



Contents lists available at ScienceDirect

## International Emergency Nursing

journal homepage: [www.elsevier.com/locate/aaen](http://www.elsevier.com/locate/aaen)

## Identification of Seniors at Risk (ISAR) in the emergency room: A prospective study

João Paulo de Almeida Tavares<sup>a,\*</sup>, Pedro Sá-Couto<sup>b</sup>, Marie Boltz<sup>c</sup>, Elizabeth Capezuti<sup>d</sup>

<sup>a</sup> Coimbra Hospital and University Center, Rua António José de Almeida, lote 12, 6° Esquerdo, 3000-046 Coimbra, Portugal

<sup>b</sup> Center for Research and Development in Mathematics and Applications (CIDMA), Department of Mathematics (DMAT), University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal

<sup>c</sup> Penn State College of Nursing, Nursing Sciences Bldg, University Park, PA 16802, United States

<sup>d</sup> Hunter-Bellevue School of Nursing Hunter College of CUNY, Brookdale Campus West, Room 500A 425 E, 25th Street Mailbox #925 NY, NY 10010, United States

## ARTICLE INFO

## Article history:

Received 1 November 2016

Received in revised form 12 April 2017

Accepted 31 May 2017

Available online xxxxx

## Keywords:

Aged  
Emergency  
Risk screening  
Predictive validity

## ABSTRACT

**Introduction:** The Identification of Seniors at Risk (ISAR) is one of the most frequently utilized risk screening tools in emergency departments (ED). The goal of this study was to evaluate the predictive validity of the ISAR screening tool for adverse outcomes in an ED.

**Methods:** This was a prospective single-center observational study in a Portuguese urban university hospital ED, and included 402 older adults (OA). After triage, baseline sociodemographic and clinic data were collected by the researcher and the ISAR was administered. Baseline ISAR, adverse outcomes (ED revisits and hospital admission) at 30 (early) and 180 (late) days were evaluated.

**Results:** ISAR screening showed that 308 (76.62%) OAs were at risk (cutoff  $\geq 2$ ). High-risk patients were more like to be older, take more medication, have urgent or very urgent ED visits and have longer ED lengths of stay. The high-risk group were more likely to demonstrate both early (OR = 2.43, 95% CI 1.35–4.35,  $p < 0.01$ ) and late returns to the ED (AO = 1.70, 95% CI 1.04–2.79,  $p < 0.05$ ). The ISAR did not predict any significant variable for hospital admission in 30 or 180 days.

**Discussion:** The ISAR predicted returns to EDs at 30 and 180 days for OAs at risk, but was unable to predict early or late hospital readmission.

© 2017 Published by Elsevier Ltd.

### 1. Introduction

Portugal is the fifth oldest country in the world. In 2011, 19% of the population was aged 65 or higher [1] and this is expected to rise to 34.7% by 2030 [2]. The aging Portuguese population contributes to the increased use of emergency services by older adults (OA), which is often associated with unit overcrowding [3,4].

The higher prevalence of chronic disease susceptible to frequent exacerbations, polypharmacy, and complex social, functional and cognitive situations, contribute to higher ED use by OAs [5,6]. These factors also contribute to their increased vulnerability to adverse outcomes [7], including longer lengths of stay, higher rates of ED return in 30 (10–20%), 90 (8% have more than three visits during this time), and 180 days, hospitalization, functional decline and mortality [7–13].

The screening of high-risk OAs in the ED is a key strategy for promoting optimal outcomes, promoting early identification and

targeted interventions to prevent and resolve adverse outcomes [6]. Various instruments have been developed since the 1990s that seek to identify the risk factors (e.g. functional decline, cognitive impairment) that predispose older emergency patients to adverse outcomes [6]. Among the tools (e.g. Identification of Seniors at Risk (ISAR), Triage Risk Screening Tool (TRST) and the Silver Code) reported in a systematic review, the ISAR was an instrument used in most studies ( $n = 19$ ) and included more patients ( $n = 14, 440$ ) [3]. These studies were conducted in diverse healthcare contexts and countries, and support ISAR as a suitable tool for screening older adults in the ED [3,6,14]. The predictive validity of ISAR for adverse outcomes includes the risk of mortality, long term care placement, functional decline, ED return and hospital readmission. This tool was originally developed and validated in a Canadian setting [15]. The diversity of the population worldwide suggests a great need for cross-culturally validated research instruments or scales. For this reason, many European countries have translated, adapted and validated the ISAR [10,12,13,16–18]. In Portugal, only translation and cultural adaptation was performed [19]. However, researchers and clinicians need reliable and valid instruments in the Portuguese language to provide better care to older adults in

\* Corresponding author.

E-mail addresses: [enf.joaotavares@hotmail.com](mailto:enf.joaotavares@hotmail.com) (J.P. de A. Tavares), [p.sa.couto@ua.pt](mailto:p.sa.couto@ua.pt) (P. Sá-Couto), [mpb40@psu.edu](mailto:mpb40@psu.edu) (M. Boltz), [ec773@hunter.cuny.edu](mailto:ec773@hunter.cuny.edu) (E. Capezuti).

ED. Thus, the main purpose of this study was to evaluate the predictive validity of ISAR as a screening tool for adverse outcomes in a Portuguese ED. The hypothesis of this study is that ISAR will predict risk for adverse outcomes in a Portuguese ED.

## 2. Methods

### 2.1. Study design and population

This was a prospective, single-center, observational study in the ED of a large ( $\geq 1000$  beds) urban hospital in the central region of Portugal, which is used for academic training (is a university-affiliated hospital) for medical and nursing schools. According to the hospital's data from 2014, OAs comprise 40% of the all ED episodes. This research was approved by the Institutional Review Board of the Hospital and informed consent was obtained.

The study included a convenience sample of 402 patients age 65 years or over, who were consecutively admitted to the ED. OAs who were alert to time and place were included in this study, as well as OAs who were disoriented but accompanied by an informant (e.g. relatives, or a formal caregiver). When the triage code was classified as red (immediate resuscitation) the survey was completed after the patient stabilized, or with information provided by an informant. As consistent with other European studies [12,13], we did not exclude patients from long-term care facilities, in order to identify the risk of adverse outcomes, irrespective of the OA living situation.

### 2.2. Data collection and survey

The researcher (JT) conducted the data collection. The patients were screened from January 2013 to August of 2014, during the morning (8:00 am to 16:00 pm) or afternoon shift (16:00 pm to 24:00 pm). In the case of repeated visits to the ED, only the initial visit (index visit) was included. The screening was performed after triage and the survey was administered to the patient. If the patient is disoriented but is accompanied by a formal (paid) or informal (e.g., a family member) caregiver, the ISAR is completed on behalf of the patient. The survey included the patient's baseline characteristics and the ISAR scores. Patient characteristics were: age, gender, number of medications, responsibility for taking their own medications, person responsible for therapy management, living situation (home, nursing home or transferred from another hospital), triage code (Manchester Triage System) and the presence of an informant (proxy or caregiver). The ED length of stay (LOS) and patient disposition (ED discharge or hospital admission) were also recorded.

The ISAR is a brief screening tool that includes six items representing frequently observed problems in older adults in the ED [6]. The responses are dichotomized as "yes" or "no", and for each "yes" answer one point is allocated. Those with a score  $\geq 2$  out of 6 are considered "at risk" of adverse outcomes. A previous study in the same ED showed that polypharmacy was common in OAs, who were prescribed an average of 6.35 ( $\pm 3.06$ ) medications [19]. The medication question was thus reworded in this study with a cutoff of six drugs to improve the performance of the ISAR screening, consistent with other validity studies [12,20].

### 2.3. Outcomes

The outcomes used in this study were extracted from patient ED medical records.

A composite adverse outcomes was defined with the approach used by Salvi and colleagues [12] as any of the following during the follow-up:

- ED return or unscheduled hospitalization within 30 days (early outcomes)
- ED return or unscheduled hospitalization within 180 days (late outcomes)

### 2.4. Statistical analysis

Descriptive statistics were used to describe the demographic characteristics. The Student's *t*-test (normally assumption verified) and the chi-square ( $\chi^2$ ), or Fisher's exact test (when  $\chi^2$  assumption of low expected cells was verified) were used to compare patients with an ISAR score  $\geq 2$  (positive) versus those with an ISAR score of 0–1 (negative).

The binary logistic regression was conducted to assess if the ISAR predict the ED return or unscheduled hospitalization within 30 and 180 days. The Wald Chi-Squared test was used to determine whether the regression coefficients differs significantly from zero. The unadjusted positive odds ratio (OR) and the corresponding 95% CI were calculated for each single outcome for patients with ISAR  $\geq 2$ . For the multivariate logistic regression, possible confounders were considered for gender, age, and ED LOS (only for the 30 days period) by presenting adjusted OR results. ISAR had a high correlation with geriatric assessment variables (i.e., number of medications, taking medication, triage code, provenance, presence of an informant accompanying), and therefore these variables were subsequently excluded from the logistic regression models (as in Salvi et al. [12]). The goodness-of-fit for the binary logistic regression was examined by using the Hosmer and Lemeshow test. For all cases, the goodness-of-fit test was verified. The pseudo R squared measures (obtained from Cox & Snell and Nagelkerke estimates) were also examined to assess the proportion of variance accounted by the logistic regression models. The proportion of variance explained by the models were low, ranging from 3.6% to 12.6%. Statistical analyses were performed using SPSS® Software, version 20.0 (SPSS, Inc., Chicago, IL) and *p*-values under 0.05 were considered significant.

## 3. Results

### 3.1. Participant characteristics

Overall, 402 OA were included (221 women). The mean age was 80.9 ( $\pm 6.7$ ) (84.1% were  $\geq 75$  years). The ED LOS was 11.8  $\pm$  406 h. The average number of medications was 6.4 ( $\pm 3.0$ ) and 50.4% of the participants were responsible for taking their own medications. The majority came from home (82.6%), were classified as urgent or higher priority (87.1%) and had a companion at the time of screening (Table 1 – patient's baseline).

According to the ISAR's cutoff of  $\geq 2$ , 308 OAs were ISAR-positive patients. Significant differences were found between ISAR-positive and ISAR-negative patients. The positive group were significantly more likely to be older ( $p = 0.021$ ), polymedicated ( $p < 0.001$ ), needed help to take their own medications ( $p < 0.001$ ), had higher triage priority ( $p = 0.022$ ), were accompanied by an informant ( $p = 0.005$ ) and had longer mean ED LOS ( $p < 0.001$ ) than ISAR-negative patients (Table 1). No significant groups for the outcome variables, with the exception differences was found between the of early ED return ( $p = 0.001$ ) and late ED return ( $p = 0.043$ ) (Table 2).

### 3.2. Predictive validity for ED return and hospital readmission

Tables 3 and 4 describe the results of the binary logistic regression models for the ED returns and hospital readmission outcome variables. At 30 days, 128 patients had returned to ED and 53

Download English Version:

<https://daneshyari.com/en/article/8556929>

Download Persian Version:

<https://daneshyari.com/article/8556929>

[Daneshyari.com](https://daneshyari.com)