Aging Clinical and Experimental Research (2026) 38:193
https://doi.org/10.1007/s40520-026-03445-w

RESEARCH

Beyond hospice: the burden of palliative care needs in hospitals and long-term care facilities. A nationwide multicenter study

Graziano Onder[1,2] · Alberto Zucchelli[3] · Alba Malara[4] · Gilda Borselli[5] · Angela Iurlaro[1,2] · Claudia Bauco[6] · Angelo Bianchetti[7] · Christian Bracco[8] · Carmine Cafariello[9] · Stefania Cartesio[1] · Luca Cipriani[10] · Giulia Deias[11] · Diego De Leo[12,13,14] · Elisa Durante[1,15] · Gianpaolo Fortini[16] · Fabio Gilioli[17] · Stefania Giordano[18] · Guido Horn[19] · Myriam Macaluso[2] · Lorenzo Palleschi[20] · Elena Pinardi[21] · Claudio Santini[23] · Gianlorenzo Scaccabarozzi[21] · Roberto Tarquini[24] · Monica Torrini[25] · Edoardo Varratta[1,11] · Nicola Veronese[26,27] · Maria Beatrice Zazzara[1,2] · Dario Leosco[28] · Giuseppe Bellelli[21,22] · Palliative Care Day 2025 Working Group

Received: 27 March 2026 / Accepted: 17 June 2026
© The Author(s) 2026

Abstract

Introduction Palliative care is traditionally associated with hospice and cancer care, yet older adults admitted to hospitals and long-term care facilities (LTCF) frequently experience multimorbidity, frailty, and high symptom burden. We aimed to estimate the prevalence and characteristics of palliative care needs in Internal Medicine and Geriatrics hospital wards and LTCF in Italy.

Methods We conducted a national cross-sectional point-prevalence study. Adults aged≥18 years hospitalized in participating wards or residing in LTCF were eligible. NECPAL 4.0 tool was used to identify patients and residents with palliative care needs. Additional indicators included functional and nutritional decline, repeated hospitalizations, dysphagia, pressure ulcers, delirium, and pain.

Results A total of 5,389 participants were included (3,303 hospital patients, median age 81 years; 2,086 LTCF residents, median age 86 years) from 235 facilities. Overall, 58.3% of hospitalized patients and 48.1% of LTCF residents had a positive NECPAL assessment. Prevalence was higher among patients with cancer (77.2% in hospital; 61.5% in LTCF), but remained substantial among those without cancer (50.8% in hospital; 46.8% in LTCF). Functional decline (56.2% hospital; 48.7% LTCF), nutritional decline (36.6%; 23.9%), dysphagia (17.6%; 28.8%), delirium (19.2%; 36.4%), and moderate-to-severe pain (25.9%; 20.3%) were common across settings.

Conclusion Palliative care needs are highly prevalent among hospitalized patients and LTCF residents and are not limited to oncology. These findings support systematic screening and integration of a needs-based palliative care approach within hospital and long-term care systems.

Key summary points

- **Aim-** To estimate the prevalence of palliative care needs among patients admitted to Internal Medicine and Geriatrics hospital wards and among long term care facilities (LTCF) residents in Italy.
- **Findings-** In this national point-prevalence study, 5,389 participants across 235 facilities, 58.3% of hospitalized patients and 48.1% of LTCF residents screened positive for palliative care needs according to the NECPAL tool. Although prevalence was highest among patients with cancer (77.2% in hospital; 61.5% in LTCF), a substantial proportion of individuals without cancer also screened positive (50.8% and 46.8%, respectively). Clinical indicators such as functional decline, nutritional deterioration, dysphagia, delirium, and moderate-to-severe pain were common.
- **Message-** Palliative care needs are highly prevalent across acute and long-term care settings and extend beyond oncology, supporting systematic integration of a needs-based palliative care approach in hospital and long-term care populations.

Keywords Hospital · Long term care · Palliative care · Older adults

Extended author information available on the last page of the article

Published online: 28 June 2026

Introduction

Integration of palliative care into the treatment pathways of patients with advanced chronic disease is associated with improvements in patients' coping, overall well-being, and support networks, including family members and informal caregivers [1–3]. Beyond pain and symptom management, palliative care represents a comprehensive model that integrates physical, psychological, and social dimensions of care, addressing the needs of both patients with advanced chronic conditions and their families [4]. In addition to its clinical benefits, palliative care has been shown to improve healthcare resource utilization, for example by reducing hospital length of stay and overall treatment costs. As such, palliative care not only enhances quality of life advanced chronic diseases, but also contributes to a more sustainable and effective healthcare system [5, 6].

In many healthcare systems, palliative care is primarily delivered in hospice and home-based settings; however, hospitals and long-term care facilities (LTCF) play a complementary role in caring for vulnerable populations with advanced chronic and progressive diseases. Hospitals—particularly Geriatrics and Internal Medicine wards—frequently admit patients with multimorbidity, functional decline, and complex care needs, for whom disease-directed treatments alone may be insufficient to address symptom burden, psychosocial distress, and advance care planning needs [7–10]. These settings represent key points of care for patients who may benefit from a palliative approach, as they include persons across different disease trajectories and levels of clinical complexity, compared with disease-specific settings involving more selected patient groups. Similarly, LTCF care for residents with frailty, cognitive impairment, and advanced chronic conditions, who often experience prolonged decline and substantial, yet under-recognized, palliative care needs [11]. In these populations, the integration of palliative care is essential to improve quality of life, reduce symptom burden, and ensure goal-centered care ([12–13]).

A key component of this process is the appropriate identification of palliative care needs, including the assessment of symptom burden and broader aspects of patient well-being. Early recognition of palliative care needs has been associated with reduced hospital admissions and improved appropriateness of care, enabling timely and proportionate interventions aligned with individual care goals [14–16].

Despite this, palliative care needs in hospital and long-term care settings remain under-recognized, particularly among non-cancer patients, and data on their prevalence are limited. The aim of this study is to estimate the prevalence of palliative care needs among patients admitted to Internal Medicine and Geriatrics hospital wards and among LTCF residents in Italy, with the ultimate goal of increasing awareness among healthcare professionals and facilitating timely identification and appropriate management of these needs.

Methods

Study design

A point-prevalence study was conducted on the index date of November 11, 2025, in hospital wards of internal medicine and geriatrics and LTCF in Italy. LTCF in Italy include a range of long-term residential facilities providing integrated medical, nursing, and social care for people who cannot live independently. For the present study, we included facilities providing care to residents with moderate to high healthcare needs requiring regular nursing and medical supervision (known as R2), those delivering high-intensity care for severely dependent patients with complex conditions (R3), and facilities caring for residents with stable chronic conditions who primarily require long-term assistance with daily activities rather than intensive medical care (maintenance care).

Participating hospital wards and LTCF were recruited on a voluntary basis through national scientific societies and professional networks. The study invitation was disseminated through institutional communication channels and mailing lists. Members of these societies contributed to the dissemination of the initiative within their affiliated institutions, facilitating the participation of the centers in which they were clinically active. Although efforts were made to include centers from different regions, participation was voluntary and not based on systematic sampling; therefore, a formal response rate of healthcare facilities could not be calculated.

Study sample

Participants (hospital patients and LTCF residents) were considered eligible for inclusion if they met all of the following criteria:

- Age ≥ 18 years;
- Hospitalized in participating hospital wards or residing in participating LTCF on November 11, 2025.
- Ability to sign informed consent or, if the participant was unable to provide consent, provision of signed authorization from a legally authorized representative.

All patients or residents present in participating wards and LTCFs on the index date who met eligibility criteria were considered for inclusion. Inclusion depended on the

availability of informed consent, provided either directly by the participant or by a legally authorized representative. The total number of eligible patients was not systematically recorded.

Questionnaire

The prevalence of palliative care needs was assessed using a study-specific questionnaire, implemented through a secure web-based platform developed using REDCap. The questionnaire was completed by study researchers, based on direct patient evaluation and review of clinical records. Prior to study initiation, study researchers received specific training on data collection procedures and on the use of the electronic case report form. Training also included guidance on the application and interpretation of the assessment tools and scales used in the questionnaire.

The questionnaire is structured into two sections.

The first section collects information related to the participating facility, including:

- Type of hospital ward (Internal Medicine or Geriatrics) for hospital settings, and type of LTCF;
- Availability of an internal Palliative Care service in hospitals, and the possibility of requesting consultation from a palliative care specialist in long-term care facilities.

The second section assesses the characteristics of enrolled patients/residents, including:

- Sociodemographic data (age, sex);
- Dysphagia, assessed based on presence for at least one month and type;
- Presence of pressure ulcers, including identification of advanced stages (III–IV);
- Indicators of palliative care needs assessed using the NECPAL 4.0 (Necesidades Paliativas) tool [14, 17–19]. The NECPAL instrument was developed and validated to promote timely, comprehensive, and integrated palliative care for individuals with advanced chronic diseases across healthcare and social care settings, in accordance with WHO recommendations. It has been applied across multiple care contexts, including primary care, hospital, intermediate care and nursing home settings, in populations with advanced chronic conditions and limited life prognosis [14, 17–19]. It's structured into blocks:
  - Surprise Question (SQ): "Would I be surprised if this patient died in the next 12 months?"
  - Patient/family request or need indicator: Explicit demand for palliative care or perceived need by clinicians.
  - General clinical indicators: Functional decline (loss of > 30% in Barthel Index score over the previous 6 months), nutritional decline (unintentional loss of > 10% body weight over the previous 6 months), multimorbidity (presence of two or more advanced chronic conditions in addition to the primary disease), and repeated hospitalizations (≥ 2 hospital admissions within the last 12 months).
  - Disease-specific indicators: Indicators tailored to conditions.

NECPAL is considered positive (indicating presence of palliative care needs) when the Surprise Question is positive and at least one additional indicator is present, including the patient/family request or need indicator, general clinical indicators or disease-specific indicators.

- Pain assessment using the Numeric Pain Rating Scale (NPRS) or, for patients with advanced dementia unable to verbally communicate pain, the Pain Assessment in Advanced Dementia (PAINAD) scale [20–22]. The Numeric Pain Rating Scale (NPRS) is a unidimensional pain assessment tool ranging from 0 (no pain) to 10 (worst imaginable pain). The Pain Assessment in Advanced Dementia (PAINAD) scale is specifically designed for patients with advanced dementia who are unable to verbally communicate pain. It assesses five domains (breathing, vocalization, facial expression, body language, and consolability), each scored from 0 to 2, with higher scores indicating greater pain severity.
- Delirium screening using the 4AT tool [23]. The 4AT is a rapid screening tool for cognitive impairment and delirium and is one of the most extensively validated delirium assessment instruments in the scientific literature. A score ≥ 4, although not diagnostic, suggests the presence of delirium.

The selected clinical indicators were not intended to provide a comprehensive assessment of all distressing symptoms. Rather, they were chosen as clinically relevant and easily standardizable markers of vulnerability and clinical complexity, suitable for a point-prevalence design and feasible across multiple care settings.

Sample and statistical analysis

As this is a descriptive study, a formal sample size calculation was not performed. However, based on the number of participating centers and in line with similar previous

experiences, such as Delirium Day [24] and Prescription Day [25], we estimate the recruitment of approximately 5,000 participants, including 3,000 patients in the hospital setting and 2,000 in the LTCF setting.

Categorical variables are reported as absolute numbers and percentages. Continuous variables are presented as mean ± standard deviation or median with interquartile range, as appropriate. To compare characteristics of participants according to NECPAL positivity, we used Chi-square test for categorical variables. These comparisons were exploratory and no multilevel or multivariable analyses were performed, in line with the primarily descriptive aim of the study. Statistical analyses were performed using IBM SPSS Statistics version 30 (IBM Corp., Armonk, NY, USA).

Ethics committee approval

Ethical approval was obtained from the Italian National Ethics Committee for Public Research Bodies (CEN). Written informed consent for participation in the study and for the processing of personal data, was obtained either directly or through a family member, caregiver, or legal representative.

Results

Characteristics of participating centers and enrolled patients/residents

A total of 235 care facilities participated in the study, including 156 hospital wards and 79 LTCFs, with a total of 5,524 patients/residents enrolled. Participants with missing data on age ($n=6$; 0.1% of the study sample) or an incomplete NECPAL assessment ($n=129$; 2.3%) were excluded, resulting in a final sample of 5,389 participants. As shown in Table 1, an internal palliative care service or the possibility to request specialist consultation was available in 62.8% of hospital wards and 64.6% of LTCFs. The final study sample consisted of 3,303 hospitalized patients and 2,086 LTCF residents. The median age was higher among LTCF residents compared with hospitalized patients (86 years, IQR 80–91 vs. 81 years, IQR 73–87), and women were more prevalent in LTCF (70.9% vs. 48.8%). Dementia was markedly more frequent among LTCF residents (72.2%) than hospital patients (28.6%), whereas cancer (28.2% vs. 8.7%) and heart disease (41.1% vs. 26.4%) were more common in hospital settings (Table 1).

Within hospital settings, 100 Internal Medicine wards and 56 Geriatric wards participated in the study. The availability of palliative care services was similar (62.0% vs. 64.3%). Patients admitted to Geriatric wards were older (median age 85 vs. 79 years) and more frequently female (52.5% vs. 46.9%). Dementia and cerebrovascular disease were more prevalent in Geriatric wards, whereas cancer was more frequent in Internal Medicine wards (Table 1a).

Table 1 Characteristics of participating centers and hospital patients/long term care facilities residents

	Hospital	Long-term care facility
Ward/facility characteristics		
N of participating wards/facilities	156	79
Availability of Palliative Care service/consultation (%)	98 (62.8%)	51 (64.6%)
Patients/residents characteristics		
N of participating patients/residents	3,303	2,086
Age, median (IQR)	81 (73–87)	86 (80–91)
Female gender (%)	1,613 (48.8%)	1,479 (70.9%)
Heart disease (%)	1,357 (41.1%)	551 (26.4%)
Cancer (%)	931 (28.2%)	182 (8.7%)
Cerebrovascular disease (%)	574 (17.4%)	534 (25.6%)
Dementia (%)	945 (28.6%)	1,507 (72.2%)
Other neurodegenerative disease (%)	178 (5.4%)	197 (9.4%)
Diabetes (%)	878 (26.6%)	439 (21.0%)
Pulmonary disease (%)	814 (24.6%)	312 (15.0%)
Liver disease (%)	255 (7.7%)	105 (5.0%)
Peripheral vascular disease (%)	425 (12.9%)	140 (6.7%)

IQR=InterQuartile Range

Analysis of NECPAL tool

Positive NECPAL result was observed in 58.3% of the overall hospital population and in 48.1% of LTCF residents. As shown in Fig. 1, positive NECPAL result was consistently higher among older participants, individuals with cancer, and women across both hospital and LTCF settings. Within the hospital setting, positive NECPAL assessment was observed in 68.1% of patients aged ≥ 80 years compared with 45.3% of those aged < 80 years ($p<0.001$), while in LTCF the corresponding prevalence was 53.1% and 32.3%, respectively ($p<0.001$). Similarly, patients and residents with cancer showed substantially higher prevalence of positive NECPAL compared with those without cancer, both in hospitals (77.2% vs. 50.8%, $p<0.001$) and LTCF (61.5% vs. 46.8%, $p<0.001$). NECPAL positivity was similar in men and women in both settings, with prevalence rates of 58.7% versus 57.8% in hospitals ($p=0.60$) and 49.3% versus 45.1% in LTCF ($p=0.09$). Overall, the prevalence of positive NECPAL assessment remained consistently higher in hospital patients than in LTCF residents across all subgroups.

Within the hospital setting, the prevalence of NECPAL positivity was consistent across types of wards (Table 2a).

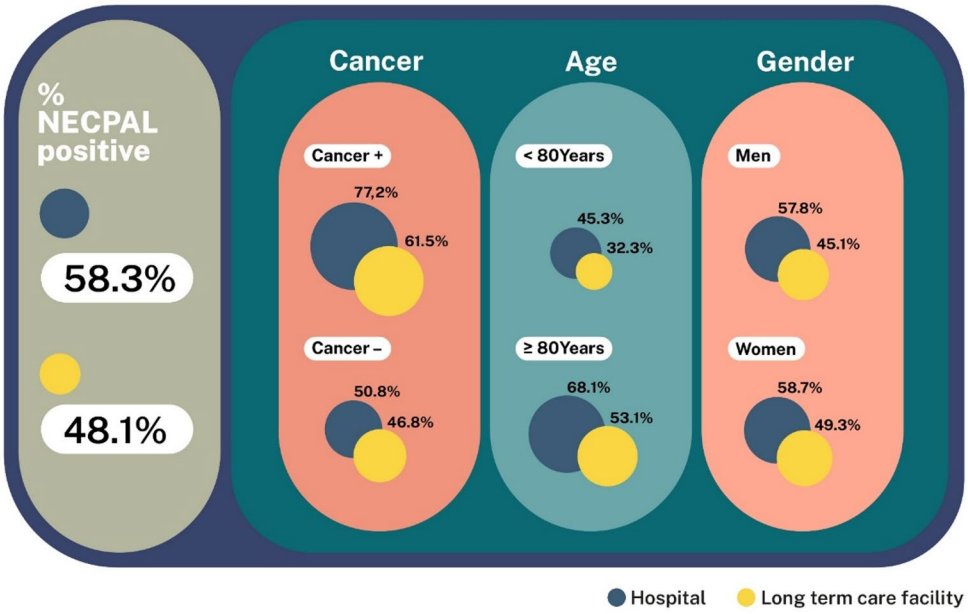


Fig. 1 Descriptive representation of positive NECPAL assessment in hospital patients and long term care facilities residents

Table 2 Palliative care needs in enrolled patients/residents

	Hospital *n* = 3,303 (%)	Long-term care facility *n* = 2,086 (%)
Dysphagia	579 (17.6%)	596 (28.8%)
Any pressure ulcer	484 (14.9%)	205 (9.9%)
Pressure ulcer (stage III-IV)	149 (4.5%)	59 (2.8%)
Functional decline*	1,855 (56.2%)	1,015 (48.7%)
Nutritional decline¶	1,209 (36.6%)	498 (23.9%)
Repeated hospitalizations§	1,497 (45.3%)	221 (10.6%)
Delirium #	595 (19.2%)	570 (36.4%)
Any pain¥	1,590 (48.1%)	1,031 (49.4%)
Moderate to severe pain¥	856 (25.9%)	424 (20.3%)

* loss of > 30% in Barthel Index score over the previous 6 months

¶ unintentional loss of > 10% body weight over the previous 6 months

§ ≥2 hospital admissions within the last 12 months

4AT score≥4. Data on delirium were available for 3,105 patients in hospital wards (94.0% of study sample) and 1,564 long term care facilities residents (75.0%)

¥ Any pain is defined as Numeric Pain Rating Scale≥1 or Pain Assessment in Advanced Dementia≥1; moderate to severe pain is defined as Numeric Pain Rating Scale≥4 or Pain Assessment in Advanced Dementia≥4

When adopting more stringent thresholds for identifying palliative needs, 55.6% of the total hospital population met the criteria for a positive Surprise Question combined with at least two indicators. This proportion adjusted to 49.5% for at least three indicators and 39.0% for at least four indicators. A similar trend was observed among LTCF residents, with prevalence rates shifting from 44.9% (two indicators) to 33.4% (three indicators) and 22.1% (four or more indicators).

Palliative care needs

Clinical indicators of palliative care needs were common in both hospitalized patients and LTCF residents (Table 2). Functional decline was the most frequent indicator in both settings, while dysphagia and delirium were more common among LTCF residents. Nutritional decline, repeated hospitalizations, and pressure ulcers were more frequently observed in hospitalized patients. Moderate-to-severe pain was also common in both groups. Within hospital wards, dysphagia, pressure ulcers, functional decline, nutritional decline and delirium were most frequently observed in patients admitted to Geriatric wards compared with those admitted to Internal Medicine wards. Repeated hospitalizations and moderate to severe pain were more frequent in Internal Medicine wards (Table 3a).

Discussion

This large multicenter point-prevalence study, conducted across 235 facilities and including 5,389 participants, shows a high prevalence of palliative care needs in both geriatric and internal medicine hospital wards and LTCF. More than half of hospitalized patients (58.3%) and nearly half of LTCF residents (48.1%) screened positive according to NECPAL criteria.

NECPAL positivity should not be interpreted as a proxy for short-term mortality. The NECPAL instrument was developed to support early identification of patients with advanced chronic conditions who may benefit from a palliative care approach, combining the Surprise Question

with general and disease-specific clinical indicators rather than relying exclusively on prognosis [14, 26]. Therefore, a positive result reflects the presence of multidimensional vulnerability and progressive clinical complexity. Importantly, although participants were not selected on the basis of specific diseases or prognostic criteria, NECPAL assessment was conducted among individuals admitted to acute care hospitals and long-term care facilities rather than in the general population. These settings are characterized by a high burden of chronic illness, functional impairment, and clinical complexity, making NECPAL an appropriate tool for studying palliative care needs and identifying patients who may benefit from a palliative care approach in these populations.

The distribution of indicators in our cohort supports this interpretation. In hospitalized patients, high rates of functional decline (56.2%), nutritional deterioration (36.6%) and repeated hospitalizations (45.3%) describe unstable trajectories. Markers of frailty such as dysphagia (17.6%), pressure ulcers (14.9%), and delirium (19.2%) were frequent, alongside substantial symptom burden, with about half reporting pain and 25.9% describing moderate-to-severe intensity. A comparable pattern emerged among LTCF residents, characterized by functional decline, dysphagia, delirium and clinically significant pain. Overall, these findings indicate that palliative care needs are structurally embedded in contemporary hospital and long-term care populations [27].

Our results are consistent with prior evidence documenting high levels of palliative care needs among hospital patients and LTCF residents. In long-term care, the SHELTER study demonstrated that LTCF residents across Europe present substantial disability, geriatric syndromes and complex care needs [11]. Although not designed as a palliative screening study, SHELTER clearly outlined the epidemiological substrate that underpins significant palliative care demand in this population. More recently, qualitative work by Cole et al. [28] identified key domains triggering palliative care referral in LTCF and highlighted the absence of standardized and validated referral criteria. Similarly, Carpenter et al. [29] documented a high prevalence of pain, psychological distress, and informational needs among older adults admitted to skilled nursing facilities, underscoring the under-recognition of palliative needs in post-acute care, although their sample was limited. In studies specifically using validated screening tools such as NECPAL in the hospital setting, the prevalence of palliative care needs appears consistently high. In acute hospital populations, approximately 27–28% of patients have been identified as NECPAL-positive, while in critically ill populations this proportion may reach around one-third of patients ([30–31]). These differences likely reflect heterogeneity in case-mix, disease severity, and care environments.

A key finding of our study is that palliative care needs are not limited to oncology. Although cancer patients showed high NECPAL positivity, a substantial proportion of individuals without cancer also met objective criteria for palliative care needs. This observation aligns with comparative research demonstrating that patients with advanced heart failure, COPD, dementia and other chronic conditions experience symptom burden and care complexity comparable to cancer populations [32]. Furthermore, hospitalized patients with end-stage non-cancer diseases show physical and psychosocial needs similar to those of terminal cancer patients [33], and community-based studies have documented persistent unmet needs among elderly non-cancer patients receiving home care [34].

Taken together, the available evidence supports a shift from a diagnosis-based to a needs-based referral model. In aging societies characterized by chronic organ failure, frailty and multimorbidity, suffering and complexity are driven by trajectory of decline rather than diagnostic label. Restricting access to palliative expertise based primarily on malignancy risks systematic under-recognition of vulnerable populations.

Our findings have direct implications for health system organization. Palliative care should not be confined to hospice or late-stage contexts. As emphasized by Kelley and Morrison [27], palliative care is an interdisciplinary approach aimed at improving quality of life for patients with serious illness at any stage, whereas hospice represents a specific model focused on end-of-life care. Evidence from hospital settings shows that structured integration of palliative care improves symptom control, enhances communication, and reduces the use of potentially non-beneficial intensive treatments. ([35–36]) In LTCF, the presence of palliative consultation has been associated with reductions in end-of-life hospitalizations, supporting the value of specialist input in long-term care environments [37]. However, identification alone is insufficient. Implementation requires systematic screening processes, professional training and integration pathways. Barriers such as prognostic uncertainty and limited use of structured tools have been documented in primary care and LTCF settings, highlighting the need for organizational strategies to translate epidemiological burden into effective care delivery.

Main limitation of the present study refers to the fact that it is not nationally representative, which limits the generalizability of the results. As facility participation was voluntary, institutions more engaged in palliative care may have been more likely to participate, potentially resulting in an overestimation of the prevalence of identified needs. In addition, the point-prevalence design, based on data collection performed on a single index day, may have been influenced by

temporal factors such as fluctuations in admissions, clinical instability, or seasonal patterns, which could also have affected prevalence estimates.

The 4AT assessment was missing in about one-fourth of the LTCF sample. As the reasons for missing data were not systematically collected, the evaluation of delirium in this subgroup may be limited. Finally, exclusion of individuals unable to provide informed consent may have resulted in an underestimation of the true prevalence and severity of palliative care needs, as more vulnerable or severely ill patients were likely not included. The main strengths of this study are its large multicenter design and the use of validated multidimensional assessment tools (NECPAL, 4AT, and PAINAD). These elements strengthen the methodological quality of the study and allow meaningful comparisons across different care settings.

Conclusions

The present study shows that palliative care needs are highly prevalent in both acute hospital wards and LTCF and affect patients across diagnostic categories. Approximately half of individuals in these settings present objective indicators of multidimensional vulnerability and progressive decline. These findings support the systematic integration of a needs-based palliative care approach within both hospital and long-term care systems. The high prevalence of multidimensional vulnerability observed in our cohort indicates that palliative care needs are common and predictable in these settings [12]. Our findings have direct implications for health system organization: palliative care should not be confined to hospice but must become a co-managed interdisciplinary approach aimed at improving quality of life at any stage of advanced illness.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s40520-026-03445-w.

Acknowledgements The study originated from a joint initiative of the Italian Society of Gerontology and Geriatrics (Società Italiana di Gerontologia e Geriatria), the Italian Society of Internal Medicine (Società Italiana di Medicina Interna), the Italian Society of Hospital and Community Geriatrics (Società Italiana di Geriatria Ospedale e Territorio), the Italian Scientific Society of Hospital Internal Medicine (Federazione delle Associazioni dei Dirigenti Ospedalieri Internisti Medicina Interna), the Italian Society of Palliative Care (Società Italiana di Cure Palliative), National Association of Community Healthcare Facilities (ANASTE Humanitas), Association of Community Geriatricians (Associazione Geriatri Extraospedalieri), Italian Association of Psychogeriatrics (Associazione Italiana Psicogeriatria). ChatGPT (OpenAI, San Francisco, CA, USA) was used to assist with language editing and improving clarity. It had no role in study design, data analysis, or interpretation of the results. All content was reviewed and approved by the authors.

Author contributions Additional collaborators are listed as part of the Palliative Care Day 2025 Working Group in the Appendix.

Funding Open access funding provided by Università Cattolica del Sacro Cuore within the CRUI-CARE Agreement. None.

Data availability No datasets were generated or analysed during the current study.

Declarations

Competing interests Graziano Onder is Associate Editor and Nicola Veronese is Editor in Chief of Aging Clinical & Experimental Research. No other author has any conflict of interest to declare.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

1. Krug K, Miksch A, Peters-Klimm F et al (2016) Correlation between patient quality of life in palliative care and burden of their family caregivers: a prospective observational cohort study. BMC Palliat Care 15:4. https://doi.org/10.1186/s12904-016-0082-y
2. Rogers JG, Patel CB, Mentz RJ et al (2017) Palliative Care in Heart Failure: The PAL-HF Randomized, Controlled Clinical Trial. J Am Coll Cardiol 70(3):331–341. https://doi.org/10.1016/j.jacc.2017.05.030
3. Maqsood MH, Khan MS, Warraich HJ (2021) Association of Palliative Care Intervention With Health Care Use, Symptom Burden and Advance Care Planning in Adults With Heart Failure and Other Noncancer Chronic Illness. J Pain Symptom Manage 62(4):828–835. https://doi.org/10.1016/j.jpainsymman.2021.02.017
4. WHO palliative care [Internet] Available from: https://www.who.int/news-room/fact-sheets/detail/palliative-care
5. Zhang B, Wright AA, Huskamp HA et al (2009) Health care costs in the last week of life: associations with end-of-life conversations. Arch Intern Med 169(5):480–488. https://doi.org/10.1001/archinternmed.2008.587
6. Luta X, Ottino B, Hall P et al (2021) Evidence on the economic value of end-of-life and palliative care interventions: a narrative review of reviews. BMC Palliat Care 20(1):89. https://doi.org/10.1186/s12904-021-00782-7
7. Gómez-Batiste X, Martínez-Muñoz M, Blay C, Amblàs J, Vila L, Costa X, Espaulella J, Espinosa J, Constante C, Mitchell GK (2014) Prevalence and characteristics of patients with advanced chronic conditions in need of palliative care in the general population: a cross-sectional study. Palliat Med 28(4):302–311. https://doi.org/10.1177/0269216313518266
8. Hurni B, Müller B, Hug BL, Beeler PE (2024) Palliative care inpatients in Switzerland (2012–2021): characteristics, in-hospital

mortality and avoidable admissions. BMJ Support Palliat Care 14(e3):e2856–e2863. https://doi.org/10.1136/spcare-2023-004717
9. Wagner E, Patrick DL, Khandelwal N, Brumback L, Starks H, Fausto J, Dunlap BS, Lober W, Sibley J, Loggers ET, Curtis JR, Engelberg RA (2019) The Influence of Multimorbidity on Health Care Utilization at the End of Life for Patients with Chronic Conditions. J Palliat Med 22(10):1260–1265. https://doi.org/10.1089/jpm.2018.0349
10. Villanueva-Quispe A, Rivarola-Hidalgo M, Fuentes-Yufra A, Ale-Sánchez M, Copaja-Corzo C, Flores-Cohaila JA, Miranda-Chavez B (2025) Need for palliative care in patients with chronic diseases in a hospital in a developing country. Palliat Care Soc Pract 19:26323524251404072. https://doi.org/10.1177/26323524251404072
11. Onder G, Carpenter I, Finne-Soveri H, Gindin J, Frijters D, Henrard JC, Nikolaus T, Topinkova E, Tosato M, Liperoti R, Landi F, Bernabei R (2012) SHELTER project. Assessment of nursing home residents in Europe: the Services and Health for Elderly in Long TERm care (SHELTER) study. BMC Health Serv Res 12:5. https://doi.org/10.1186/1472-6963-12-5
12. Van den Block L, de Nooijer K, Pautex S, Pivodic L, Van Den Noortgate N, Nicholson C, Szczerbińska K, Pereira SM, Tiberini R, Hanratty B, Miranda R (2025) A European Association for Palliative Care White Paper defining an integrative palliative, geriatric, and rehabilitative approach to care and support for older people living with frailty and their family carers: a 28-country Delphi study and recommendations. EClinicalMedicine 87:103403. https://doi.org/10.1016/j.eclinm.2025.103403
13. Sharratt P, Zacharias A, Nwosu AC, Gadoud A (2024) Hospital-initiated palliative care interventions for adults with frailty: findings from a systematic review and narrative synthesis. Age Ageing 53(9):afae190. https://doi.org/10.1093/ageing/afae190
14. Gómez-Batiste X, Martínez-Muñoz M, Blay C et al (2017) Utility of the NECPAL CCOMS-ICO© tool and the Surprise Question as screening tools for early palliative care and to predict mortality in patients with advanced chronic conditions: A cohort study. Palliat Med 31(8):754–763. https://doi.org/10.1177/0269216316676647
15. Gott M, Gardiner C, Ingleton C et al (2013) What is the extent of potentially avoidable admissions amongst hospital inpatients with palliative care needs? BMC Palliat Care 12:9. https://doi.org/10.1186/1472-684X-12-9
16. Leysen B, Van den Eynden B, Wens J (2021) Where do GPs find patients with possible palliative care needs? A cross-sectional descriptive study. BJGP Open 5(2):BJGPO20200100. https://doi.org/10.3399/BJGPO.2020.0100
17. Gómez-Batiste X, Martínez-Muñoz M, Blay C et al (2013) Identifying patients with chronic conditions in need of palliative care in the general population: development of the NECPAL tool and preliminary prevalence rates in Catalonia. BMJ Support Palliat Care 3(3):300–308. https://doi.org/10.1136/bmjspcare-2012-000211
18. Gómez-Batiste X, Blay C, Broggi MA et al (2018) Ethical Challenges of Early Identification of Advanced Chronic Patients in Need of Palliative Care: The Catalan Experience. J Palliat Care 33(4):247–251. https://doi.org/10.1177/0825859718788933
19. Turrillas P, Peñafiel J, Tebé C et al (2021 Feb) NECPAL prognostic tool: a palliative medicine retrospective cohort study. BMJ Support Palliat Care 16:bmjspcare–2020. https://doi.org/10.1136/bmjspcare-2020-002567
20. Hjermstad MJ, Fayers PM, Haugen DF et al (2011) European Palliative Care Research Collaborative (EPCRC). Studies comparing Numerical Rating Scales, Verbal Rating Scales, and Visual Analogue Scales for assessment of pain intensity in adults: a systematic literature review. J Pain Symptom Manage. ;41(6):1073-93. doi: 10.1016/j.jpainsymman.2010.08.016. PMID: 21621130
21. Karcioglu O, Topacoglu H, Dikme O et al (2018) A systematic review of the pain scales in adults: Which to use? Am J Emerg Med 36(4):707–714. https://doi.org/10.1016/j.ajem.2018.01.008
22. Warden V, Hurley AC, Volicer L (2003 Jan-Feb) Development and psychometric evaluation of the Pain Assessment in Advanced Dementia (PAINAD) scale. J Am Med Dir Assoc 4(1):9–15. https://doi.org/10.1097/01.JAM.0000043422.31640.F7
23. Bellelli G, Morandi A, Davis DH et al (2014) Validation of the 4AT, a new instrument for rapid delirium screening: a study in 234 hospitalised older people. Age Ageing 43(4):496–502. https://doi.org/10.1093/ageing/afu021
24. Ornago AM, Pinardi E, Okoye C, Mazzola P, Ferrara MC, Finazzi A, Nydahl P, von Haken R, Lindroth H, Liu K, Morandi A, Bellelli G (2024) National Collaborators; Italian Participating Clinicians. Delirium prevalence and delirium literacy across Italian hospital wards: a secondary analysis of data from the World Delirium Awareness Day 2023. Eur Geriatr Med 15(5):1405–1413. https://doi.org/10.1007/s41999-024-01019-5
25. Malara A, Zucchelli A, Trevisan C, Borselli G, Incalzi RA, Onder G, Cherubini A, Marengoni A, Morandi A, Castaldo A, Leosco D, Testa GD, Ungar A (2025) Prescription Day LTCFs Workgroup. Polypharmacy appropriateness in Italian Long-Term Care Facilities: the nationwide prescription day point survey. Aging Clin Exp Res 37(1):291. https://doi.org/10.1007/s40520-025-03183-5
26. Amblàs-Novellas J, Murray SA, Espaulella J, Martori JC, Oller R, Martinez-Muñoz M, Molist N, Blay C, Gómez-Batiste X (2016) Identifying patients with advanced chronic conditions for a progressive palliative care approach: a cross-sectional study of prognostic indicators related to end-of-life trajectories. BMJ Open 6(9):e012340. https://doi.org/10.1136/bmjopen-2016-012340
27. Kelley AS, Morrison RS (2015) Palliative Care for the Seriously Ill. N Engl J Med 373(8):747–755. https://doi.org/10.1056/NEJMra1404684
28. Cole CS, Bennett CR, Carpenter JG, Fink RM, Jackson A, Unroe KT, Levy CR (2024) Palliative care in nursing homes: A qualitative study on referral criteria and implications for research and practice. J Am Geriatr Soc 72(8):2590–2594. https://doi.org/10.1111/jgs.18938
29. Carpenter JG, Oduro E, Hodgson N, Zhu S, Gurlu M, Ersek M, Hanson LC Palliative Care Needs of Older Adults With and Without Dementia During Post-Acute Care in Skilled Nursing Facilities. J Appl Gerontol 2025 Aug 17:7334648251363646. https://doi.org/10.1177/07334648251363646
30. Julià-Móra JM, Blanco-Mavillard I, Prieto-Alomar A, Márquez-Villaverde E, Terrassa-Solé M, Leiva-Santos JP, Rodríguez-Calero MÁ (2023 Jul-Aug) Analysis of palliative care needs in hospitalized patients. Enferm Clin (Engl Ed). 33(4):261–268. https://doi.org/10.1016/j.enfcle.2023.06.001
31. Spadaro S, Azzolina D, Vuan A, Colasanto L, Manzetto C, Busnardo A, Filieri G, Fagogeni P, Ganzaroli F, Gamanji V, Poles G, Spinazzola G, Volta CA, Scaramuzzo G, Gulmini L (2025) Early Detection of Palliative Care Needs in Critically Ill Patients Using the NECPAL Tool. J Clin Med 14(17):6244. https://doi.org/10.3390/jcm14176244
32. Bostwick D, Wolf S, Samsa G, Bull J, Taylor DH Jr, Johnson KS, Kamal AH (2017) Comparing the Palliative Care Needs of Those With Cancer to Those With Common Non-Cancer Serious Illness. J Pain Symptom Manage 53(6):1079–1084e1. https://doi.org/10.1016/j.jpainsymman.2017.02.014
33. Jang H, Lee K, Kim S, Kim S (2022) Unmet needs in palliative care for patients with common non-cancer diseases: a cross-sectional study. BMC Palliat Care 21(1):151. https://doi.org/10.1186/s12904-022-01040-0
34. Hamano J, Shinjo T, Fukumoto K, Kodama M, Kim H, Otomo S, Masumoto S, Hashimoto K, Matsuki T, Hisajima K, Miyata N, Suzuki R, Yokoya S, Miyake K, Takayanagi R, Shimizu M,

Kataoka Y, Taira H, Ozone S, Takahashi H, Kizawa Y (2023 Jan-Dec) Unresolved Palliative Care Needs of Elderly Non-Cancer Patients at Home: A Multicenter Prospective Study. J Prim Care Community Health 14:21501319231221431. https://doi.org/10.1177/21501319231221431

35. Bajwah S, Oluyase AO, Yi D, Gao W, Evans CJ, Grande G, Todd C, Costantini M, Murtagh FE, Higginson IJ (2020) The effectiveness and cost-effectiveness of hospital-based specialist palliative care for adults with advanced illness and their caregivers. Cochrane Database Syst Rev 9(9):CD012780. https://doi.org/10.1002/14651858.CD012780.pub2
36. McCarroll S, Avsar P, Moore Z, O'Connor T, Nugent L, Patton D (2022) The impact of specialist community palliative care teams on acute hospital admission rates in adult patients requiring end of life care: A systematic review. Eur J Oncol Nurs 59:102168. https://doi.org/10.1016/j.ejon.2022.102168
37. Miller SC, Dahal R, Lima JC, Intrator O, Martin E, Bull J, Hanson LC (2016) Palliative Care Consultations in Nursing Homes and End-of-Life Hospitalizations. J Pain Symptom Manage 52(6):878–883. https://doi.org/10.1016/j.jpainsymman.2016.05.017

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Authors and Affiliations

Graziano Onder[1,2] · Alberto Zucchelli[3] · Alba Malara[4] · Gilda Borselli[5] · Angela Iurlaro[1,2] · Claudia Bauco[6] · Angelo Bianchetti[7] · Christian Bracco[8] · Carmine Cafariello[9] · Stefania Cartesio[1] · Luca Cipriani[10] · Giulia Deias[11] · Diego De Leo[12,13,14] · Elisa Durante[1,15] · Gianpaolo Fortini[16] · Fabio Gilioli[17] · Stefania Giordano[18] · Guido Horn[19] · Myriam Macaluso[2] · Lorenzo Palleschi[20] · Elena Pinardi[21] · Claudio Santini[23] · Gianlorenzo Scaccabarozzi[21] · Roberto Tarquini[24] · Monica Torrini[25] · Edoardo Varratta[1,11] · Nicola Veronese[26,27] · Maria Beatrice Zazzara[1,2] · Dario Leosco[28] · Giuseppe Bellelli[21,22] · Palliative Care Day 2025 Working Group

✉ Angela Iurlaro
angela.iurlaro@guest.policlinicogemelli.it

1 Università Cattolica del Sacro Cuore, Rome, Italy
2 Fondazione Policlinico Gemelli IRCCS, Rome, Italy
3 University of Brescia, Brescia, Italy
4 Fondazione ANASTE Humanitas, Rome, Italy
5 Società Italiana di Gerontologia e Geriatria, Florence, Italy
6 ASL Frosinone, Frosinone, Italy
7 Fondazione Teresa Camplani, Domus Salutis Brescia, Brescia, Italy
8 Azienda Ospedaliera Santa Croce e Carle, Cuneo, Italy
9 Provincia Romana Camilliani, Viterbo,, Italy
10 ASL Roma 1, Rome, Italy
11 Fondazione Sanità e Ricerca, Rome, Italy
12 Griffith University, Gold Coast, Australia
13 De Leo Fund, Padova, Italy
14 Primorska University, Koper, Slovenia
15 Gemelli Medical Center, Rome, Italy
16 ASST Sette Laghi, Varese, Italy
17 Ospedale S. Maria Bianca, AUSL Modena, Mirandola, MO, Italy
18 RSA Salus, Fondazione ANASTE Humanitas, Rome, Italy
19 Fondazione Antea, Rome, Italy
20 Azienda Ospedaliera San Giovanni-Addolorata, Rome, Italy
21 Centro Studi Medicina della Complessità e Cure Palliative, Milano-Bicocca University, Monza, Italy
22 Fondazione IRCCS San Gerardo, Monza, Italy
23 Grassi Hospital, ASL Roma 3, Rome, Italy
24 USL Toscana Centro, Empoli, FI, Italy
25 University of Florence, Azienda Ospedaliero Universitaria Careggi, Florence, Italy
26 Faculty of Medicine, Saint Camillus University, Rome, Italy
27 Unità Locale Socio Sanitaria 3 Serenissima, Venice, Italy
28 Università degli Studi di Napoli Federico II, Naples, Italy