





Efficacy of prompted voiding for reversing urinary incontinence in older adults hospitalized in a functional recovery unit: Study protocol

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Funding

This study has been funded by Instituto de Salud Carlos III through the project "PI19/00168" (Co-funded by European Regional Development Fund/ European Social Fund "A way to make Europe"/"Investing in your future").

Abstract

Aims: To assess the efficacy of a prompted voiding programme for restoring urinary continence at discharge in hospitalized older adults who presented with reversible urinary incontinence (UI) on admission to a functional recovery unit (FRU). To assess the maintenance of the outcomes achieved after hospitalization. To identify modifiable and unmodifiable factors associated with the success of the prompted voiding programme.

Design: Quasi-experimental, pre-/post-intervention study without a control group.

Methods: Participants were aged 65 and over with a history of reversible UI in the previous year who had been admitted to a FRU and were on a prompted voiding programme throughout their hospitalization period. The sample consisted of 221 participants. A non-probabilistic sampling method, in order of recruitment after signing the informed consent form, was used. The primary outcomes were UI assessed at discharge and 1 month, 3 months and 6 months after discharge. Funding was granted in July 2019 by the Spain Health Research Fund (PI19/00168, Ministry of Health). The proposal was approved by the Spanish Research Ethics Committee.

Discussion: The prompted voiding programme described can reverse UI or decrease the frequency and amount of urine loss in hospitalized older adults.

Impact: Urinary incontinence is highly prevalent in hospitalized older adults. There is a need for care aimed at prevention, recovery and symptom control. Prompted voiding is a therapy provided by the nursing team during hospitalization and can also be provided by family caregivers at home after receiving proper training by the nursing team. Prompted voiding will enhance the health, functional ability and quality of life

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of older adults with UI, resulting in the reduction of associated healthcare costs and the risk of developing complications.

KEYWORDS

elderly, frail elderly, hospitalization, nursing, nursing care, prompted voiding, rehabilitation, urinary incontinence

1 | INTRODUCTION

New-onset urinary incontinence (UI) affects one in five patients admitted to an acute care hospital (Ostaszkievicz et al., 2008), including 38.6% of hospitalized older adults, who remain incontinent on discharge (Inderjeeth & Hanna, 2018). Older adults are especially vulnerable during hospitalization due to their fragile physiological reserve and multiple comorbidities. Common reasons for admission in older adults include infectious diseases, femoral internal fixation, cerebrovascular diseases and exacerbating chronic conditions. They are usually associated with the presence of pain, immobility and disruption of daily habits, which in turn leads to delirium and UI (Cheong et al., 2019; Duaso et al., 2009).

Despite this, UI management in the hospital setting is still sub-optimal. Some studies have shown that there is a lack of implementation of care plans for UI management even in specific units such as stroke units, where the prevalence of UI after a cerebrovascular event is between 40% and 60% and is considered to be a poor prognostic factor in the progression of the patients (Thomas et al., 2014). In addition, during hospitalization, it is quite common to use procedures that increase the risk of developing UI, such as urinary catheterization or incontinence pads (Jikke Bootsma et al., 2013; Junqueira et al., 2018).

Since 2002, UI has been defined as the involuntary loss of urine (D'Ancona et al., 2019). UI is related to structural alterations in or external to the urinary tract, with different aetiopathogenic mechanisms often being combined in older adults (Khandelwal & Kistler, 2013). UI may be classified as either acute or chronic depending on the clinical course. Acute UI is characterized by a sudden onset and a short progression and is related to potentially reversible causes (acute illnesses, medication, and/or iatrogenesis), and usually subsides when the underlying disorder is treated, although it can sometimes lead to the development of chronic UI. Chronic UI persists for more than 4 weeks and is usually categorized into stress, urge, mixed, functional, overflow and reflex UI (D'Ancona et al., 2019; Herdman & Kamitsuru, 2014), with the first four categories being the most frequent in the frail elderly (Wang et al., 2017; Thüroff et al., 2011).

UI has a profound impact on older adults' quality of life, subjective health status, levels of depression and need for care. It is a health problem that is often overlooked, as it is not a life-threatening condition, but it does affect those who suffer from it psychologically and socially. In addition, UI increases the probability of developing complications such as skin injuries, urinary tract infections or falls, and is considered to be a geriatric syndrome related to the morbidity

and mortality of this age group. In economic terms, UI contributes to the increased utilization of healthcare resources, although the actual costs have not been accurately quantified (Baena González et al., 2017). A recent estimate of spending on UI products in the Netherlands suggests a figure of €150 million per year. As a result, early detection and treatment strategies led by nurses are being considered to improve the UI problems of the population (Franken et al., 2018; Jansen et al., 2017).

1.1 | Background

In Spain, functional recovery units (FRUs) of medium-stay hospitals are services that many older adults are referred to after being hospitalized for an acute condition that has caused them to suffer from a steep functional decline. The purpose of the multidisciplinary teams working in these units is to restore the health status of inpatients and help them to regain the maximum degree of autonomy possible. In the FRUs of the Guadarrama Hospital, which is a medium-stay hospital in the Community of Madrid, according to 2017 data from the Nursing Directorate, 62% of patients had UI on admission and 44% of patients had it on discharge, that is, UI was reversed in only 18% of patients.

For this reason, and because of the consequences of UI on the health of the elderly, the restoration of urinary continence should be one of the primary objectives of the nursing care plan. To provide the most appropriate treatment to patients with new-onset UI, a tailored assessment is needed to determine the patient's clinical history, treatment, voiding habits and lifestyle. This will help nurses to adapt the best therapy available to them, propose the least invasive alternative, initiate it as soon as possible in the hospital setting and maintain it in the community setting.

Behavioural therapies are considered to be highly effective and without side effects, as they decrease the frequency and severity of UI in 50% of patients and increase urinary continence in 30%–40% of cases (Morilla, Contreras, Morales, Martín, Gómez, Izquierdo, et al., 2007; Rexach Cano & Verdejo Bravo, 1999). Some behavioural therapies can be used by individuals autonomously, such as pelvic floor exercises, bladder training, vaginal cones or biofeedback therapy. Other therapies require the help of a professional or family caregiver, such as scheduled voiding, double voiding, habit training, continence reinforcement and prompted voiding (Morilla, Contreras, Morales, Martín, Gómez, Izquierdo, et al., 2007; Nambiar et al., 2018).

Prompted voiding consists of anticipating involuntary urination by establishing a voiding schedule based on the patient's usual urinary voiding pattern. This schedule should be incorporated into the daily life of the individual, family or institution, in such a way that a cognitive association is established, thus favouring the control of urinary continence by the patient. To achieve success, it is necessary to carry out a proper initial assessment of the patient's urinary patterns and of all the influencing factors, and also to ensure that professional and family caregivers have a supportive attitude to encourage autonomous urination (Morilla, Contreras, Morales, Martín, Gómez, Izquierdo, et al., 2007; Registered Nurses' Association of Ontario [RNAO], 2005). Prompted voiding has been found to be useful in adults and older adults with stress, urge, mixed and functional UI, and has been successfully used in acute, chronic and home care settings. There is also evidence to suggest that prompted voiding reduces the frequency of leaks in patients who are able to void on demand (Eustice et al., 2000; Holroyd-Leduc & Straus, 2004; Newman, 2019).

However, despite an increase in the number of studies on the efficacy of behavioural therapies, few studies have been conducted in the hospital setting to date, with a predominance of studies being conducted in primary care settings or nursing homes, mostly in the United States. The results of these studies differ between countries due to cultural, socio-economic and health policy factors (Flanagan et al., 2014; Franken et al., 2018; Holtzer-Goor et al., 2015; Jansen et al., 2017; Lai & Wan, 2017; Stenzelius et al., 2015; Suzuki et al., 2016). Also, no results have been reported on which type of UI responds best to behavioural therapy, the time it takes patients to restore their continence, the time patients maintain their state of continence after using behavioural therapy, or the factors associated with the restoration of continence when a specific therapy is used. No evidence of factors predicting the long-term effects of prompted voiding programmes was found; however, factors that predict short-term effects were identified as motivation, caregiver training, high cognitive ability (Eustice et al., 2000), mobility and hydration (Flanagan et al., 2014; Stenzelius, et al., 2015) were identified. Factors associated with poor responses include high volumes of post-void residual urine, low urine output and a high frequency of 'false alarms', that is the individual expressed a need to use the toilet but failed to urinate once there (Morilla, Contreras, Morales, Martín, Gómez, Izquierdo, et al., 2007). The length of the intervention and its impact on incontinence remains open to discussion (Eustice et al., 2000). There is also a lack of scientific evidence in some of the recommendations that are included in clinical practice guidelines (Eustice et al., 2000; RNAO, 2005; Thüroff et al., 2011). This study can provide new evidence of the effects of the use of prompted voiding on patients with reversible UI who are admitted to a FRU for rehabilitation and restoration of their autonomy and quality of life.

For all these reasons, we proposed this study to answer the following questions: Would it be possible for 30% of older adults hospitalized in a FRU who present with UI on admission and receive a prompted voiding programme to have their urinary continence restored on discharge? And, if their continence is not fully restored,

could 50% of the patients have a UI status on discharge which is an improvement on that which they had on admission?

2 | THE STUDY

2.1 | Aims

The main objectives of this study are the following: (a) to assess the efficacy of a prompted voiding programme for restoring urinary continence in elderly people hospitalized in a FRU; (b) to assess the efficacy of a prompted voiding programme in improving UI in terms of the number of days needed to achieve urinary continence, reduction in the frequency of urine loss, reduction in the amount of urine lost and changes in the type of absorbent product needed.

The secondary objectives of this study are the following: (c) to assess the efficacy of a prompted voiding programme in the restoration of urinary continence on discharge of elderly patients hospitalized in a FRU based on the type of UI detected on admission; (d) to identify factors associated with the successful restoration of urinary continence in hospitalized elderly patients who are placed on a prompted voiding programme; (e) to assess the efficacy of a prompted voiding programme in maintaining urinary continence 1 month, 3 months and 6 months after discharge from hospital.

2.2 | Methodology

2.2.1 | Study design

This is a quasi-experimental, pre-/post-intervention study without a control group that is currently being conducted in a medium-stay hospital, a reference in rehabilitation and care, belonging to the public National Health System of Spain. This hospital has 144 beds, of which 108 are in the FRU, the setting where the study is being conducted.

Currently, this hospital is a member of the Best Practice Spotlight Organizations (BPSO), an international project coordinated by the Investen Care Research Unit of the Carlos III Institute of Health, the Spanish Center for Evidence-Based Healthcare, and the Registered Nurses' Association of Ontario (RNAO).

The present study has been underway since October 2019, although it has been affected by the current COVID-19 pandemic caused by SARS-CoV-2.

2.2.2 | Participants

Inclusion criteria

Individuals aged 65 or older with UI onset occurring within the last 12 months.

Exclusion criteria

Patients with bladder catheterization; patients with permanent and irreversible UI with a specific cause; patients with moderate-to-severe cognitive impairment (Pfeiffer's test >4); patients with fluid intake restriction indications.

Criteria for being withdrawn from the study

Death of the patient; clinical deterioration impeding the performance of prompted voiding; transfer from the unit or hospital due to deteriorating health status; patients who no longer wish to participate in the prompted voiding programme; patients with poor adherence to the prompted voiding programme for reasons beyond their control (rehabilitation visits or diagnostic tests, among other things, coinciding with the patient's voiding schedule).

2.2.3 | Sample size

According to data from the hospital management, in 2017, 62% of the patients admitted to the FRU presented with UI on admission, while 44% of the patients presented with UI on discharge, that is only 18% managed to revert their situation back to continence. A sample of 201 patients was estimated to be required by taking into account the comparison of paired proportions, with proportion 1 being 18% and proportion 2 being 30% (proportion of patients achieving urinary continence at discharge among the first 60 study participants), accepting a 95% confidence level and power of 80%. This was increased by 10% to mitigate the possible effect of sample attrition (transfer to an acute care hospital, death during admission, failure to comply with the prompted voiding programme), resulting in a final minimum sample size of 221 patients. The statistical software Epidat 4.2 was used to calculate the necessary sample size. Convenience sampling was the sampling method used. Patients who met the inclusion criteria were recruited in order of arrival at the FRU.

2.2.4 | Study procedures

Recruitment

The members of the research team will recruit participants who meet the inclusion criteria during the first 48 h after admission. One member of the research team will inform the patients/caregivers of the purpose of the study, invite them to participate, give them the patient information sheet and, once they agree to participate, they will be given an informed consent to sign. Data will be recorded on paper, with patients being numbered in consecutive order of inclusion, which will be completed by the same person to ensure that data are collected consistently. In the cases where this is not possible, another member of the team will conduct this monitoring. All the variables of the study will be included in the notebook used to record data (Table 1).

Characteristics of the prompted voiding programme

The programme consists of implementing prompted voiding behavioural therapy, which focuses on modifying the response of professional or family caregivers, as they are responsible for prompting the patient to use the toilet to prevent urine loss. This therapy is performed at regular time intervals of no less than 2 h, trying to adjust them to the frequency and characteristics of each patient's urination pattern. This intervention was included in the nursing care programme for patients with UI by the hospital management (Martín-Losada, Parro-Moreno, Solís-Muñoz, & Grupo de investigación en cuidados en Incontinencia Urinaria del Hospital Guadarrama, 2020), taking into account the recommendations of the best practice guidelines Promoting Continence Using Prompted Voiding (RNAO, 2005). This intervention is implemented by the nursing team of the FRU, which is composed of registered nurses and nursing assistants who had been previously trained to ensure optimal compliance with the intervention.

The prompted voiding programme begins on the sixth day after admission and lasts until discharge from the hospital. Three behaviours are used to implement it: PRAISE: The caregiver positively reinforcing sphincter control is crucial. PROMPT: It consists of prompting the patient to use the toilet at regular intervals, so that bladder control is promoted during the prompted voiding sessions. MONITOR: Asking periodically if the patient needs to use the toilet. In the case of patients with cognitive impairment or communication difficulties, the caregiver should pay attention to some indicators that may be related to, among other things, the need to void, which may include restlessness, nervousness, the patient trying to take off their clothes, etc. In these cases, taking the patient to the toilet or placing a urination device pre-emptively may prevent an involuntary loss of urine.

As established in the programme, before starting, a 3-day voiding record will be kept to individualize the programme based on the moments of involuntary urinary leakage that the patient may have throughout the day. It is also important to schedule the voiding sessions by associating the time of using the toilet with the individual's daily activities, for example before meals, before attending rehabilitation or before going to bed, to encourage the patient to form a cognitive association between these activities and incorporate urination as a habit.

Once the prompted voiding programme has been initiated, if the patient experiences urine loss prior to the scheduled times or if the patient requests to pass urine, the sessions may be moved forward by 30 min, as long as the minimum 2-h interval between voids is maintained.

The family caregiver can collaborate in the prompted voiding programme during the time the patient is admitted to the FRU. This collaboration is voluntary and requires that the family caregiver identifies themselves as a caregiver and shows interest in participating in the programme. The caregiver will be trained to collaborate safely and effectively. At the time of discharge from the hospital, verbal and written recommendations on prompted voiding (discharge summary and information leaflet) will be given to the patient,

TABLE 1 Variables included in the data collection notebook of the study participants

Variables	Time of data collection								
	Admission	Monitoring (days of PV)				Discharge	After discharge (months)		
		15	30	45	60		1	3	6
Socio-demographic									
Age (years), sex, level of education, identifies as primary caregiver	X								
Living situation (alone, with family, in nursing home)	X						X	X	X
Accompanied by the caregiver during admission						X			
Clinical									
Reason for admission (functional impairment due to stroke, femoral internal fixation, other)	X								
BMI >25	X								
Dependency level (Modified Barthel Scale)	X					X	X	X	X
Risk of falling (STRATIFY Scale)	X					X			
Risk of developing pressure injuries (Modified Norton Scale)	X					X			
Cognitive status (Pfeiffer's test)	X					X			
Length of hospital stay (days)						X			
Have you noticed a deterioration in your state of consciousness?							X	X	X
Did you need to go to the hospital emergency room? If so, why?							X	X	X
Did you need to be admitted to a hospital? If so, why?							X	X	X
Patient's COVID-19 infection/suspected COVID-19 infection during admission. If so, state treatment received							X	X	X
Family caregiver's COVID-19 infection/suspected COVID-19 infection during admission. If so, state treatment received							X	X	X
Related to urinary incontinence									
Diagnosis of urinary incontinence	X					X	X	X	X
Clinical course (months)	X								
Type of urinary incontinence (functional, mixed, urge, stress, reflex)	X					X			
Number of urinary leaks per day	X	X	X	X	X	X	X	X	X
Volume of leaks	X	X	X	X	X	X	X	X	X
Degree of urinary incontinence	X	X	X	X	X	X	X	X	X
Device (type of absorbent needed)	X	X	X	X	X	X	X	X	X
Time of leakage (daytime, nighttime, indiscriminate)		X	X	X	X	X	X	X	X
Activity at the time of the leakage		X	X	X	X	X	X	X	X
Personal history of risk factors (diabetes, heart failure, obesity, neurological conditions, stroke, abdominal/pelvic surgery, Parkinson's disease, urinary tract infection, acute urinary retention)	X								

(Continues)

TABLE 1 (Continued)

Variables	Time of data collection								
	Admission	Monitoring (days of PV)				Discharge	After discharge (months)		
		15	30	45	60		1	3	6
Urinary symptoms (dysuria, increased urinary frequency, nocturia, haematuria, polyuria)	X								
Positive urine culture	X	X	X	X	X	X			
Blood biochemistry (sodium, creatinine, glomerular filtration)	X	X	X	X	X	X			
Medicines (diuretics, sedatives, anticholinergics, opioids, antipsychotics, cholinesterase inhibitors)	X					X	X	X	X
Urination indicators (sensation of urination, expressing the need to urinate, autonomy when handling bedpan)		X	X	X	X		X	X	X
Ambulation and autonomy when using the toilet (Barthel Scale)	X					X	X	X	X
Related to the prompted voiding programme									
Number of PV sessions	X	X	X	X	X	X	X	X	X
Continuation of prompted voiding after discharge (autonomously or with assistance)							X	X	X
The patient/caregiver received reinforcing information regarding the PV programme from their primary care team nurse or from their nursing home nurse							X	X	X
Degree of satisfaction with the relationship established with the professionals who attended to you						X			

the primary caregiver and the nurse in charge, be it in a primary care setting or a nursing home, to ensure continuity of care outside the hospital (Figure 1).

2.2.5 | Study measurements

Primary outcome: UI before discharge

Other outcomes: UI at 1, 3 and 6 months after discharge; degree of UI at all three times*; frequency and number of urinary leaks per day; type of absorbent used; time of use.

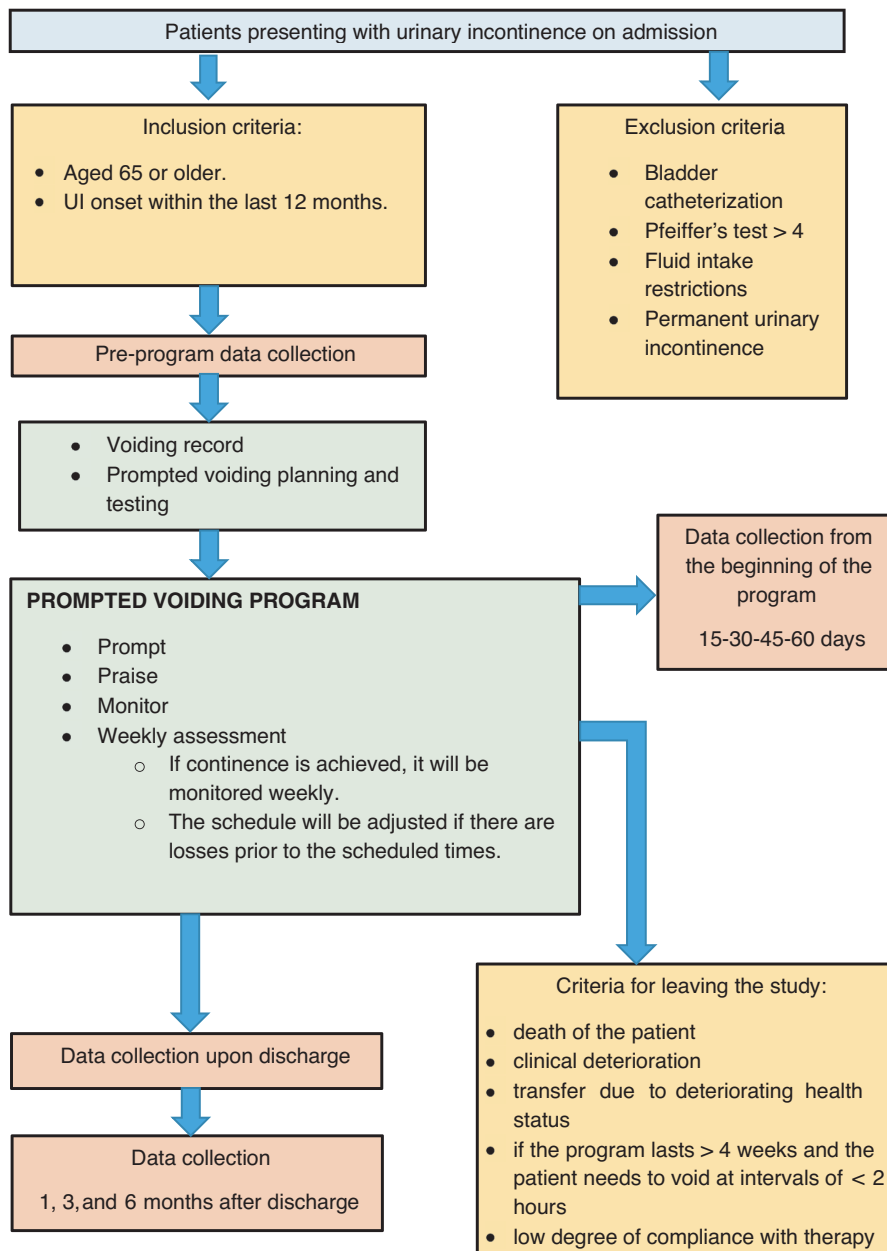
*The variable 'degree of UI' was established by a consensus of the research team, as no specific classification was found in the literature that would suit what was intended to be assessed. The classification will be as follows: Type I: mild night-time UI, uses pad only at night, while sleeping; Type II: mild 24-h UI, uses pad 24 h a day; Type III: moderate-to-abundant night-time UI, uses pad only at night; Type IV: moderate-to-abundant 24-h UI, uses pad 24 h a day.

Table 1 shows all the variables of the study divided into four large categories: socio-demographic variables, clinical variables, variables related to UI and variables related to the prompted voiding programme.

2.2.6 | Data collection

Incontinent patients will be assessed and evaluated on admission, every 15 days from the beginning of the intervention until discharge, and additionally before discharge from the hospital. In each assessment, the leaking and voiding record will be reviewed to adjust the prompted voiding sessions to the new data. If the patient achieves total continence during hospitalization, follow-up will be performed weekly. Assessments will also be conducted at 1, 3 and 6 months after discharge by administering a telephone questionnaire to the primary caregiver (if the patient is discharged from the hospital to their home) or to the nurse in charge (if the patient is discharged from the hospital to their nursing home).

The research team is trained to ensure compliance with the programme, proper data collection and completion of the data collection notebook created for this study. Personal interviews, the clinical record, the medical tests performed (blood tests, routine urine tests and urine culture if applicable, and abdominal X-rays), observations and examinations will be used. Validated questionnaires will also be used for the following variables: the Modified Barthel Scale (0–100), to measure the level of dependency regarding basic activities of daily living (Shah et al., 1989): within this scale, the sections 'ambulation' (0–15) and 'autonomy when using the toilet' (0–10); the STRATIFY



scale (0–5) to assess their risk of falling (Oliver et al., 1997); the Modified Norton Scale (11–20) to assess their risk of developing pressure injuries (Quiralte et al., 1998); Pfeiffer's test (0–4) to assess their cognitive status (Martínez-Iglesia et al., 2001). The variable 'Degree of satisfaction with the relationship established with the professionals who attended to you' will be measured using a Likert scale with options ranging from 0 to 5, with 0 being no relationship at all and 5 being the best relationship I could have hoped for.

2.2.7 | Data analysis

A descriptive analysis of the initial variables will be conducted to determine the general characteristics of the study population. Qualitative variables will be represented by their distribution of

frequencies. Quantitative variables will be summarized using measures of central tendency and dispersion. Bivariate analyses of all variables related to the primary outcome variable and the other outcome variables will be performed, using either parametric or non-parametric tests depending on the nature of the distribution of the data (chi-squared tests, Student's *t*-test, Wilcoxon's test, correlation tests, ANOVA, Kruskal-Wallis test). Hypothesis testing for paired samples and multivariate analyses will be used in the posttest, which will be either linear or logistic depending on the nature or recoding of the dependent variables. The inclusion of the variables in the logistic model will be based on statistical significance and consistency criteria, once the relationship between the primary outcome variable and each of the independent variables has been observed. A multiple logistic regression model will be created to look for variables associated with continence on discharge. The necessary sample size

was calculated using the rule of thumb proposed by Harrell (Harrell, 2001; Harrell et al., 1996). It was estimated that 106 patients would recover and, as a result, a multivariate model with up to 11 variables can be created. Odds ratios (ORs) will be estimated along with their 95% confidence intervals. To validate the predictive model, the statistics proposed by Lemeshow and Hosmer and the area under the ROC curve will be calculated. The analyses will be performed at 95% confidence levels ($p \leq 0.05$). The statistical package *SPSS*, version 19.0, and the statistical programme *STATA*, version 15.0, will be used for these analyses.

2.3 | Ethical considerations

The study is being conducted in compliance with the Declaration of Helsinki, the Spain Biomedical Research Act and good clinical practice guidelines, which include the monitoring of the study to ensure the accuracy of the data and the safety of the participants. All participants are duly informed about the study, receive an information sheet and sign an informed consent form. In the event that the patient is unable to give consent, the patient's family or legal guardian will do so. Patients could freely withdraw from the study at any time. The confidentiality of the patients will be preserved at all times. To prevent patients from being identified, all participants will be identified with their own code number throughout the study. The proposal was approved by the hospital's Clinical Research Ethics Committee.

2.4 | Validity, reliability and rigour

The methodology for conducting this clinical trial protocol follows the guidelines set out in the 2013 SPIRIT Statement (Chan et al., 2015). This study has been registered in www.clinicaltrials.gov under the code NCT04117126.

Funding was granted in 2019 by the Health Research Fund of the Spanish Ministry of Science, Innovation, and Universities (PI19/00168, Ministry of Health), after a peer-reviewed funding process. This project is also co-financed by the European Regional Development Fund (ERDF).

3 | DISCUSSION

The admission of an elderly person to an inpatient unit is considered to be a trigger event for UI (Inderjeeth & Hanna, 2018). UI may contribute to poorer quality of life, increased risk of health problems and increased related costs (Khandelwal & Kistler, 2013). In spite of this, no early preventive interventions aimed at restoring urinary control in the hospital setting have been found.

Behavioural therapies are recommended as first-line interventions. In particular, prompted voiding can be tailored to the needs of the elderly population during their rehabilitation process and meets the recommendations of the scientific societies listed by the

European Association of Urology, which establishes providing conservative treatment for UI as a priority (Morilla, Contreras, Morales, Martín, Gómez, Izquierdo, et al., 2007; Nambiar et al., 2018; Thüroff et al., 2011). In addition to the fact that prompted voiding is instrumental for the sustainability of the health system itself due to its low cost regarding the use of absorbent devices, it does not entail any adverse effects and reduces the patient's dependency on third parties.

Prompted voiding behavioural therapy was shown to yield positive results in several studies during the 1990s, mostly in nursing homes and in the community setting (Newman, 2019). Prompted voiding has low levels of evidence due to the methodological shortcomings of the studies conducted so far, but it does not pose any risks to patients and may be implemented in dependent individuals, so it is strongly recommended (RNAO, 2005).

The present research study is in line with the main health policies and strategies developed in the Spain Health System. This study will help to determine the following: the characteristics of patients with new-onset UI who have been admitted to the FRU of the medium-stay Guadarrama Hospital; the effectiveness of the prompted voiding programme during hospitalization and after discharge from hospital for a period of up to 6 months; factors favouring the restoration of urinary continence. In a systematic review conducted to assess the effects of prompted voiding in the management of UI in adults, there was insufficient evidence to draw strong conclusions for clinical practice. However, there was evidence suggestive of short-term benefits, such as improvement in self-initiated voiding and reduced episodes of incontinence in the short term. This review also reported the need for monitoring longer term effects and the length of time the effect persists after ceasing the therapy (Eustice et al., 2000).

If the efficacy of prompted voiding in the restoration of continence or the improvement of UI is demonstrated, the degree of recommendation for its implementation in care practice in hospitals, nursing homes and home care for the elderly, where the monitoring of the process would be easier, would increase. This would also improve the physical and psychosocial health and wellbeing of patients and reduce healthcare costs and adverse events associated with UI.

To ensure the sustainability, good quality and safety of care for older adults with exacerbations of their chronic health conditions, it is necessary to promote a model of comprehensive care across all settings possible (hospitals, communities, health and social care settings), where nursing professionals can become the backbone of the multidisciplinary care patients need by making efficient use of the resources necessary to ensure the good quality of care. It should be noted that medium-stay hospitals, which are the setting of this study, are in increasing demand from the health system to achieve rehabilitation goals. This requires highly competent nursing professionals, capable of implementing evidence-based practice, with leadership skills and capable of training both the patient and their caregivers throughout the functional recovery process (Demiris et al., 2020; Vaughn et al., 2016).

The hospital, by way of its various committees and its participation in the international BPSO project, works to develop and implement clinical practice guidelines that promote evidence-based practice, such as the best practice guideline Promoting Continence Using Prompted Voiding (RNAO, 2005). This study is therefore included in the strategic line towards excellent care.

Developing this study poses a challenge in terms of organization and staff training. The programme was fully incorporated into daily clinical practice. A specific UI care protocol was initially developed, explaining the prompted voiding programme step by step (Martín-Losada, Parro-Moreno, Solís-Muñoz, & Grupo de investigación en cuidados en Incontinencia Urinaria del Hospital Guadarrama, 2020). In addition, before the start of the study, numerous training activities were carried out for all members of the healthcare team, which continue to be carried out periodically so that all personnel works according to the established protocol. Also, changes have been made to the Electronic Medical Record of the patient to record the activities of the induced evacuation programme. One limitation of the study is the staff. It is essential to reinforce the nursing team in terms of the number of professionals per shift as a work overload would have a negative impact on the degree of compliance with the intervention.

Since the beginning of this study, it was necessary to make adjustments to the data collection notebook, because, in practice, it is not possible to collect data on some of the variables initially proposed during study development. In addition, it is also necessary to closely and continuously monitor the patients included in the study as any change in their clinical status could affect their return to a state of continence.

The strength of the research team lies in the fact that it integrates clinical professionals, researchers and teaching staff who have combined their knowledge and skills, thus bringing different approaches to the study and enriching the relationship between different professional fields while contributing to the training of junior researchers.

To date (May 2020), a total of 119 patients have been recruited. The entire study sample is expected to be recruited by December 2021.

3.1 | Limitations

This is a quasi-experimental without a control group, given that setting up a clinical trial raised ethical concerns. This design has limitations, as it is more difficult to control for potential confounders. However, an exhaustive collection of data on the study variables may help to strengthen the analysis and contribute to fulfilling one of the objectives of our study (to identify modifiable and unmodifiable factors associated with the success of the prompted voiding programme) by controlling for possible interacting or confounding factors with a sample size ensuring sufficient statistical power to validate the model obtained.

Another limitation is the difficulty in recruiting older adults, due to their distrust of research or their lack of interest in it. This requires

that communication be accomplished using strategies more suited taking into account their cognitive abilities and cultural background, which implies spending more time recruiting the sample.

The arrival of the SARS-CoV-2 pandemic in COUNTRY NAME in March 2020 forced us to stop recruiting patients, as the FRU was used as an hospitalization unit to patients Covid-19. This will delay reaching the sample size required.

All these limitations are evaluated by the research team to find solutions for the successful completion of the study.

4 | CONCLUSION

Nursing professionals need to be aware of the importance of UI in hospitalized older adults, of detecting the factors that influence and contribute to its onset, and of the need to design individualized care plans for effective management of new-onset UI. It is the nurses' duty to implement evidence-based practices based on robust research results that strengthen the training and competence of nursing professionals as leaders in health issues and chronicity in caring for the elderly.

ACKNOWLEDGEMENTS

The authors thank the management of the hospital and all the people who support and collaborate in this study for making it possible and specially the late Beatriz Gómez García for her contributions to this study.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

AUTHOR CONTRIBUTIONS

Laura Martín, Ana Isabel Parro and Montserrat Solís designed the study and drafted the manuscript. Pilar Serrano and Cristina Gallardo reviewed the methodology and scientific content of the manuscript. The entire research team participated in developing the conceptual framework, reviewing the content of the manuscript and monitoring the participants. All the authors have read and approved the final manuscript and its submission to the journal.

All authors have agreed on the final version and meet at least one of the following criteria (recommended by the ICMJE*):

1. substantial contributions to conception and design, acquisition of data or analysis and interpretation of data;
2. drafting the article or revising it critically for important intellectual content.

PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1111/jan.14918>.

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How to cite this article: Martín-Losada, L., Parro-Moreno, A. I., Serrano-Gallardo, M. P., González-Blázquez, C., Sánchez-García, M., González-Álvaro, N., Huerta-Ruiz, M., De Souza-Lucio, J., Fernández-Guijarro, P., Carrillo-Alcalá, M. E., & Solís-Muñoz, M. (2021). Efficacy of prompted voiding for reversing urinary incontinence in older adults hospitalized in a functional recovery unit: Study protocol. *Journal of Advanced Nursing*, 77, 3542–3552. <https://doi.org/10.1111/jan.14918>

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