups (experimental and control; $p < 0.01$; 0.52 ± 0.24 and 0.39 ± 0.19, respectively). No statistically significant difference was found between the groups in FD in t0 ($p = 0.15$), t1 ($p = 0.15$), and t2 ($p = 0.44$).
Conclusion: The implementation of FFC was low (46%), which may explain the lack of impact on FD prevention. However, more FFC activities were developed in the experimental group, which suggests a positive impact of the implementation of this philosophy.

Keywords: nursing; functionality; aged; functional decline; hospitalization

Resumo
Enquadramento: O cuidado centrado na funcionalidade (CCF) demonstra resultados positivos na prevenção do declínio funcional (DF) das pessoas idosas hospitalizadas (PIH).
Objetivo: Avaliar a eficácia da implementação do CCF em contexto hospitalar na promoção da funcionalidade pelos enfermeiros e na prevenção do DF.
Metodologia: Estudo prospetivo quase-experimental com 101 PIH e 94 enfermeiros de 4 enfermarias. No grupo experimental foi implementado o CCF. As medidas avaliadas foram o CCF e DF em 3 intervalos: *baseline*-alta (t0), alta-*follow-up* (t1) e *baseline-follow-up* (t2).
Resultados: A promoção do CCF foi de 0,46 ± 0,22. Verificaram-se diferenças estatisticamente significativas no CCF entre os grupos (experimental e controlo; $p < 0,01$; 0,52 ± 0,24 e 0,39 ± 0,19, respetivamente). Não houve diferença estatística entre os grupos quanto ao DF em t0 ($p = 0,15$), t1 ($p = 0,15$) ou t2 ($p = 0,44$).
Conclusão: A prática do CCF foi baixa (46%), o que pode explicar a falta de impacto na prevenção do DF. Contudo, no grupo experimental, foram desenvolvidas mais atividades de CCF, o que sugere um impacto positivo da implementação desta filosofia.

Palavras-chave: enfermagem; funcionalidade; idoso; declínio funcional; hospitalização

Resumen
Marco contextual: Los cuidados centrados en la funcionalidad (CCF) muestran resultados positivos en la prevención del deterioro funcional (DF) de las personas mayores hospitalizadas (pessoas idosas hospitalizadas - PIH).
Objetivo: Evaluar la eficacia de la aplicación de CCF en un entorno hospitalario para promover la funcionalidad por los enfermeros y para prevenir el DF.
Metodología: Estudio cuasiexperimental prospectivo con 101 PIH y 94 enfermeros de 4 enfermerías. En el grupo experimental se implementó el CCF. Las medidas evaluadas fueron CCF y DF en 3 intervalos: punto de partida-alta (t0), alta-seguimiento (t1) y punto de partida-seguimiento (t2).
Resultados: La promoción de CCF fue de 0,46 ± 0,22. Hubo diferencias estadísticamente significativas en los CCF entre los grupos (experimental y de control; $p < 0,01$; 0,52 ± 0,24 y 0,39 ± 0,19, respectivamente). No hubo diferencia estadística entre los grupos en cuanto al DF en t0 ($p = 0,15$), t1 ($p = 0,15$) o t2 ($p = 0,44$).
Conclusión: La práctica de CCF fue baja (46%), lo que puede explicar la falta de impacto en la prevención del DF. Sin embargo, en el grupo experimental se desarrollaron más actividades de CCF, lo que sugiere un impacto positivo de la aplicación de esta filosofía.

Palabras clave: enfermería; funcionalidad; anciano; hospitalización

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Introduction

Demographic transition, combined with an epidemiological and social transition, leads to an increasing demand for health care, with the number of hospital admissions of people aged 65 years or older being expected to increase considerably. However, hospital admission is a stressful event for older people that is associated with adverse events, namely functional decline (FD; Admi, Shadmi, Baruch, & Zisberg, 2015). FD is the inability to perform activities of daily living, leading to dependence. In Portugal, FD plays a significant role during and after hospital stay because 41.6% of hospitalized older people did not recover their preadmission functional status (Tavares, Grácio, & Nunes, 2018). One of the major factors associated with FD is the low level of physical activity (PA) and functional stimulation (Zisberg, Shadmi, Gur-Yaish, Tonkikh, & Sinoff, 2015) of hospitalized older people, and it is estimated that at least 80% of the time is spent in bed (Brown, Redden, Flood, & Allman, 2009). The care provided by health professionals, especially nurses, can contribute to limit PA/function. Despite the benefits of promoting hospitalized older people's PA/function, this is not the focus of nursing care during hospital stay (Dahlke, Hunter, & Negrin, 2019; Dermody & Kovach, 2018; Resnick & Boltz, 2019). Innovative approaches have been implemented to prevent FD such as function-focused care (FFC), which emphasizes nursing care as essential for preventing FD (Boltz, Resnick, Capezuti, Shuluk, & Secic, 2012). Studies on the implementation of FFC have shown an increase in hospitalized older people's PA/function and the prevention of FD and falls (Resnick & Boltz, 2019). Thus, the objective of this study was to assess the effectiveness of nurses' implementation of FFC philosophy in promoting the function and preventing the FC of hospitalized older adults in a hospital setting.

Background

FFC is an emerging philosophy of care, which has been developed by Resnick and collaborators over the past decade (Resnick & Boltz, 2019). It is an approach to care in which the nurses help hospitalized older people to become involved in their activities of daily living and PA with a view to preventing avoidable FD. It is an alternative to usual care, in which nursing care is developed *with* the older person and not *for* him/her (Burket, Hippensteel, Penrod, & Resnick, 2013; Resnick & Boltz, 2019). The implementation and promotion of FFC are supported and guided by the social-ecological model and Bandura's social cognitive theory (Resnick, Boltz, Galik, & Pretzer-Aboff, 2012). Its assumptions focus on helping older people to optimize and maintain their skills and continue to increase the time spent in PA so that they can recover and/or maintain the highest level of function and prevent physical and cognitive deconditioning. Finally, it is based on the interactions between the caregiver and the older person. Resnick et al. (2012) suggest the use of four components in its implementation (Table 1; Resnick & Boltz, 2019). The essential aspect is that this approach is the basis for all interactions and activities related to caring for older people. They are initiated sequentially, but the interventions started within each component are continuously used until they become routine care provided within the organization (Resnick et al., 2012). Efficacy studies have demonstrated that the implementation of FFC changed the hospital environment and the policies that facilitate PA (Burket et al., 2013; Resnick et al., 2016), increased FFC during hospital stay (Boltz, Chippendale, Resnick, & Galvin, 2015; Resnick et al., 2016), and improved function, increased PA, and reduced hospital readmission after discharge (Boltz et al., 2015; Resnick et al., 2016).

Research question/hypotheses

What is the effectiveness of nurses' implementation of the philosophy of FFC in promoting function and preventing FC in hospitalized older people in internal medicine departments?
Hypothesis 1: There are statistically significant differences with nurses' implementation of FFC in the promotion of function between the experimental group and the control group.
Hypothesis 2: There are statistically significant differences with the implementation of FFC and the FC between the experimental group and the control group.

Methodology

A prospective quasi-experimental study was carried out in four internal medicine departments (IMDs). The intervention group (experimental) and the control group were randomly selected (an inpatient unit for men and another one for women in each group) by an external researcher using a random number generator. The study was approved by the hospital's Ethics Committee, under opinion no. CHUC-065-14. The participation was voluntary, and all participants signed an informed consent form.
The population was composed of hospitalized older adults aged 70 years or older. A nonprobability consecutive sampling technique was used. Sample size was calculated using G-power software, in a total of 102 participants. The inclusion criteria were patients aged 70 years or older, who were able to understand and interpret the questions on the questionnaire (or, if they were unable, their informal caregiver), and who accepted to participate in the study. The exclusion criteria were hospitalized older people who had been transferred from intensive care units, with terminal or neurodegenerative illness, fully dependent at baseline or with lengths of hospital stay of less than 48 hours. At admission to the IMD, 117 patients met the eligibility criteria: 52 in the control group and 65 in the experimental group. Figure 1 shows the sampling procedures and the reasons for dropouts. The final sample was composed of 101 patients.

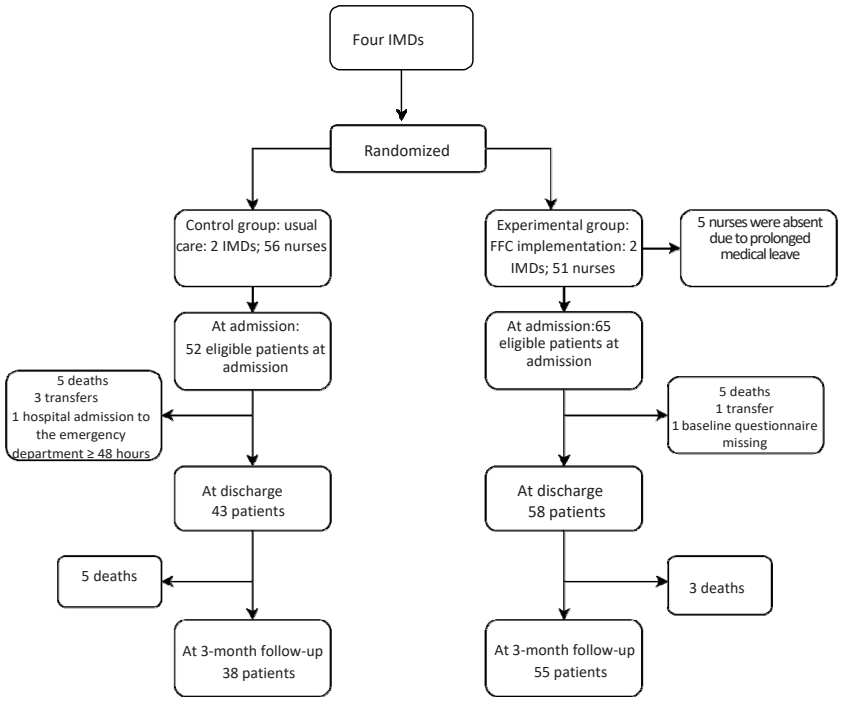

Figure 1. Diagram of the sample selection process.

Note. IMD = Internal Medicine Department; FFC = Function-Focused Care.

The researchers (JT, JG, and LN) coordinated the implementation of the FFC philosophy (in partnership with the head nurses of each department of the experimental units and in collaboration with the hospital's Training and Professional Development Service). The four components of FFC were implemented between March and July 2016 (Table 1). In each department of the experimental group, a rehabilitation nurse was asked to collaborate in the study, designated as Champion. These nurses were the link between the researchers and their nursing teams and were essential in the implementation of FFC, maintaining the team focused and motivated, and identifying the eligible participants for the study. Before data collection, the first two components were implemented in two months (March and April) to promote changes in the services and in nurses' clinical practices. After this period, in collaboration with the champions, the researchers continued to motivate the teams to promote FFC in the experimental group. In the wards of the control group, only the assessment was performed (component I). In these wards, the nurses continued with usual care.

Table 1
Description of the components and activities of FFC in hospital settings

Components	Description and activities
I – Environmental and policy assessments	Four visits were made to the units, and the head nurses were interviewed to assess the environment (18 items) and the policies (15 items), with more than half of the criteria evaluated having to be developed to integrate FFC (Tavares, Grácio, & Nunes, 2017). In the experimental units, some changes were made to optimize PA/function(e.g., guidance devices, unobstructed corridors).
II - Education of staff regarding FFC	The program was implemented according to the guidelines of Resnick et al. (2012) for FFC in hospital settings. The program took place in April 2016. It was composed of 4 workshops for each ward of the experimental group, in a total of 8 training sessions (5h/session) with the participation of all nurses who worked in those units (n = 51), except for those who were absent due to prolonged medical leave. The following aspects of training were assessed: self-assessment of prior knowledge; knowledge after participation in the training program; and applicability in clinical practice.

III - Establishing goals	Based on initial assessment data, the nurses were motivated to set short- and medium-term goals for patients. The integration of FFC in the nursing process included: care planning (prescription of interventions), being that the objectives should be based on older people's skills and the communication between the older person, the family, and the professionals, and in collaboration with all team members.
IV – Ongoing motivating and mentoring of staff, patients, and families	During the intervention, the research team and the champions motivated and mentored the teams to integrate FFC in care delivery through: self-efficacy strategies for motivating the team and the patients; supervision and evaluation with positive feedback when FFC is integrated; pedagogical material for patients and families on FFC; a maintenance training program for the teams, with a duration of 18 weeks (including the weekly submission of strategies for integration of FFC and evidence-based data; pocket cards for nurses' quick reference in their services; the display of material to promote function and PA in visible places of the ward and in the medical team's meeting room to remember both the health professionals and the patients/families about the importance of this topic).

Note. FFC = Function-Focused Care; PA = Physical Activity.

The evaluation protocol included descriptive information at the time of admission, such as sociodemographic variables (e.g., age, gender, education level, marital status), clinical variables (e.g., diagnosis at admission, number of medications, depression (dichotomous single-item question), weight loss (one or more kilograms in the past three months), pain, geriatric conditions (e.g., delirium – Confusion Assessment Method, cognitive status – 6-Item Cognitive Impairment Test, fear of falling – dichotomous single-item question, risk of falling – Morse Fall Scale, risk for pressure ulcer – Braden Scale, Charlson Comorbidity Index (CCI), Relative Risk (RR) of Mortality, occurrence of fall and functional capacity (using the Katz Index – KI)). Hospital length of stay, place of residence after discharge, and function were assessed at discharge. Function was assessed in the follow-up. Nurses' characteristics were collected through a questionnaire applied to the nursing teams that included socio-professional variables (e.g., gender, age, years of professional experience, and length of service). Data on the hours of care (per nurse and per ward) were collected through the Patient Classification System (*Sistema de Classificação de Doentes* – SCD).

The Restorative Care Behavior Checklist developed by Resnick and collaborators (Resnick, Rogers, Galik, & Gruber-Baldini, 2007) was used to assess the promotion of function. This scale includes 19 activities arising from the interaction between the nurse and the older person that are used to promote function, such as bed mobility, transfers, bathing and dressing the upper and lower body, use of assistive devices, ambulation, and joint movements. The checklist is scored by calculating the number of activities performed by health professionals to promote function and dividing it by the total number of activities observed (e.g., 5/10 or 50% indicates that half of all possible activities to promote function were performed). The higher the percentage, the more activities that promote function were performed. The Portuguese version of this checklist showed high levels of content validity, probability of chance, and modified Kappa statistics, which supports the content validity of this instrument (Tavares, Grácio, & Nunes, 2016).

Katz Index was used to determine FD (Duque, Gruner, Clara, Ermida, and Veríssimo, n.d.). This Index includes six basic activities of daily living (ADLs), with scoring ranging from 0 (dependent) to 1 (independent). FD was evaluated through the difference between KI scores in three intervals: t0 (difference between baseline and discharge), t1 (between discharge and 3-month follow-up), and t2 (between baseline and follow-up), being defined as the loss of at least one point between assessments.

Data were collected between 1 May and 7 October 2016: baseline, admission, and discharge, from 1 May to 30 June; and follow-up, from 5 August to 7 October. Patients were identified based on information from the champions or IMD nurses and the Electronic medical record to identify patients who had been admitted in the past 48 hours. After application of the inclusion and exclusion criteria, hospitalized older people were invited to participate. In the first 48 hours, data collection began after the informed consent was signed. Data were collected mainly from the patient or, whenever that was not possible, from the informal caregivers, the health team (including nurses, doctors, and operational assistants), through consultation of the clinical journal and the electronic health record.

The researchers collected data in three moments using a self-administered questionnaire. Descriptive characteristics and data on function at baseline were collected during the first 48 hours. At discharge, the researchers assessed hospitalized older people's function. However, some patients were discharged on days when the researchers were absent from the department, so they were contacted by phone. In the follow-up, a phone interview was used preferentially to the patients and/or (in)formal caregivers who had participated in earlier moments.

The researchers (JT, JG, LN) completed the checklist through non-participant (direct) observation of the nurses who had distributed the patients included in the study or those who had been delegated nursing care. The checklist was completed between the third and the fifth day of hospitalization (taking as reference the mean length of stay in the IMD, previously calculated based on data provided by the hospital). The nurse-patient involved in this study was observed. The observation using the checklist took place preferably in the morning shift, for at least 30 minutes, and was based on the protocol developed by the original authors and translated by the researchers, which minimizes the bias resulting from direct observation by different researchers and increases the reliability of the results.

Data were analyzed using descriptive and inferential sta-

tistics. In descriptive statistics, central tendency measures such as mean, median, and quartiles, and dispersion measures such as standard deviation were used for continuous variables; relative frequencies (percentages) were used for nominal variables.

In the comparative analysis, the Student's *t*-test (the Mann-Whitney *U* test was used when distribution was not normal); ANOVA (the Kruskal-Wallis test was used when distribution was not normal); the Chi-square test (Fisher's exact test was used when the assumptions of the Chi-square test were not met), and the correlation test (Pearson or Spearman's correlation coefficient). Data were analyzed using IBM SPSS Statistics, version 23.0. Data from patients who died during hospitalization or the follow-up period were excluded from analysis. A *p*-value < 0.05 was considered statistically significant.

Results

Sample characterization

Next are the characteristics of the experimental and control groups. Most participants were women (50% vs 58.1%), with a mean age of 81.91 ± 6.57 vs 83.21 ± 6.04 years. Most of them were widowed (49.1% vs 49.1%). The education level was low (52.2% vs 60.5% - 0 and 2 years of schooling). The majority of them lived with relatives (87.9% vs 76.6%). The most common diagnosis for admission were infections (44.2% vs 39.5%), followed by cardiovascular disease (15.5% vs 20.9%). Most of the patients were polymedicated (6.5 vs 7 drugs). CCI (0-8) had a median of 6 (4 - 7) and RR (0-19.37) had a median of 9.23 (4.4 – 13.4) in both groups. Weight loss (59.9% vs 43.1%), the high risk of falling (48.8% vs 47.4%), the fear of falling (61.1% vs 55%), the high risk for pressure ulcer (32.6% vs 32.1%), cognitive impairment (38.6% vs 46.5%), and often feeling sad or depressed (70.2% vs 65.1%) were very similar. No statistically significant differences were found in these variables between the experimental and the control groups, which means that both groups were very similar. The nursing teams in the experimental and control groups were mostly composed of women (74% vs 82%). The mean age was 37.5 ± 8.3 vs 36.6 ± 8 years, and the length of service was 74 vs 82 months. The majority of them worked 40 h/week (53.5% vs 57.3%) and had an individual employment contract (50% vs 60%). No statistically significant differences were found between groups in these variables.

Function-focused care

FFC promotion had a mean of 0.46 ± 0.22, which indicates that only 46% of all possible activities were performed based on function promotion. The mean was 0.39 ± 0.19 in the control group and 0.52 ± 0.24 in the experimental group, with a statistically significant difference ($t(91)= -2.85$; $p = 0.01$). The analysis by ward shows statistically significant differences between groups ($F = 5.49$; $p < 0.01$): wards 1 (control) and 4 (experimental; $p < 0.01$), without other differences between the departments.

The highest scores of FFC were found in the group of older people who were afraid of falling ($p < 0.01$), restrained patients ($p = 0.02$), with weight loss ($p = 0.04$), with depression ($p = 0.04$), and those who were more dependent on the KI at baseline ($r_s = -0.3$; $p = 0.04$). The interaction had no effect between these variables and the groups in FFC promotion ($p \geq 0.05$). No significant correlations were found between FFC promotion scores and older people's age ($p = 0.13$), comorbidity index ($p = 0.08$), number of medications ($p = 0.19$), KI at discharge ($p = 0.10$), KI at follow-up ($p = 0.11$), pain intensity ($p = 0.79$), number of hours of care per ward ($p = 0.48$), number of hours of care per nurse ($p = 0.32$), and length of hospital stay ($p = 0.28$). Similarly, no statistically significant differences were found between FFC promotion scores and gender ($p = 0.95$), occurrence of falls ($p = 0.28$), presence of cognitive impairment ($p = 0.53$), Braden Scale ($p = 0.71$), Morse Fall Scale ($p = 0.09$), and place of residence after discharge ($p = 0.54$).

Functional decline

The groups without FD had higher FFC scores (Table 2). However, no statistically significant differences were found between FFC promotion and FD in t0 ($U = 30.5$; $p = 0.15$), t1 ($t(38.82) = 6.293$; $p < 0.15$), and t2 ($t(83) = 2.49$; $p = 0.44$). The interaction had no effect between FFC and the groups in FD ($p \geq 0.05$).

Table 2
FFC analysis by variables

Variables	$\overline{X}$ (± *SD*)/*Me* (1st and 3rd Q)	*p* value
Experimental	0.52 (0.24)	<0.01[₸]
Control	0.39 (0.19)	
Ward		
1	0.32 (± 0.18)	<0.01[$]
2	0.45 (± 0.18)	
3	0.58 (± 0.20)	
4	0.58 (± 0.26)	
Weight loss		
Yes	0.46 (0.20)	0.04[₸]
No	0.39 (0.26)	
Fear of falling		
Yes	0.52 (0.18)	<0.01[₸]
No	0.37 (0.25)	

Contention		
Yes	0.53 (0.19)	0.02₮
No	0.42 (0.24)	
Depression		
Yes	0.5 (0.2)	0.04₮
No	0.39 (0.26)	
Functional decline in t0		
Absence	51 (49-61)	0.15¤
Presence	42 (43-83)	
Functional decline in t1		
Absence	0.52 (±0.15)	0.15₮
Presence	0.45 (±0.24)	
Functional decline in t2		
Absence	0.45 (±0.25)	0.44₮
Presence	0.48 (±0.19)	

Note. $\overline{X}$ = Mean; *SD* = Standard deviation; *Me* = Median; Q = Quartile; ¤ = Mann-Whitney U test; ₮ = Student's *t*-test; $ = One-way ANOVA.

Discussion

FFC promotion was low when compared to the studies of Boltz, Capezuti, and Shabbat (2011) and Boltz et al. (2012): 46% vs 92% and 76%, respectively. Moreover, the original study dichotomized FFC (FFC = 1 or FFC < 1) due to the lack of normality of the variable. This dichotomization was made possible due to the positive asymmetry, that is, the sample was divided into two groups: the group that promotes FFC at 100% and the group that promotes FFC less than 100%, which was not observed in this study. FFC promotion, which differs significantly between both studies, limits the comparison of results. On the other hand, unlike the Portuguese reality, FFC, as a philosophy of care, can be integrated into North American nurses' usual care.

Resnick and Boltz (2019) found that FFC is promoted in younger older adults (p = 0.028). This situation was not observed in Portugal. A possible explanation may be the fact that the patients' mean age is higher than in the original study (82.47 ± 6.57 vs 80.8 ± 7.2), as well as the fact that the inclusion criteria in this study were patients aged 70 or more years. On the other hand, this study was conducted in IMDs, where the mean age is high.

Nurses' intrapersonal characteristics may also have been determining factors for practices less consistent with FFC, namely their sociodemographic characteristics, knowledge, and beliefs (Resnick & Boltz, 2019). Studies have shown a significant difference between nurses' work environment and the health outcomes for patients, nurses, and organizations (Aiken et al., 2018). Research carried out in Portugal have shown that nurses' geriatric work environment is unfavorable: there are barriers to the promotion of high-quality nursing care, little knowledge, and negative attitudes by these professionals (Tavares, Silva, Sá-Couto, Boltz, & Capezuti, 2017), which contribute to the lack of integration of FFC.

The development of activities to promote FFC is not associated with the hours of care, which reinforces the central idea of this philosophy that the performance of these activities does not imply an increase in the time dedicated to care delivery. However, it should be noted that the SCD may not reflect the complexity and specificity of the care provided to older people. Therefore, further studies are needed to analyze the impact of these characteristics on the perception of nurses' work environment, the perception of overload, and the health outcomes.

In this study, FFC activities were more often performed in elderly people who were more dependent on admission, more depressed, afraid of falling, with weight loss, and restrained. This study refers to a problem in the delivery of care to independent older people. FD was more marked in this group (54.4% were totally independent on admission vs 30.7% at discharge; Tavares et al., 2018). A significant negative correlation, although weak, suggests that the more independent are older people, the fewer activities are performed to promote independence, which may put them at a higher risk for FD.

In contrast to studies that analyzed FFC (Boltz et al., 2011, 2012; Resnick et al., 2016), no statistically significant differences were found between the practice of FFC and FD. However, Older adults without functional decline were those who most benefited from FFC. It is important to consider that the practice of FFC is clearly lower than the one observed in studies about this philosophy, which can limit its impact on FD prevention. Moreover, there is a need to apply the four components used for implementing FFC more consistently so that FFC can be integrated into nurses' daily practice. It should be highlighted that, in the process of implementation, component I did not promote the integration of FFC (Tavares, Grácio, & Nunes, 2017). Additionally, a low adherence was found in component III (establishment of goals) and lack of clarity of the champion's role as motivating the teams (component IV).

Therefore, there should be a more effective change in the physical environment and the organizational policies, with the implementation of institutional standards and educational strategies that involve not only the nurses but also other members of the health team, in particular operational assistants, families, and caregivers. Functional goals should also be established based on the multidimensional assessment and from a perspective of co-design with the patients, as well as interdisciplinary work and the development of motivation and positive reinforcement strategies for all people involved in FFC. It is essential to give priority to this type of care in hospitals, creating work environments favorable to nursing practice, where FFC can have a significant impact on older inpatients' function and quality of life.

A limitation of this study was the small sample size of the groups and the context, which included only 4 IMDs in a hospital and university center located in the central region of Portugal. These factors limit the generalization of the results. The development of randomized controlled studies with larger samples, the inclusion of other services (both from medical and surgical specialties), and different types of hospitals in other regions of Portugal can help to explore the impact of FFC implementation in hospital settings.

Secondly, FFC was deliberately observed during the morning shift so as to include as much ADLs as possible. However, these activities may have occurred in other periods of the day and may have been described as *not observed*. Future studies should perform direct observations during several and more prolonged periods of the day. As regards observation, it is important to mention that the effect of social desirability can skew the parameters evaluated, although mitigation techniques, such as unplanned observations, have been used. An observation prior to the implementation of the study would be relevant to: know the FFC baseline; analyze the nursing team's predisposition towards function; and analyze the impact of the training program on the teams. This study excluded totally dependent patients. However, it would be important to observe FFC in this group of patients and compare it with the group of less dependent patients because this study found that the activities that promote function were more often performed in patients with higher levels of dependence.

Thirdly, some factors associated with nurses' work environment and the organizational policies may have conditioned the involvement in the FFC philosophy. Studies have shown that the negative perceptions about organizational support, which promotes nurses' autonomy and control for resolving problems, affect the quality of care (Tavares et al., 2017). Future research should undertake a more comprehensive assessment of nurses' intrapersonal characteristics and their impact on the delivery of care to older people. It would also be appropriate to consider the patients' level of (i)mobility in the hospital, which would improve the understanding of the impact of bed rest and FFC practices on hospitalized older people in Portugal. Finally, the evaluation of the satisfaction of patients, family/caregivers, and health professionals is relevant to ensure the reliability of the FFC practice. Future studies should also consider a component of qualitative assessment and the inclusion of the role played by the family/caregiver in FFC promotion during and after older people's hospitalization.

Conclusion

This was a pioneer study in the implementation of FFC in Portugal. There are no similar studies in the country. The results have shown that only 46% of all possible activities were carried out based on the promotion of functional status. The implementation of FFC has demonstrated a statistically significant difference between both groups, being more favorable in the experimental group. However, this effect was not observed in FD prevention. The promotion of function through FFC is seen as a challenge and an opportunity for change, innovation, and creativity, with a view to improving the efficiency and quality of the care delivered to older people, leading to the implementation of integrated and continuous initiatives to meet these patients' needs.

Author contributions

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