



## **B**

Falls are widely described as “an unexpected event in which the participants come to rest on the ground, floor, or lower level” [1], with its incidence in community-dwelling older people reported worldwide [2]. Research has pointed to an incidence of falls between 20 and 30% in people aged 65 and over and increasing for those over 70 years of age, regardless of gender or nationality, making falls and consequent injuries a major public health problem of international concern [3].

The consequences of a fall affect the quality of life of the older person. In addition to fall-related injuries, falls can result in decreased physical function and self-confidence in older people, often increasing the fear of falling, social isolation, sedentary behavior and dependence [3–8]. As a result, these restrictions may increase the risk of further falls by contributing to a deterioration in physical, cognitive, psychological and social abilities. Therefore, a consequence of falling, depending on its severity, is that direct and indirect costs of health care can also increase, compromising not only the national health systems [9] but also the informal caregivers who are faced with the need to support the people in their care, affecting the maintenance of their professional activities [10].

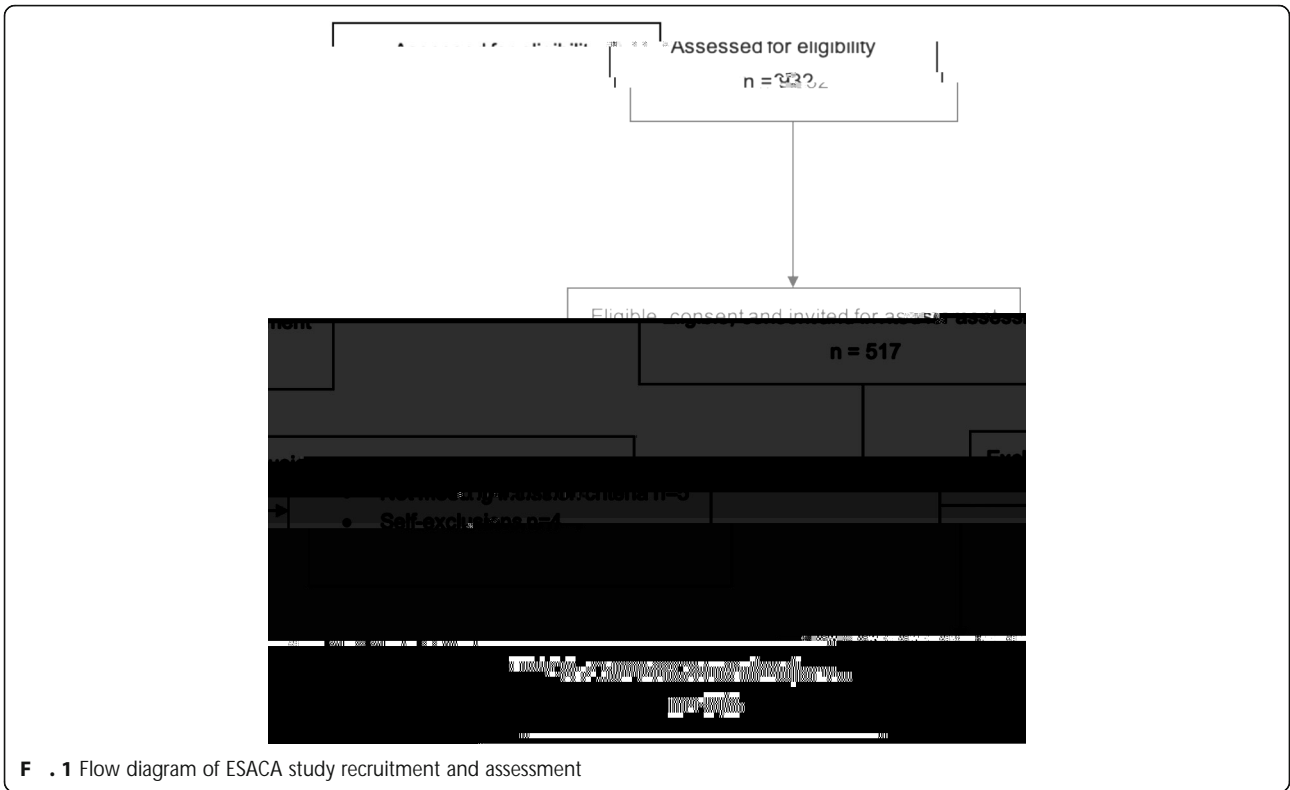
Despite being usually addressed separately, falls and violence against older people may represent a joint security problem. Beyond falls, violence against older people has also emerged as one of the greatest challenges for society [11]. Violence against older people has

with the Folstein Mini-Mental State Examination  
(MMSE) (i.e., scoring  $\geq 9$ ) [



Self-perceived physical function was assessed by the community-dwelling participants' responses to the 12 items on the Composite Physical Function (CPF) Scale [39], indicating whether they could not perform the activity at all (score 0), do it with difficulty or with help (score 1) or simply could do the activity (score 2). The total CPF score could range from 0 to 24 points. The participants were categorized as moderate-high functioning (score: 18–24) or as low functioning (score < 18).

Habitual physical activity and sedentary behavior were assessed using the short version of the International Physical Activity Questionnaire (IPAQ) [40]. This questionnaire quantifies the metabolic expenditure, based on the metabolic equivalent (MET), for different activities considering the relationship between the minutes per week spent in different intensities of daily physical activity: walking (3.3 MET), moderate activity (4.0 MET) and vigorous activity (8.0 MET). Total metabolic expenditure (MET-min/week) was calculated by determining the



more geriatric depression score point, ~ 1 less on cognitive status); had a poorer body composition (i.e., ~ 3% more fat body mass); were less fit (performed 1 fewer repetition on lower and upper strength tests; went ~ 34 m less distance in the aerobic endurance test; scored ~ 3

points lower on the multidimensional balance test; and took ~ 1 s longer on the mobility test); were less independent with activities of daily living (scored 2 points lower on the physical function scale); and were more afraid of falling (scored ~ 4 points more on the fear of

falling scale),  $p < 0.05$ . There were differences that were enhanced when recurrent fallers and nonfallers were compared: recurrent fallers had  $\sim 2$  more health conditions,  $\sim 2$  more points on the geriatric depression scale score,  $\sim 2$  points lower on the cognitive measure,  $\sim 3\%$  more fat body mass; they performed 1 fewer repetition on lower and upper strength tests, went  $\sim 46$  m less distance in the aerobic endurance test, and scored  $\sim 4$  points lower on the multidimensional balance test; they took  $\sim 1$  s longer on the mobility test; and they scored  $\sim 2$  points lower on the physical function scale and  $\sim 6$  points higher on the fear of falling scale,  $p < 0.05$ .

The data analysis exposed in Table





older persons are aware of the consequences of falling but have a poor awareness of their own risk of falling [51]. Nevertheless, the second observation was unexpected because the literature usually reports that the institutional and governmental agents' lack of knowledge is a barrier to violence prevention [14]; but, in this study, it became evident that the victims of violence themselves were not aware of their condition.

In the present study, the results showed that the per-

identification of the most valuable data and consequently shortening the protocol.

## C

In conclusion, in the ESACA project, a wide range of potential influencing factors on falls and violence risk factors were measured, and comprehensive quality control measures were applied. The present study results suggest that for falls and violence prevention strategies to be effective, it is essential to evaluate, diagnose, and inform in a directed and useful way all stakeholders about the evaluation results and respective interpretation, to involve older people in community programs combating isolation and privileging exercise, and to change all stakeholders' mindsets and behavior, that is, understanding for action. The ESACA project is well placed to provide further insights into key critical questions regarding the determinants of falls and violence against older people and to what extent risk factors are prevalent.

## A

ESACA: Aging safely in Alentejo – Understanding for action; MMSE: Mini-Mental State Examination; E-IOA: Elder Abuse and Neglect-Risk Assessment Tool; VASS: Vulnerability to Abuse Screening Scale; ARVINI: Scale of Evaluation of the Risk of Violence against Non-institutionalized Older People; GDS-15: Geriatric Depression Scale 15; ESS: Epworth Sleepiness Scale; FES-I: Falls Efficacy Scale; SFT: The Senior Fitness Test; FAB: Fullerton Advanced Balance; SF-APT: Stepping-Forward Affordance Perception Test; CPF: Composite Physical Function; IPAQ: International Physical Activity Questionnaire; MET: Metabolic equivalent of task; SPSS: Statistical Package for the Social Sciences; IBM: International Business Machines Corporation.

## A g

The authors would like to thank all participants who participated in this study.

## A

This article has been published as part of BMC Public Health, Volume 21, Supplement 2, 2021: Aging Safely: Prevent Falls and Violence in Older People. The full contents of the supplement are available at <https://bmcpublichealth.biomedcentral.com/articles/supplements/volume-21-supplement-2>.

## A

CP and FM conceived and designed the study. JB and GR collected the data. CP, JB and FM performed the statistical analysis. CP, JB, GR and FM interpreted the data. CP, JB and FM drafted the manuscript. CP, JB and FM revised the final version of the paper. CP and FM acquired funding. All authors read and approved the final manuscript.

## F g

This study was funded by "ESACA - Ageing Safety in Alentejo. Understanding for action - Project" (Grant ALT20-03-0145-FEDER-000007). Funders did not contribute to the design, analysis, or preparation of this manuscript.

## A

The datasets used and/or analyzed for the current study are available from the corresponding author upon reasonable request.

## De

## E

This study was approved by the University of Évora Ethics Committee for research in the areas of human health and well-being (reference number

16-012) and was performed in accordance with the Declaration of Helsinki. All participants provided written informed consent.

Not applicable.

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The authors declare that they have no competing interests.

## A

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Received: 7 April 2021 Accepted: 11 April 2021

Published online: 10 December 2021

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