Original Article

First-Ever Global Ranking of Palliative Care: 2025 World Map Under the New WHO Framework

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Abstract

Context. Despite progress in policy and advocacy, global palliative care development remains highly uneven, with large segments of the population lacking access to quality services. A new WHO framework has provided an updated methodology for assessing national palliative care systems.

Objectives. To assess the current state of palliative care development worldwide using the WHO framework and to produce the first global ranking of countries based on their performance across 14 indicators.

Methods. A cross-sectional, mixed-methods study was conducted across 201 countries and territories between 2023 and 2025. Trained national consultants conducted a structured survey based on WHO indicators. Scores were assigned across six domains: policy, essential medicines, service delivery, education, research, and community empowerment. Responses were validated and analyzed to produce a Global Development Score and to classify countries into four development levels: Emerging, Progressing, Established, and Advanced.

Results. Of the 201 countries assessed, 40% were classified as Emerging and 28% as Progressing, representing half the global population. Only 14% reached the Advanced level, and 17% were classified as Established. Significant gaps in access to essential medicines and specialized education persist—even in some high-income settings. Despite limited resources Thailand, Uganda, Chile, and Uruguay stand out as regional examples of advanced development.

Conclusion. This study presents the first global ranking of palliative care development based on WHO indicators. The results highlight persistent disparities and offer a tool for targeted improvement. The Global Development Score enables countries to benchmark progress, identify gaps, and develop strategic responses to expand access and alleviate serious health-related suffering.

Key Words

Palliative care, public health, global development, hospice, mapping, indicators

Key Message

This is the fourth edition of mapping global palliative care development and the first to introduce a country ranking using the new WHO framework. Covering 201 countries, the findings reveal deep inequities and highlight priority areas for action. The Global Development Score enables the creation of tailored strategies, supporting advocacy, policy, and investment to expand access and reduce serious health-related suffering worldwide.

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Introduction

Since the 2014 World Health Assembly resolution urging the integration of palliative care (PC) into national health strategies, global recognition of PC as a health priority has increased.[1] The Lancet Commission on Palliative Care and Pain Relief reported a 74% rise in Serious Health-Related Suffering (SHS) between 1990 and 2021, affecting nearly 73.5 million people—80% in low- and middle-income countries (LMICs).[2] SHS among nondecedents doubled, accounting for 63% of cases, with a shift toward noncommunicable diseases such as cancer, cardiovascular disease, and dementia. Despite survival gains, disparities persist: SHS is concentrated among women aged 20−49 in low-income countries and women 70+ in high-income ones. Reducing preventable suffering through equitable access to care is essential.

The 2018 Astana Declaration reaffirmed primary health care (PHC) as central to achieving Universal Health Coverage (UHC) and the Sustainable Development Goals, positioning PC as a key element.[3] PHC fosters equity via a holistic, people-centred approach spanning prevention to PC.[4,5]

Despite growing policy support, scientific mapping of global PC has evolved slowly. The first "world map" (2006) used expert opinion and nonsystematic sources to classify countries into four levels.[6] The second (2011) added structure via in-country experts and a six-tier framework.[7] The third (2017, published 2020) marked a methodological shift, combining expert surveys with literature and indicators such as opioid use and demographics, evaluating 198 UN states and select territories using 10 indicators for improved consistency and comparability.[8,9] These maps reflect increasing methodological rigour and highlight persistent global disparities.

The 2020 *Global Atlas of Palliative Care (2nd ed.)* highlighted persistent global disparities, especially in LMICs, where access to resources, education, and essential services like morphine remains scarce.[10] Only 14% of the global population, mainly in Europe, has access to PC systems classified as *Advanced* according to the WHO development framework, while over half lack adequate services. With SHS expected to increase by 87% by 2060, scaling up global PC access is urgent.

To address this, the WHO introduced a new framework in its 2021 Technical Report, *"Assessing the Development of Palliative Care Worldwide"*.[9] Known as the "house of PC," it includes 14 measurable indicators across six domains: community empowerment, policy, research, education, essential medicines, and service integration (Fig. 1). These indicators support UHC goals by promoting accountability, transparency, and progress monitoring.

The ATLANTES Global Observatory, a WHO Collaborating Centre, piloted this model in Benin, Morocco, and Uruguay, encouraging benchmarking to track progress.[11−15] Building on two decades of global mapping and aligned with the WHO framework, this fourth "world map" iteration refines the methodology for classifying and ranking countries based on PC development since 2017. The findings aim to guide advocacy, policy, and planning, advancing equity in PC access and alleviating SHS globally.

Methods

This study applied the WHO's 14-indicator framework for PC development, utilizing a survey instrument based on all 14 indicators. Data were collected through national cross-sectional studies, employing a mixed-methods approach that combined quantitative scores with narrative justifications and documentary evidence. National experts reviewed Country profiles and, when possible, endorsed them by national PC associations.

The methodology comprised five key steps: 1) identifying national experts; 2) data collection via the survey instrument through an accredited online course; 3) validation of reports; 4) statistical analysis and classification based on scores; and 5) mapping global PC development.

1. Identification of national experts

Since December 2023, ATLANTES has partnered with WHO Regional Offices, international/regional PC organisations, and national associations to establish a

Fig. 1. Conceptual framework for palliative care development (WHO, 2021).

global informant network. In each country, at least two consultants were selected based on two or more criteria: 1) over five years of PC experience; 2) national/international recognition; 3) prior involvement in Global Atlas studies; 4) relevant publications; 5) organizational affiliation; or 6) active engagement in PC development. Consultants consented to the publication of their names and contributions.

2. The global survey and data collection via the e-course

To apply the updated WHO framework for PC development, this study utilized a structured survey instrument based on the 14 actionable indicators outlined in the 2021 WHO technical report.[9] The tool, developed jointly by the WHO's Integrated Health Services Department and the ATLANTES Global Observatory, was designed to support consistent national assessments across six key dimensions: policies, essential medicines, service delivery, education, research, and community empowerment (Table 1).

Each indicator was converted into a survey question, along with its definition, suggested sources, and relevant reference materials. Respondents rated their country's development on a four-point scale (1 = Emerging to 4 = Advanced), with explicit descriptors to guide objective scoring. Narrative justifications and documentary evidence were required. Some indicators included sub-items to capture more detail. Region-specific questions ensured contextual relevance while maintaining global comparability.

Initially paper-based, the survey was later digitized and made available in English, Spanish, and French, with professional translations into Portuguese and Arabic. Native-speaking PC professionals reviewed all versions for conceptual accuracy. Piloted in Benin, Morocco, and Uruguay, the final version supported both data collection and an accredited online training course (Supplementary Material 1).

To ensure consistency, an asynchronous online course, developed and accredited by the University of Navarra, was created to train informants. Structured into four thematic units, it included introductory content, video lectures, indicator guidance, and a Benin-based case study.[16] Informants were trained to score accurately, providing qualitative reasoning and documentary support.

From December 2023 to March 2025, data were collected following formal invitations and outreach via PC associations and social media. A total of 441 participants from various countries and territories completed the course and submitted survey responses. Most countries had at least two trained informants, forming the empirical foundation for structured national reports used in the analysis.

3. Validation and endorsement of assessments by country or territory

After data collection, expert responses were reconciled and triangulated with literature and official documents, resulting in structured country assessments. Each included development levels and detailed justifications for all 14 WHO-aligned indicators. National experts reviewed their respective country profiles. When possible, the profiles were also formally endorsed by national PC associations.

Table 1

Relationship Between the Sets of Indicators and the Palliative Care Development Conceptual Framework (WHO, 2021)

Dimension	#	Indicators for Monitoring Palliative Care Development
Empowerment of people and communities	1	Existence of groups dedicated to promote the rights of patients in need of palliative care, their families, their caregivers and disease survivors
	2	Existence of national policy or guideline addressing advance care planning of medical decisions for the use of life-sustaining treatment or end-of-life care
Health policies	3	Existence of a current national palliative care plan, programme, policy or strategy with a defined implementation framework
	4	Inclusion of palliative care in the list of health services provided at the primary care level in the national health system
	5	Existence of a national coordinating authority for palliative care (labelled as unit, branch, department) in the Ministry of Health (or equivalent) responsible for palliative care
Research	6	Existence of congresses or scientific meetings at the national level specifically related to palliative care
	7	Palliative care research in the country estimated by peer-reviewed articles
Essential medicines	8	Reported annual opioid consumption, excluding methadone, in Defined Daily Dose for statistical purposes (S-DDD)
	9	Availability of essential medicines for pain and palliative care at all levels of care
	10	General availability of immediate-release oral morphine (liquid or tablet) at the primary level
Education and training	11	Proportion of medical and nursing schools with palliative care formal education in undergraduate curricula
	12	Specialisation in palliative medicine for physicians
Integrated palliative care services	13	Number of specialised palliative care programmes in the country per population
	14	Number of specialised palliative care programmes for the paediatric population in the country

Reports also documented validation status, consultant names and roles, and institutional endorsements. These assessments form the empirical basis of this Global Mapping study, presented here through comparative analysis, covering indicator scores, country classifications, and global rankings. More detailed versions are being published progressively in region-specific WHO Palliative Care Atlases, available on the ATLANTES Global Observatory website (www.atlantesglobalobservatory.com/atlases). Together, these outputs offer regional detail and a unified global perspective on PC development.

4. Analytical strategy for scoring, aggregation, and classification of countries

The analysis followed three stages: a) transforming and scoring each country's 14 indicators; b) calculating a global development score as the arithmetic mean, confirmed by factorial analysis; and c) classifying countries into four conceptually defined PC development levels, based on the scoring scale rather than statistical distribution.

a) Indicator scoring and transformation

Each indicator, aligned with one of six WHO framework components, was standardized for comparability:

- **Direct scores ($n = 6$):** Indicators 1, 2, 4, 6, 7, and 12 were assigned a single expert-derived score per country on a 1-to-4 ordinal scale and required no further transformation.
- **Aggregated medians ($n = 4$):** Indicators 3, 5, 9, and 10 were calculated as medians of multiple expert inputs, resulting in values between 1 and 4, potentially with decimals, and retained without modification.
- **Indicator 8 (opioid consumption):** Data from the International Narcotics Control Board (S-DDD per million inhabitants per day) were ranked, and distributional increments plotted. Four distinct peaks were observed, revealing five different groups. Since we were interested in just four clusters, cut-offs identifying singular changes in the curve were detected. In particular, the first group displays a long steady line with a jump at the end. Then the second group shows a sudden increase with data rather grouped with a non important slight gap in the middle. After that the opioid consumption is of higher orders with jumps from one to another displaying a bigger gap in the middle. This classification is aligned with prior scoring methodology. Linear and logarithmic normalisation were tested using the score directly for computing the final mean and the results were discarded due to poor agreement with the conceptual four-level classification used across indicators, as it failed to produce meaningful group separation.
- **Indicator 11 (undergraduate education):** Scores from four binary and percentage-based sub-indicators (physicians and nurses) were summed (range: 0−14), log-transformed ($\log[x + 1]$), and grouped using k-means clustering into four levels (cut-offs 0.573, 2.492, and 5.665). Missing physician data led to the exclusion of those sub-indicators for that country. Nurse data were imputed from physician scores only when expert consensus suggested similar training policies. We acknowledge this may not fully reflect differences between professional groups.
- **Indicator 13 (adult PC services):** A composite score was calculated from I13_1 (1−4 ordinal score) and I13_5 (service/population ratio). The latter was classified using increment analysis identifying three singular changes in the sorted variable. As in Indicator 8, the first group shows a steady slope with a jump marking the change to a second group with an increasing slope. The second group ends with a plato while the difference between the third and four groups displays a jump about in the middle. Missing data received the lowest value. The final score was the average of both components.
- **Indicator 14 (pediatric PC services):** Two scores were used: a 1−4 integer and a k−means−derived cluster score (log-log transformed due to skewness). No outliers were removed. Supplementary Material 2 Fig. S2.5 shows clear separation for groups 1−2, with overlap in 3−4; cut-offs were 0.351, 1.630, and 6.415. The final score for Indicator 14 was their mean.

This scoring strategy ensured a coherent and standardized dataset for composite analysis. A factorial analysis of the 14 scores confirms the convenience of summing them up to develop a total score. Since some of the 14 values were missing, the mean was considered instead of the sum. Additional graphs and figs. illustrating the *Strategy for Scoring, Aggregation, and Classification* are provided as Supplementary Material 2.

b) Computation of global development scores (GDS) and country ranking

The Global Palliative Care Development Score (GDS) is the average of 14 indicators that reflect system development across six dimensions of the WHO framework. Countries were ranked within their respective WHO regions; ties were shared, and subsequent ranks were skipped. South-East Asia and Western Pacific regions were grouped due to geographic and network relationships. The GDS represents each country's overall performance across all dimensions.

c) Classification into four levels of development

In this 2025 edition of the World Palliative Care Map, countries were classified into four levels of

development — Emerging, Progressing, Established, and Advanced — in alignment with the scoring logic applied consistently throughout the study.

Each of the 14 indicators was scored on a 1-to-4 ordinal scale, with defined qualitative anchors: 1 = Emerging, 2 = Progressing, 3 = Established, and 4 = Advanced. These categories were used explicitly during data collection and expert validation. It was therefore methodologically coherent to adopt the same four-level structure for classifying each country's overall development score. After computing the arithmetic mean of the 14 indicators, fixed intervals were applied as follows: Emerging (1.00−1.74), Progressing (1.75−2.49), Established (2.50−3.24), and Advanced (3.25−4.00). This classification reflects a continuum of system maturity and capacity to deliver integrated PC services, aligned with the components of the WHO public health model.

This approach represents a structural shift from earlier editions (2011 and 2017), which subdivided Levels 3 and 4 according to the degree of PC integration into national health systems (e.g., 3a: isolated provision, 3b: generalized, 4a: preliminary integration, 4b: advanced integration). The 2025 classification adopts the broader WHO framework, encompassing policies, essential medicines, education, research, service delivery, and community empowerment. Table 2 outlines an approximate correspondence between the six-category model used in previous World Maps and the new four-level classification, facilitating historical comparison and interpretative continuity.

Unsupervised clustering methods, such as k-means were tested but discarded in favor of a conceptually based model. Principal component analysis revealed that all 14 indicators contributed equally to a main factor, justifying the use of a simple arithmetic mean. The score distribution was continuous without natural breaks, so classification thresholds were set internally to ensure transparency and consistency.

d) Further analysis

To examine the link between PC development and structural factors, we analyzed the association between GDS and two grouped predictors: the human development index (HDI) and World Bank income classification (WBIC).[17] Both were treated as categorical predictors of GDS. Due to non-normal GDS distribution and unequal group sizes, the Kruskal−Wallis H-test was used instead of one-way ANOVA.

5. Cartographic representation of results

Maps were created with ArcGIS Pro 3.4.1 using ESRI and WHO boundary data (WGS 1984 Web Mercator, scale 1:210,000,000). Choropleth maps illustrate global PC development disparities, facilitating cross-country comparisons and policy advocacy. This report covers countries, territories, and areas based on the WHO nomenclature. Inclusion or naming does not imply any opinion on legal status or boundaries. The goal is to provide a comprehensive and comparative overview of global PC development, supporting monitoring and equitable progress.

Results

1. Global data coverage and country inclusion

Nearly 600 international PC experts contributed, with 441 accredited via the University of Navarra's course. Data from 201 countries and territories yielded 198 assessments, covering over 99% of the global population. Participation rates were high across WHO regions: 91% in Africa (43/47 countries), 91% in the Americas (32/35), 86% in the Eastern Mediterranean (19/22), 93% in Europe (52/56), and 80.5% in South-East Asia and Western Pacific combined (35/42). In three countries (St. Kitts and Nevis, St. Vincent and the Grenadines, and Suriname), no national informants were identified, and no documentation was available;

Table 2
Proposed Correspondence Between the 2017 World Map Categories and the 2025 Classification Levels

2025 Levels of Palliative Care Development	Country or Territory Profile	Approximate Correspondence With 2017 Global Map Categories
Emerging	Countries with minimal or absent PC development often lack basic policy, services, education, and access to medicine.	1 − No known activity 2 − Capacity building
Progressing	Countries demonstrating initial and uneven development across several components, with isolated initiatives without system-wide integration.	3a − Isolated provision
Established	Countries with more consistent development across dimensions, including recognised services and policy frameworks, though gaps remain.	3b − Generalised provision 4a − Preliminary integration into the health system
Advanced	Countries with high levels of integration, access, coverage, and governance mechanisms, reflecting sustained policy implementation and monitoring.	4b − Advanced integration into the health system

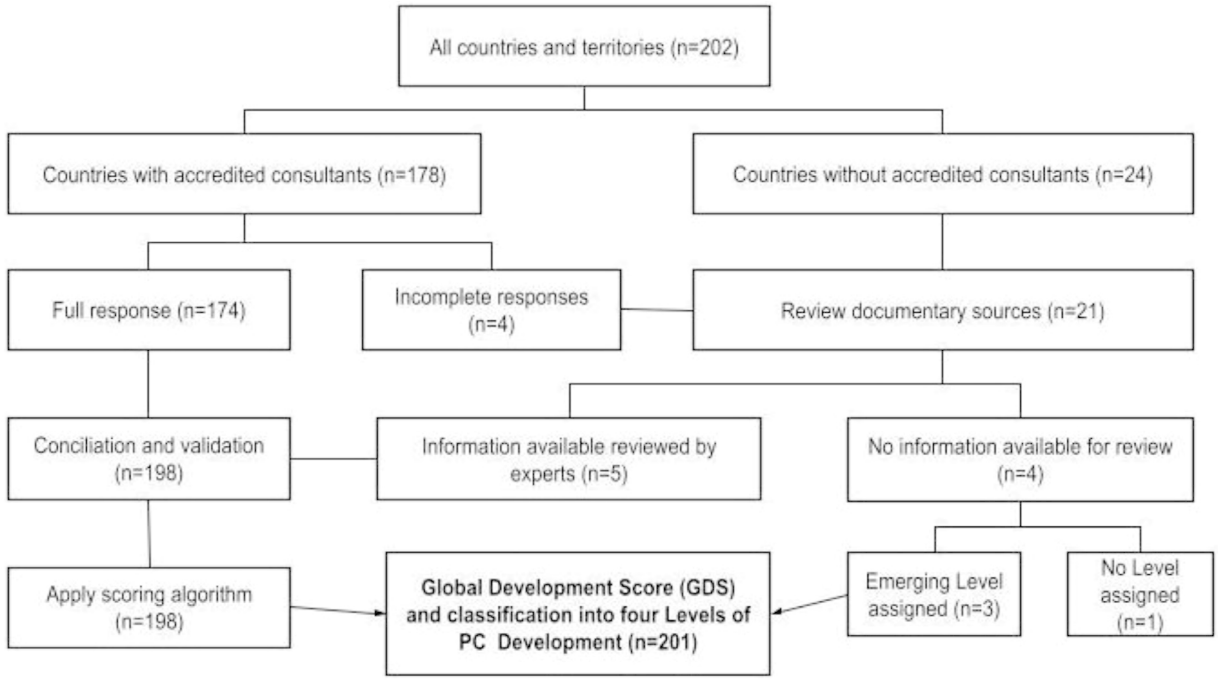

Fig. 2. Flowchart of the data sourcing process.

these were provisionally classified as "Emerging" to maintain global comparability. North Korea remained uncategorized due to a lack of expert input and publicly available data. This multistep validation process, outlined in Fig. 2, ensured methodological consistency and strengthened the reliability of the findings.

2. Global development scores and country ranking

Tables 3–7 show the final country rankings by GDS, organized by WHO region. Each table includes the GDS, population size, and development classification for countries in that region, detailed in the following sections. Supplementary Material 3 provides a global

Table 3

Africa: Classification of Countries by Level of Palliative Care Development (n = 47; Population = 1.24 billion)

	Emerging PC development			Progressing PC development			Established PC development			Advanced PC development	
#	Name	GDS	#	Name	GDS	#	Name	GDS	#	Name	GDS
22	Seychelles	1,692	6	Ghana	2,357	2	Kenya	3,071	1	Uganda	3,321
23	Congo, Rep.	1,615	7	Nigeria	2,346	3	South Africa	2,929			
24	Mozambique	1,607	8	Zimbabwe	2,269	4	Malawi	2,923			
24	Togo	1,607	9	Namibia	2,250	5	Rwanda	2,607			
26	Guinea	1,571	10	Tanzania	2,214						
27	Gambia, The	1,538	11	Eswatini	2,179						
28	Liberia	1,500	12	Cameroon	2,143						
29	Burundi	1,464	13	Cabo Verde	2,071						
30	Lesotho	1,423	14	Benin	2,036						
31	Madagascar	1,393	14	Congo, Democratic Republic of the	2,036						
31	Sierra Leone	1,393	14	Zambia	2,036						
33	Burkina Faso	1,357	17	Botswana	1,964						
34	Comoros	1,321	17	Mauritius	1,964						
35	South Sudan	1,269	19	Cote d'Ivoire	1,923						
36	Eritrea	1,214	20	Ethiopia	1,792						
37	Guinea-Bissau	1,192	21	Senegal	1,769						
38	Chad	1,154									
38	Equatorial Guinea	1,154									
40	Central African Republic	1,115									
40	Sao Tome and Principe	1,115									
42	Algeria	1,083									
43	Angola	1,071									
43	Gabon	1,071									
n=26 (55%), 335 million inh (27%)			n=16 (34%), 701 million inh (57%)			n=4 (9%), 154 million inh (12%)			n=1 (2%), 49 million inh (4%)		

Table 4

Region of the Americas (PAHO): Classification of Countries by Level of Palliative Care Development (n = 35; Population = 1.03 billion)

	Emerging PC development			Progressing PC development			Established PC development			Advanced PC development	
#	Name	GDS	#	Name	GDS	#	Name	GDS	#	Name	GDS
21	Dominican Republic	1,731	12	Belize	2,346	5	Canada	3,000	1	Uruguay	3,429
22	Grenada	1,679	13	Peru	2,250	6	Argentina	2,929	2	Costa Rica	3,357
23	Jamaica	1,607	14	Cuba	2,231	7	Panama	2,857	3	United States	3,346
23	Venezuela	1,607	15	Ecuador	2,214	8	El Salvador	2,750	4	Chile	3,321
25	Bolivia	1,536	16	Paraguay	2,143	9	Brazil	2,714			
26	Nicaragua	1,500	17	Barbados	1,964	10	Mexico	2,615			
27	Guyana	1,464	17	Trinidad and Tobago	1,964	11	Colombia	2,607			
27	Honduras	1,464	19	Dominica	1,857						
29	Saint Lucia	1,423	20	Guatemala	1,786						
30	Haiti	1,286									
31	Bahamas	1,179									
32	Antigua and Barbuda	1,000									
32	St. Kitts and Nevis	1,000									
32	St. Vincent and the Grenadines	1,000									
32	Suriname	1,000									
n=15 (43%), 85 million inh (8%)			n=9 (26%), 90 million inh (9%)			n=7 (20%), 490 million inh (48%)			n=4 (11%), 363 million inh (35%)		

ranking of 201 countries and territories by GDS, including final scores, development levels, and the 14 indicator scores grouped by the six WHO framework dimensions. This comprehensive format facilitates cross-country comparison and detailed performance analysis by dimension.

Of the 201 countries assessed, only 29 (14%) reached the "Advanced" level of development. This group includes, among others, Germany, the Netherlands, the United Kingdom, Spain, Australia, Ireland, Thailand, and Uruguay. The number closely mirrors that of the 2017 mapping, underscoring the need for continued strategic efforts.

At the opposite end of the spectrum, 81 countries (40%) fall within the Emerging category, home to over 900 million people. This stark imbalance illustrates the urgent need to scale up PC development, particularly in LMIC settings.

Globally, essential medicines and specialized education are the most underdeveloped dimensions,

Table 5

Eastern Mediterranean Region (EMRO): Levels of Palliative Care Development (n = 22; Population = 810 million)

	Emerging PC development			Progressing PC development			Established PC development			Advanced PC development	
#	Name	GDS	#	Name	GDS	#	Name	GDS	#	Name	GDS
9	Sudan	1,731	4	Iran	2,464	1	Jordan	3,036			
10	Tunisia	1,714	4	Lebanon	2,464	2	Kuwait	2,714			
11	Qatar	1,643	6	Saudi Arabia	2,357	3	Morocco	2,571			
12	Egypt, Arab Rep.	1,577	7	Palestinian, Occ. Territory	2,077						
13	Oman	1,462	8	Pakistan	1,786						
14	United Arab Emirates	1,357									
15	Bahrain	1,321									
16	Djibouti	1,269									
17	Iraq	1,214									
17	Syrian Arab Republic	1,214									
19	Somalia	1,192									
20	Libya	1,143									
21	Afghanistan	1,107									
22	Yemen	1,000									
n=14 (64%), 374 million inh (46%)			n=5 (23%), 383 million inh (47%)			n=3 (14%), 54 million inh (7%)					

Table 6
European Region (EUROPE): Levels of Palliative Care Development (n = 56; Population = 935 million)

	Emerging PC development			Progressing PC development			Established PC development			Advanced PC development	
#	Name	GDS	#	Name	GDS	#	Name	GDS	#	Name	GDS
48	Tajikistan	1,731	32	San Marino	2,429	17	Russian Federation	3,231	1	Germany	3,923
49	Uzbekistan	1,607	33	Monaco	2,423	18	Israel	3,214	2	Netherlands	3,885
50	Kyrgyzstan	1,538	33	Republic of Moldova	2,423	19	Hungary	3,179	3	Austria	3,821
51	Albania	1,500	35	Greece	2,393	19	Poland	3,179	4	Norway	3,786
51	Vatican	1,500	36	Türkiye	2,357	21	Czech Republic	3,107	5	Sweden	3,679
53	Bosnia-Herzegovina	1,462	37	Andorra	2,321	22	Finland	3,071	5	Switzerland	3,679
54	Azerbaijan	1,321	37	Belarus	2,321	23	Lithuania	3,036	7	France	3,607
55	Kosovo	1,154	39	Estonia	2,179	24	Liechtenstein	2,833	7	Ireland	3,607
56	Turkmenistan	1,038	39	Kazakhstan	2,179	25	Malta	2,821	7	Italy	3,607
			39	Montenegro	2,179	25	Slovenia	2,821	10	Belgium	3,464
			42	Ukraine	2,077	27	Romania	2,750	11	Denmark	3,429
			43	Cyprus	1,964	28	Slovakia	2,714	12	Luxembourg	3,393
			44	Georgia	1,962	29	Croatia	2,679	12	United Kingdom	3,393
			45	Bulgaria	1,929	30	Serbia	2,643	14	Iceland	3,357
			46	Armenia	1,857	31	Latvia	2,577	14	Portugal	3,357
			47	North Macedonia	1,750				16	Spain	3,286
n=9 (16%), 78 million inh (8%)			n=16 (29%), 184 million inh (20%)			n=15 (27%), 259 million inh (28%)			n=16 (29%), 414 million inh (44%)		

especially in countries at the Emerging and Progressing levels, which include half of the world's population. These gaps also exist in some Established and Advanced countries. While Western high-income nations dominate the top ranks, regional successes like Thailand (Asia), Uganda (Africa), Chile, Uruguay, and Costa Rica (Latin America) show that significant progress is possible despite limited resources, offering valuable models for regional learning and adaptation.

3. Final levels of PC development (new classification) and relation with income levels

The 2025 World Map of Palliative Care Development, presented in Fig. 3, provides a visual summary of the number of countries and the total population within each level of development. Among the 201 countries evaluated, 81 (40%) were classified as Emerging, representing approximately 12 % of the global population. Another 57 countries (28%) were classified

Table 7
Asia-Pacific Region (SEARO & WPRO): Levels of Palliative Care Development (n = 41; Population = 4 billion)

	Emerging PC development			Progressing PC development			Established PC development			Advanced PC development	
#	Name	GDS	#	Name	GDS	#	Name	GDS	#	Name	GDS
25	Timor Leste	1,714	14	Philippines	2,464	9	Malaysia	3,036	1	Chinese Taipei (Taiwan)	3,846
26	Macao SAR	1,708	14	Sri-Lanka	2,464	10	Mongolia	2,714	2	Australia	3,714
27	Nepal	1,643	16	India	2,231	11	China	2,615	3	Hong Kong SAR	3,571
27	Vanuatu	1,643	17	Bhutan	1,893	12	Vietnam	2,607	3	Japan	3,571
29	Lao PDR	1,571	17	Maldives	1,893	13	Indonesia	2,538	3	Thailand	3,571
30	Cambodia	1,538	17	Tonga	1,893				6	New Zealand	3,500
31	Samoa	1,500	20	Bangladesh	1,857				7	Singapore	3,429
32	Solomon Islands	1,462	21	Cook Islands	1,792				8	Republic of Korea	3,250
33	Marshall Islands	1,393	22	Palau	1,786						
33	Papua New Guinea	1,393	23	Brunei Darussalam	1,750						
35	Micronesia Federated States	1,321	23	Myanmar	1,750						
36	Fiji	1,286									
37	Kiribati	1,231									
38	Tokelau	1,077									
39	Niue	1,071									
40	Nauru	1,000									
40	Tuvalu	1,000									
n=17 (41%), 70 million inh (2%)			n=11 (27%), 1804 million inh (45%)			n=5 (12%), 1830 million inh (46%)			n=8 (20%), 317 million inh (8%)		

Note: The inclusion, naming, or presentation of any country, territory, or area in this figure follows WHO usage wherever possible and does not imply any position by the authors on legal status or boundary delimitation. *Taiwan* is included as part or sector of the Asia Pacific Hospice Palliative Care Network (APHN), within the WHO Western Pacific Region, solely to monitor PC development.

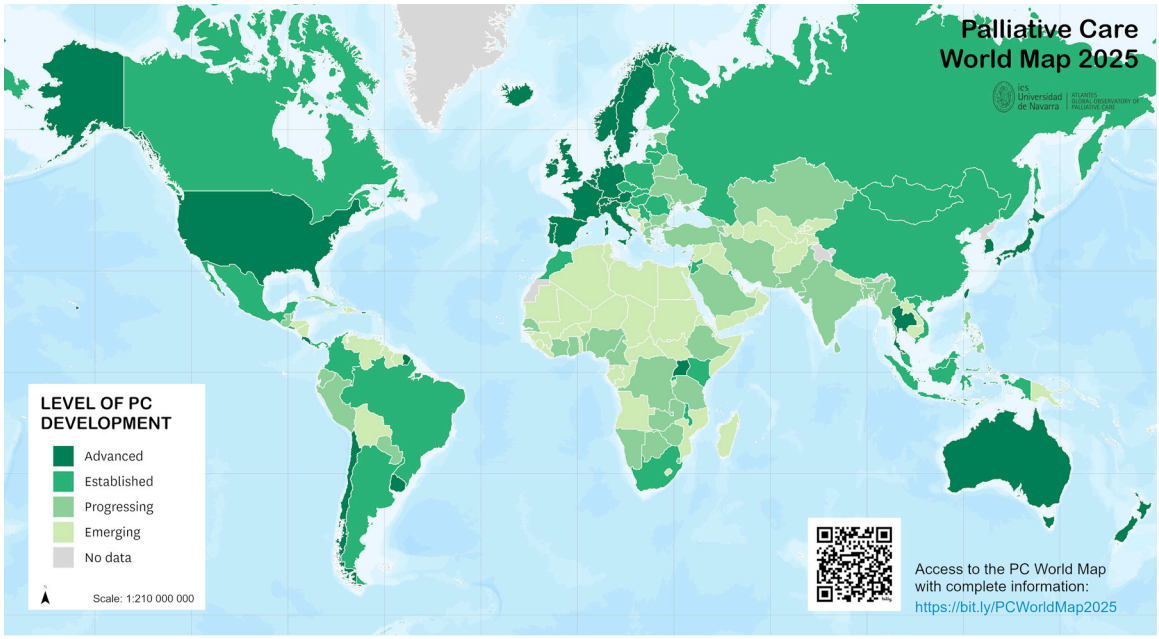

Fig. 3. The 2025 World Map of Palliative Care Development.

as Progressing, 34 countries (17%) as Established, and only 29 countries (14%) reached the highest level of Advanced PC development.

The WHO region distribution reveals evident disparities: Europe and the Western Pacific have the most countries in the Established and Advanced categories, whereas Africa, the Eastern Mediterranean, and South-East Asia predominantly consist of Emerging and Progressing countries. Since the data represent entire populations rather than samples, hypothesis testing is not applicable, and distances between measures are absolute. Figs. 4a and 4b illustrate that higher PC

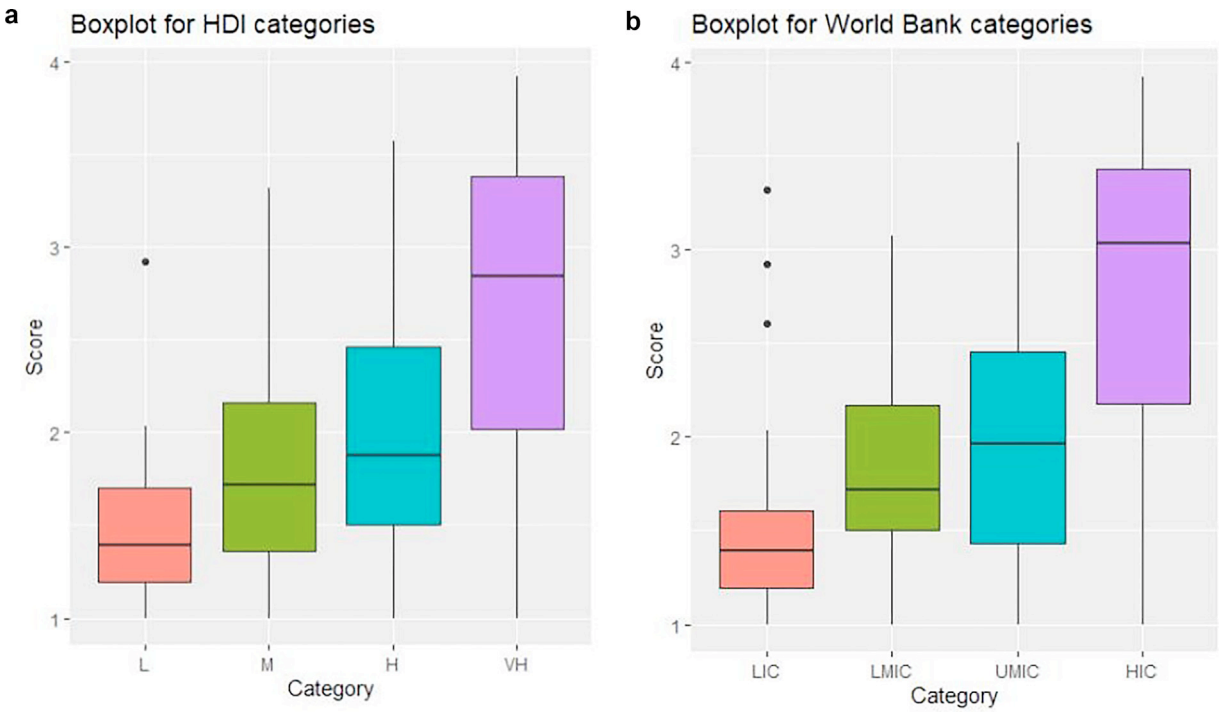

Fig. 4. (a) Association between global development score (GDS) and human development index (HDI). (b) Association between global development score (GDS) and world bank income classification (WBIC).

development scores correspond with more developed countries. Although this data set covers whole populations, it can be treated as a sample from a larger potential population, with uncertainty attributed to model limitations and measurement error rather than sampling.

For both the WBIC and the HDI, we performed an ANOVA, which revealed high heteroscedasticity—i.e., unequal variance between comparison groups—prompting the use of the nonparametric Kruskal−Wallis test (Bartlett test: K-squared = 21.755, *P*-value < 0.001, and K-squared = 16.844, *P*-value < 0.001, respectively) due to unequal sample size groups. Thus, a nonparametric Kruskal-Wallis test was performed afterwards. For both, the global tests were significant ($H = 59.929$, *P*-value = < 0.001 and $H = 67.47$, *P*-value < 0.001). Then pairwise comparisons using Wilcoxon rank sum test with Benjamini-Hochberg (BH) correction detected significant differences between any pair of groups with the exception of UMIC and LMIC ($P = 0.0639$) for WBIC and H-M ($P = 0.07463$), L-M (0.01518) for HDI.

Countries with a Very High HDI or classified as High-Income showed the highest median GDS, while countries with a Low HDI and Low-Income classification clustered at the lower end of the distribution. These findings confirm that the new GDS-based classification system captures meaningful disparities that align with broader socio-economic frameworks. At the same time, outliers such as Thailand and Uganda illustrate that strong PC development is possible even in resource-constrained settings. This supports the utility of the GDS for global monitoring and advocacy, and underscores the need for further research into the enabling conditions for high-performing countries outside the high-income group.

4. Dimension-level performance

To understand the GDS composition, we analyzed country performance across the six WHO palliative care dimensions: Empowerment, Service Delivery, Policies, Medicines, Education, and Research, each weighted equally in the final score. Medicine access and Research were the weakest areas globally, with many countries scoring low. Policies and Education were relatively stronger, especially in upper-middle and high-income countries. Service Delivery showed uneven coverage and integration nationally. Regional patterns emerged: Europe and the Western Pacific scored higher in Policies and Education, while many sub-Saharan African and Eastern Mediterranean countries had low scores across all dimensions, particularly in access to medicine and Research. Nonetheless, some countries in the Global South stood out with strong scores in certain areas, providing valuable models for targeted improvements.

Analysis of the Correspondence Between the 2017 Classification and the 2025 Level of PC Development

The comparison between the 2017 global mapping categories and the new 2025 classification of PC development shows a moderate alignment, particularly among countries at the highest levels.[8] Notably, 70% of the countries classified as *"Advanced"* in 2025 had previously been categorized as 4b in 2017, supporting the proposed equivalency hypothesis. Only, 22% of the countries considered "Established" correspond to the former 3b or 4a levels. Among those classified as the previous 3a category 10% match with "Progressing," Of the countries now classified as "Emerging," 20% were previously in Levels 1 or 2; the rest came from higher categories, possibly due to reclassification, downgrades, or improved data.

Discussion

This study presents the first comprehensive global assessment of PC development, utilizing the WHO Conceptual Framework as a multidimensional tool to monitor progress. Results reveal stark inequities: more than half of the global population lives in countries with Emerging or Progressing PC levels, while fewer than one-fifth are in Advanced systems. The WHO "PC House" model proved methodologically sound, enabling a holistic analysis across interdependent domains—policy, education, medicines, service delivery, and research.[9] Coordinated development across all components is crucial, rather than isolated gains.

Despite methodological updates in 2025, the number of Advanced-level countries remains unchanged from 2017, suggesting limited progress. This is consistent with downgrades in countries such as Israel, Canada, Liechtenstein, Romania, and Mongolia, which may reflect data gaps, methodological shifts, or actual declines. These variations underscore the need for robust data validation and ongoing refinement to facilitate consistent, longitudinal analysis. The iterative nature of this project has improved reliability. However, limitations persist, such as language barriers and challenges in capturing subnational disparities.

Structural barriers continue to obstruct universal PC, particularly in LMICs, where needs are greatest. Major challenges include underfunding, inadequate infrastructure, workforce shortages, and limited access to essential medicines. The updated map confirms ongoing service concentration in high-income countries, with governance, training, and health literacy gaps elsewhere.[2,18,19] The Lancet Commission (2025) warns that without significant investment, even its essential PC package may remain unrealised.[2,18,19] Misconceptions limiting PC to end-of-life or cancer care,

and reluctance to address disease progression, frequently noted in narrative justifications, also hinders integration.

While focused on specialized PC, this study stresses the need for primary care integration. Key recommendations include scaling community-based models, updating national plans with measurable goals, enacting PC legislation, mandating undergraduate PC education, integrating evidence-based pain management, expanding services in underserved areas, and promoting regional collaboration and research. All efforts must prioritize equity, addressing gaps in pediatric and rural populations.

Encouragingly, progress in countries across Africa, Asia, and Latin America shows that meaningful development is possible beyond the Global North. These examples demonstrate the value of political will, strategic investment, and locally adapted approaches. PC should be recognized as a human right,[20] and the WHO framework offers a valuable guide for national strategies.[21] However, reliance on Global North benchmarks may reinforce disparities. Advances in low-resource settings call for a broader definition of meaningful PC development.

This fourth edition of mapping PC development—now using a more objective methodology—represents a significant step toward more accurate and equitable global PC monitoring, and introduces for the first time a global ranking based on the WHO framework. By combining population-based indicators with national insights, it offers an actionable diagnostic tool. Although comparability with earlier maps is limited, the framework supports a shift from aspiration to implementation, and from disparity to dignity. Building on past momentum, this edition seeks to deepen impact through stronger data, clearer guidance, and a shared vision of PC as an essential health system component worldwide.[22]

Ethics Approval and Consent to Participate

Approved under Proyecto 2023.055 by CEI UNAV (Acta 13.04.2023), this low-risk public health study involved no human subjects or interventions. Participation was voluntary, with electronic consent and appropriate approvals. Informants contributed to developing the global PC indicator and will be acknowledged in publications upon request.

Author Contributions

Conceptualisation: Carlos Centeno (CC), Vilma Tripodoro (VT), Stephen R. Connor (SRC); methodology: VT, CC, Jesús López Fidalgo (JLF); data collection and analysis by Eduardo Garralda (EG), Fernanda Bastos (FB), Laura Monzón Llamas (LML), Álvaro Montero (AM), Cristina Béjar (CB), Daniela Suárez (DS), VT, and CC; final analysis and interpretation by VT, Juan José Pons (JJP), JLF, and CC; VT and CC wrote the original draft; review and editing final manuscript by SRC and all authors; supervision: and VT and CC; funding acquisition: CC.

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Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.jpainsymman.2025.07.026.

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