

Review Article

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Exploring the contribution of cancer palliative care development toward alleviating the human crisis of suffering in low- and middle-income countries: A framework synthesis protocol

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Abstract

Objectives. Inadequate access to cancer care, high mortality, and out-of-pocket expenditure contribute to health-related suffering in low- and middle-income countries, making palliative care a relevant option. How palliative care development has alleviated suffering is not systematically studied, necessitating this review's conduct. The objective of this systematic review with a framework synthesis approach is to identify and map the dimensions and indicators of cancer palliative care development and the components of integration between cancer and palliative care in LMICs.

Methods. Uni- and multi-disciplinary databases like Cochrane, MEDLINE (PubMed), EMBASE, CINAHL Complete, and PsycINFO will be systematically searched for eligible studies exploring cancer palliative care development in LMICs and their contribution to alleviating health-related suffering in the cancer context. Our selection process will encompass countries classified by the World Bank as low-income (26 countries), lower-income (54 countries), and upper-middle-income (54 countries).

Results. Review findings will be synthesised and analysed using a best-fit framework synthesis method using 2 frameworks (the WHO model of components and indicators for palliative care development and integration elements between oncology and palliative care), and the findings will be developed as themes and subthemes, and patterns interpreted using these 2 models.

Significance of results. This review will analyse the development of cancer palliative care in LMICs. It will identify gaps in provision, solutions derived at the regional level to address them, and best practices and failed models with reasons underpinning them.

Introduction

Cancer, with an estimated annual incidence of 19.3 million, is one of the leading causes of death worldwide (Sung et al. 2021). Up to three-fourths of 10 million cancer-related deaths yearly are in low- and middle-income countries (LMICs) (Sung et al. 2021). The cancer incidence is projected to double by 2070 with more than 400% predicted increase in low-income and 168% increase in middle-income countries (Soerjomataram and Bray 2021). The surge in cancer incidence is attributable to population expansion, increasing life expectancy, growing urbanization, and lifestyle changes (Pramesh et al. 2014). Among the specific cancer types, colorectal, breast, lung, and prostate cancers will have the largest increase by 2070 (Soerjomataram and Bray 2021).

While high-resource countries have a greater incidence of cancer, the mortality rates remain higher in LMICs (Shah et al. 2019). Moreover, cancer-related mortality rates in high-resource countries are plateauing or decreasing (Shah et al. 2019) due to strategies like focused awareness, screening and surveillance leading to early detection, and better access to cancer therapies (Foreman et al. 2018; Kocarnik et al. 2022). Conversely, LMICs are experiencing a rise in obesity and sedentary lifestyles, excessive tobacco and alcohol use, and infections contributing to

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carcinogenesis (Arbyn *et al.* 2020; Kocarnik *et al.* 2022; Nambiar *et al.* 2021; Pramesh *et al.* 2014). Moreover, late presentation, high out-of-pocket expenditure, (Arbyn *et al.* 2020; Nambiar *et al.* 2021; Pramesh *et al.* 2014) and inadequate access to cancer surgeries and chemoradiotherapy (Abdel-Wahab *et al.* 2017; Farmer *et al.* 2010; Meara *et al.* 2015; Sullivan *et al.* 2015; Vanderpuye *et al.* 2017; Wirtz *et al.* 2017) diminish cancer care in LMICs. Therefore, palliative care remains a relevant option for patients with cancer in LMICs (Cabanes *et al.* 2022; Campling *et al.* 2022; Lucey *et al.* 2008; Rosenberg *et al.* 2022).

In high-resource countries, palliative care for people with cancer is often implemented as a cost-effective intervention (May *et al.* 2018; Obermeyer *et al.* 2014). There is evidence to support its implementation in LMICs where it reduces healthcare utilization (Devi *et al.* 2008; Ratcliff *et al.* 2017; Reid *et al.* 2019; Yeager *et al.* 2016) and costs (Desrosiers *et al.* 2014; Mosoiu *et al.* 2014; Reid *et al.* 2019), and improves patient and family reported outcomes and satisfaction (Hongoro and Dinat 2011; Yeager *et al.* 2016). It is estimated that 40 million people need palliative care globally every year (World Health Organization 2018). However, due to the lack of palliative care registries, it is seldom possible to know how many patients receive care, but it is evident that many do not have access to it (Connor *et al.* 2021). Moreover, in LMICs, healthcare disparities and inequities are exacerbated by social factors (World Health Organization 2023) like lack of finances, inadequate healthcare infrastructure and trained workforce, environmental barriers, and cultural beliefs and practices hindering the delivery of palliative care (Abu-Odah *et al.* 2020; Donkin *et al.* 2018; Donkor *et al.* 2018; Fadhil *et al.* 2017; Hannon *et al.* 2016; Ly *et al.* 2023).

A search was conducted on the multidisciplinary database SCOPUS (Burnham 2006) to understand the current status of palliative care developments in LMICs. The search identified systematic reviews that discussed facilitators and barriers in palliative care provision (Abu-Odah *et al.* 2020; Donkor *et al.* 2018), availability and gaps in paediatric palliative care (Caruso Brown *et al.* 2014), end-of-life care education (Atreya *et al.* 2022), palliative care interventions and outcomes (Potts *et al.* 2018; Singh and Harding 2015), and community-based palliative care models and outcomes (Vernon *et al.* 2022). The review findings showed that integrating patient preferences and local cultural needs into primary care and having community engagement, financial support, political commitment, and an ongoing supportive learning environment for all healthcare providers were crucial for cost-effective palliative care programs. However, the reviews did not comprehensively report the implications of these findings on dimensions and indicators of palliative care development such as quality of service, capacity building, integration of palliative care into primary care, the policy framework for palliative care implementation, standardization of guidelines and treatment protocols, access to essential medications including opioids, or the extent of palliative care service delivery, education, and research. Learnings from knowing the regional differences in policy and service implementation, progress made in these settings, and the country-level strategies employed might facilitate developing a model that impacts palliative care delivery in other LMICs.

In this systematic review, we use a framework synthesis approach to identify and map the dimensions and indicators of cancer palliative care development and the components of integration between cancer and palliative care in LMICs. We will also be exploring the contribution of palliative care toward alleviating human suffering in the context of cancer (World Health Organization 2021).

Methods

The protocol for this review was developed using framework synthesis approach to meet the objectives of this review (Brunton *et al.* 2020; Ritchie *et al.* 2013). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) provided in (Supplementary File 1) (Shamseer *et al.* 2015). The protocol will be registered with PROSPERO.

Review question

What is known about how palliative care development in LMICs contributes to alleviating human suffering for people with cancer?

Review objectives

- To identify and map the evidence relating to dimensions and indicators of cancer palliative care development in LMICs.
- To identify the components of cancer and palliative care integration.
- To explore the interplay of underlying generative mechanisms driving or hindering cancer palliative care development in LMICs.
- To understand the contribution of cancer palliative care development in addressing the human crises of suffering.

Search strategy

Databases such as Cochrane database, MEDLINE (PubMed), EMBASE, CINAHL Complete, Cochrane library, and PsycINFO will be searched to identify articles published in English between 01 January 1990 and 30 December 2023. Additionally, searches will be conducted using SCOPUS (Elsevier), the Web of Science (Clarivate) using free texts. The bibliography of included studies will be searched to identify additional relevant studies.

An initial search of MEDLINE (via PubMed) will be conducted to develop the search strategy and later will be translated for other databases. The preliminary search will be conducted using the combination of the following keywords: cancer, tumour, malignancy, palliative care, end-of-life care, development indicators, LMICs (LMICs), and low-income countries (LICs) using the specific controlled vocabulary and keywords listed in Supplementary File 2 with appropriate field tags (title, abstract, all fields, keywords, text words) (Bramer *et al.* 2018). Further refinement and customization of the search strategy for other databases will be carried out based on the results of the preliminary PubMed search strategy (Supplementary File 3).

To augment our review, we will examine the bibliographies of the included full-text articles and carry out citation searches via Google Scholar to unearth more relevant articles (Eyers 1998). We will verify the citations of the included publications until no further pertinent papers are identified (Hinde and Spackman 2015). We will not constrain the search by any specific date or database-specific filters.

Eligibility screening

This review will consider quantitative and qualitative studies to explore cancer palliative care development in LMIC and LIC comprehensively. Our selection process will encompass countries classified by the World Bank as low-income (26 countries), lower-income (54 countries), and upper-middle-income (54 countries)

Table 1. Review eligibility criteria

	Inclusion criteria	Exclusion criteria
Setting	Studies conducted in LMIC and LIC countries according to the World Bank (2024) criteria. This includes studies where not all of the population resides within an LMIC or LIC but where data on these countries can be disaggregated for analysis.	Studies conducted in high-income countries or high-resource countries
Population	People with cancer who are receiving palliative care or are identified to have palliative care needs. It includes studies where not all the population have cancer or palliative care needs but where data on those with cancer and palliative care needs can be disaggregated for analysis.	Studies that only focus on those with conditions other than cancer or that focus on the development of cancer services do not have an identified palliative care element.
Intervention	The development of palliative care services across various settings and members of the multi-professional palliative care team	Studies focus on providing palliative care by family or informal, unpaid carers.
Outcomes	The outcome encompasses any pertinent information or data that eased the human suffering of cancer patients, extending beyond the specific examples provided below. Data on aspects related to cancer palliative care development to alleviate human suffering. Dimension and indicators of palliative care development. Components of cancer and palliative care integration.	
Study and Publication type	Peer-reviewed research publications in English. Qualitative, quantitative, or mixed-method study designs	Non-empirical studies, including commentaries, editorials, viewpoints, conference proceedings, review articles, policy documents and guidelines, etc.

(The World Bank Country and Lending Groups 2024). While we will not exclude literature based on quality or study type, we will thoughtfully evaluate each factor when analyzing evidence. Due to restrictions in time and language translation resources, we will only incorporate research published in English. The review eligibility criteria are provided in Table 1.

After database search, the citations from will be imported to Rayyan for deduplication and screening. Once the duplicates are removed, 2 independent reviewers (SA and MM) will review the titles and abstracts of the citations against the predefined eligibility criteria set provided in Table 1.

Relevant citations will be obtained in full text after the title and abstract screening stage. Any disagreements between the reviewers at each stage of the selection process will be discussed between the reviewers, and the third reviewer (NS) will be consulted if necessary. A PRISMA flow chart 2020 (Page et al. 2021) will be presented to show the database search and screening results and the reasons for exclusions during the full-text screening stage.

Indexing and charting

Data extraction

We will create and test a data extraction form to ensure it aligns with our review objectives and captures the required information. If necessary, changes to the form will be made during the pilot extraction process before the final data extraction. We will also try to contact the authors of the primary studies to obtain any crucial missing data. A preliminary data extraction form is included in Supplementary File 4.

The data collection form will encompass specific data items on

- Study characteristics: authors, year of publication, aims and objectives, country, and setting.
- Methodological attributes: study design, sampling, sample, population and eligibility criteria, timeframe, tools used, data analysis methods

- Findings: Besides analyzing population demographics and cancer types, we will extract data on two frameworks utilized in this synthesis: the World Health Organisation's conceptual model for palliative care development (World Health Organization 2021) and Integrated palliative care-oncology practice (Kaasa et al. 2018). We will also gather specific information on outcomes related to the alleviation of suffering through palliative care development, including models of care, service delivery, access, programs, capacity, policies, standards, medication availability, education, research, barriers, facilitators, patient outcomes, limitations, conclusions, and funding.

The development of cancer palliative care services encompasses providing infrastructure to support outpatient, inpatient, home-based, and tele-palliative care (World Health Organization 2021). Additionally, it involves the availability of a trained workforce, including primary care physicians trained in primary palliative care and multidisciplinary specialized palliative care teams comprised of physicians, nurses, social workers, spiritual healers, and paramedics (World Health Organization 2021).

Integrated cancer palliative care involves integrating palliative care into a multidisciplinary oncology team, creating clinical care pathways, initiating symptom management simultaneously with cancer care, promoting collaborative care between the oncology and palliative care teams, and involving patients in goals of care discussion and advance care planning (Kaasa et al. 2018).

Medication availability encompasses access to essential medicines across all health systems, with particular emphasis on the use of opioids for the management of pain and other symptoms (World Health Organization 2021). It includes the WHO list of essential medicines like non-opioids, opioid analgesics, and other drugs for symptom management (World Health Organization 2021).

Policy support refers to policies related to palliative care and standardized operating guidelines for providing such care (World Health Organization 2021). It includes regulatory documents that

outline the procurement, dispensation, distribution, and administration of opioids in the context of palliative care (World Health Organization 2021). Additionally, it encompasses national health plans that incorporate palliative care as a routine clinical service and funding sources to facilitate the development of palliative care services (World Health Organization 2021).

We will extract findings on palliative care education and research, encompassing the availability of educators and education programs for both generalist and specialist providers and integrating palliative care training in undergraduate and postgraduate curricula (World Health Organization 2021). Additionally, we will gather data on palliative care research, study collaborations, and funding opportunities (World Health Organization 2021).

Mapping and interpretation

Quality appraisal

The quality appraisal will be conducted using Hawker's tool for all study designs (Hawker *et al.* 2002). Studies will not be excluded based on their scores but will be considered when incorporating them into the synthesis.

Data synthesis

Our review methodology will use the best-fit approach (Carroll *et al.* 2011), differentiating it from other framework synthesis methods (Carroll *et al.* 2013). We selected the 2 most appropriate frameworks for our review (Carroll *et al.* 2011, 2013). These frameworks include the WHO model of components and indicators for palliative care development (World Health Organization 2021) and integration elements between oncology and palliative care (Kaasa *et al.* 2018). Using framework synthesis, we will effectively organize our review findings under *a priori* themes and synthesize the findings considering the regional variations based on low income countries, LMICs and upper middle-income countries. The review findings will be described narratively using descriptive statistics.

This review will utilize the WHO's conceptual model for palliative care development (World Health Organization 2021) as the first framework. The rationale for integrating palliative care into a country's healthcare system is its ability to alleviate health-related severe suffering (Arias-Casais *et al.* 2021). The WHO's model comprises 6 dimensions: integrated palliative care services, health policies, essential medicine usage, education and training, empowerment of individuals and communities, and research (World Health Organization 2021). Additionally, it includes a set of 18 indicators deemed essential to the development of palliative care (World Health Organization 2021). By comparing the data from this review to the model, we can assess the progress in palliative care development and identify gaps and challenges in its provision in LMICs. Furthermore, we will identify aspects of palliative care development outside the WHO framework, which may necessitate future policy changes, amendments in palliative care provision, and resource allocation.

The second framework will include the integrated palliative care-oncology practice model, which encompasses both clinical structural and clinical process domains (Kaasa *et al.* 2018). There is widespread agreement that integrating palliative care into the multidisciplinary oncology team can significantly improve the quality of life for patients and their families while easing the transition through oncological treatment (Kaasa *et al.* 2018). This framework provides a valuable tool for evaluating the level and extent of palliative care integration at both the hospital and community

levels and for assessing the degree to which palliative care is incorporated into routine clinical care (Kaasa *et al.* 2018). It includes early referrals with clearly defined clinical pathways for integration, routine symptom screening, collaborative care, participation in tumor board meetings, and discussions surrounding prognostication and advance care planning with clear goals of care (Kaasa *et al.* 2018). As we analyze the literature, we will draw on data related to physical symptom distress, psychosocial and spiritual concerns, quality of life, and end-of-life care to expand upon this framework. Additionally, it will enable us to identify factors that may facilitate or impede the integration of palliative care.

Themes, subthemes, and patterns generated from the data during the analysis will be interpreted using the WHO's conceptual model for palliative care development (World Health Organization 2021) and the integrated palliative care-oncology practice model (Kaasa *et al.* 2018). Any new knowledge generated from the literature will serve as a modification to these frameworks (Barnett-Page and Thomas 2009).

Quality assurance of the review

A priori protocol is developed to remove any ambiguity and bias. Multiple databases will be searched to identify the most relevant literature about the review question. Two authors will independently be involved in screening, data extraction and assessing the quality of the papers, resolving any disagreements or queries through discussion (Brunton *et al.* 2020). Two reviewers (NS and SA) will perform coding and synthesize according to the 2 selected frameworks and randomly cross-check 10% of allotted studies (Kaasa *et al.* 2018; World Health Organization 2021). Both reviewers will then interpret the relationships through an iterative process until consensus. The reporting of this systematic review with framework synthesis will be done using enhancing transparency in reporting the synthesis of qualitative research (ENTREQ) (Tong *et al.* 2012).

Discussion

There is a steady rise in the burden of chronic, life-threatening illnesses in LMICs Field (Abu-Odah *et al.* 2020; Camp (Abu-Odah *et al.* 2020; Campling *et al.* 2022; Donkor *et al.* 2018; Singh and Harding 2015). Additionally, there needs to be more evidence in this setting on palliative care intervention models, their outcomes, and how they inform policies. Initiating and sustaining palliative care is a significant challenge due to various factors like personal and professional disposition, healthcare system-related challenges, insufficient knowledge about palliative care among healthcare professionals and the lack of public awareness about its benefits (Abu-Odah *et al.* 2020; Atreya *et al.* 2022; Campling *et al.* 2022; Donkor *et al.* 2018; Downing *et al.* 2018; Laabar *et al.* 2021; Lane *et al.* 2019; Namisango *et al.* 2021; Singh and Harding 2015).

LMICs are disadvantaged by a lack of specialized palliative care services, limited access to essential medications for symptom control, funding limitations, and other challenges (Gautam and Adhikari 2021; Kamal *et al.* 2015; Kebudi *et al.* 2021; Kenneson *et al.* 2023; Namisango *et al.* 2021). While opioids are recognized as a crucial aspect of palliative care (Clark *et al.* 2023; Csete *et al.* 2016), access to these medications is often limited in these regions due to cultural barriers (Berterame *et al.* 2016; Clark *et al.* 2023; Cleary *et al.* 2013; Jayawardana *et al.* 2021; Vranken *et al.* 2020), insufficient training and awareness among healthcare professionals (Berterame *et al.* 2016; Clark *et al.* 2023; Cleary *et al.* 2013; Jayawardana *et al.* 2021; Vranken *et al.* 2020), and concerns

regarding dependence and diversion (Clark et al. 2023; Csete et al. 2016).

Currently, limited information is available regarding the effectiveness of regional palliative care models on a national level and their impact on neighboring regions (Dongre et al. 2012; Harding et al. 2010, 2013; Kumar 2007; Palumbo et al. 2023; Potts et al. 2018; Selman et al. 2011; Thayyil and Cherumanalil 2012; Xu et al. 2019). Additionally, social determinants of health, including social security, financial limitations, malnutrition, and access to basic services, notably affect healthcare-seeking behaviors and, consequently, access to palliative care (Dressel et al. 2020; Mkandawire-Valhmu et al. 2020).

This review will gather and synthesize empirical data on the development of cancer palliative care in LMICs. The findings will provide evidence on how the current palliative care provision addresses health-related suffering resulting from the human crisis of cancer. It will address the gaps in provision, solutions derived at the regional level to address it, and the best practices and failed models with reasons underpinning them.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/S1478951524001214>.

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References

- Abdel-Wahab M, Fidarova E and Polo A (2017) Global access to radiotherapy in low- and middle-income countries. *Clinical Oncology (Royal College of Radiologists (Great Britain))* **29**(2), 99–104. doi:10.1016/j.clon.2016.12.004
- Abu-Odah H, Molassiotis A and Liu J (2020) Challenges on the provision of palliative care for patients with cancer in low- and middle-income countries: A systematic review of reviews. *BMC Palliative Care* **19**(1), 55. doi:10.1186/s12904-020-00558-5
- Arbyn M, Weiderpass E, Bruni L, et al. (2020) Estimates of incidence and mortality of cervical cancer in 2018: A worldwide analysis. *The Lancet Global Health* **8**(2), e191–e203. doi:10.1016/S2214-109X(19)30482-6
- Arias-Casais N, Garralda E, Sánchez-Cárdenas MA, et al. (2021) Evaluating the integration of palliative care in national health systems: An indicator rating process with EAPC task force members to measure advanced palliative care development. *BMC Palliative Care* **20**(1), 36. doi:10.1186/s12904-021-00728-z
- Atreya S, Datta SS and Salins N (2022) Views of general practitioners on end-of-life care learning preferences: A systematic review. *BMC Palliative Care* **21**(1), 162. doi:10.1186/s12904-022-01053-9
- Barnett-Page E and Thomas J (2009) Methods for the synthesis of qualitative research: A critical review. *BMC Medical Research Methodology* **9**, 59. doi:10.1186/1471-2288-9-59
- Berterame S, Erthal J, Thomas J, et al. (2016) Use of and barriers to access to opioid analgesics: A worldwide, regional, and national study. *Lancet (London, England)* **387**(10028), 1644–1656. doi:10.1016/S0140-6736(16)00161-6
- Bramer WM, de Jonge GB, Rethlefsen ML, et al. (2018) A systematic approach to searching: An efficient and complete method to develop literature searches. *Journal of the Medical Library Association: JMLA* **106**(4), 531–541. doi:10.5195/jmla.2018.283
- Brunton G, Oliver S and Thomas J (2020) Innovations in framework synthesis as a systematic review method. *Research Synthesis Methods* **11**(3), 316–330. doi:10.1002/jrsm.1399
- Burnham JF (2006) Scopus database: A review. *Biomedical Digital Libraries* **3**, 1. doi:10.1186/1742-5581-3-1
- Cabanes A, Taylor C, Malburg C, et al. (2022) Supportive care interventions for cancer patients in low- and middle-income countries (LMICs): A scoping review. *Supportive Care in Cancer: Official Journal of the Multinational Association of Supportive Care in Cancer* **30**(11), 9483–9496. doi:10.1007/s00520-022-07319-5
- Campling N, Birtwistle J, Richardson A, et al. (2022) Access to palliative care medicines in the community: An evaluation of practice and costs using case studies of service models in England. *International Journal of Nursing Studies* **132**, 104275. doi:10.1016/j.ijnurstu.2022.104275
- Carroll C, Booth A and Cooper K (2011) A worked example of “best fit” framework synthesis: A systematic review of views concerning the taking of some potential chemopreventive agents. *BMC Medical Research Methodology* **11**, 29. doi:10.1186/1471-2288-11-29
- Carroll C, Booth A, Leaviss J, et al. (2013) “Best fit” framework synthesis: Refining the method. *BMC Medical Research Methodology* **13**, 37. doi:10.1186/1471-2288-13-37
- Caruso Brown AE, Howard SC, Baker JN, et al. (2014) Reported availability and gaps of pediatric palliative care in low- and middle-income countries: A systematic review of published data. *Journal of Palliative Medicine* **17**(12), 1369–1383. doi:10.1089/jpm.2014.0095
- Clark J, Salins N, Daniel S, et al. (2023) Views and experiences of opioid access amongst palliative care providers and public representatives in a low-resource setting: A qualitative interview study. *PLOS Global Public Health* **3**(9), e0002401. doi:10.1371/journal.pgph.0002401
- Cleary J, Simha N, Panieri A, et al. (2013) Formulary availability and regulatory barriers to accessibility of opioids for cancer pain in India: A report from the Global Opioid Policy Initiative (GOPI). *Annals of Oncology: Official Journal of the European Society for Medical Oncology* **24**(Suppl 11), xi33–40. doi:10.1093/annonc/mdt501
- Connor SR, Centeno C, Garralda E, et al. (2021) Estimating the number of patients receiving specialized palliative care globally in 2017. *Journal of Pain and Symptom Management* **61**(4), 812–816. doi:10.1016/j.jpainsymman.2020.09.036
- Csete J, Kamarulzaman A, Kazatchkine M, et al. (2016) Public health and international drug policy. *Lancet (London, England)* **387**(10026), 1427–1480. doi:10.1016/S0140-6736(16)00619-X
- Desrosiers T, Cupido C, Pitout E, et al. (2014) A hospital-based palliative care service for patients with advanced organ failure in sub-Saharan Africa reduces admissions and increases home death rates. *Journal of Pain and Symptom Management* **47**(4), 786–792. doi:10.1016/j.jpainsymman.2013.05.021
- Devi BCR, Tang TS and Corbex M (2008) Setting up home-based palliative care in countries with limited resources: A model from Sarawak, Malaysia. *Annals of Oncology: Official Journal of the European Society for Medical Oncology* **19**(12), 2061–2066. doi:10.1093/annonc/mdn422
- Dongre AR, Rajendran KP, Kumar S, et al. (2012) The effect of community-managed palliative care program on quality of life in the elderly in rural Tamil Nadu, India. *Indian Journal of Palliative Care* **18**(3), 219–225. doi:10.4103/0973-1075.105694
- Donkin A, Goldblatt P, Allen J, et al. (2018) Global action on the social determinants of health. *BMJ Global Health* **3**(Suppl 1), e000603. doi:10.1136/bmjgh-2017-000603

- Donkor A, Luckett T, Aranda S, et al.** (2018) Barriers and facilitators to implementation of cancer treatment and palliative care strategies in low- and middle-income countries: Systematic review. *International Journal of Public Health* **63**(9), 1047–1057. doi:10.1007/s00038-018-1142-2
- Downing J, Boucher S, Daniels A, et al.** (2018) Paediatric palliative care in resource-poor countries. *Children (Basel, Switzerland)* **5**(2), 27. doi:10.3390/children5020027
- Dressel A, Mkandawire E, Gondwe KW, et al.** (2020) The intersection of food insecurity and health for rural Malawian women at the end of life. *International Journal of Palliative Nursing* **26**(7), 372–382. doi:10.12968/ijpn.2020.26.7.372
- Eyers JE** (1998) Searching bibliographic databases effectively. *Health Policy & Planning* **13**(3), 339–342. doi:10.1093/heapol/13.3.339
- Fadhil I, Lyons G and Payne S** (2017) Barriers and opportunities for palliative care development in the Eastern Mediterranean Region. *The Lancet Oncology* **18**(3), e176–e184. doi:10.1016/S1470-2045(17)30101-8
- Farmer P, Frenk J, Knaul FM, et al.** (2010) Expansion of cancer care and control in countries of low and middle income: A call to action. *Lancet (London, England)* **376**(9747), 1186–1193. doi:10.1016/S0140-6736(10)61152-X
- Foreman KJ, Marquez N, Dolgert A, et al.** (2018) Forecasting life expectancy, years of life lost, and all-cause and cause-specific mortality for 250 causes of death: Reference and alternative scenarios for 2016–40 for 195 countries and territories. *Lancet (London, England)* **392**(10159), 2052–2090. doi:10.1016/S0140-6736(18)31694-5
- Gautam D and Adhikari S** (2021) Palliative care services for cancer patients in Nepal, a lower-middle-income country. *Palliative Care and Social Practice* **15**, 26323524211021104. doi:10.1177/26323524211021105
- Hannon B, Zimmermann C, Knaul FM, et al.** (2016) Provision of palliative care in low- and middle-income countries: Overcoming obstacles for effective treatment delivery. *Journal of Clinical Oncology* **34**(1), 62–68. doi:10.1200/JCO.2015.62.1615
- Harding R, Selman L, Agupio G, et al.** (2010) Validation of a core outcome measure for palliative care in Africa: The APCA African Palliative Outcome Scale. *Health and Quality of Life Outcomes* **8**, 10. doi:10.1186/1477-7525-8-10
- Harding R, Selman L, Powell RA, et al.** (2013) Research into palliative care in sub-Saharan Africa. *The Lancet Oncology* **14**(4), e183–188. doi:10.1016/S1470-2045(12)70396-0
- Hawker S, Payne S, Kerr C, et al.** (2002) Appraising the evidence: Reviewing disparate data systematically. *Qualitative Health Research* **12**(9), 1284–1299. doi:10.1177/1049732302238251
- Hinde S and Spackman E** (2015) Bidirectional citation searching to completion: An exploration of literature searching methods. *Pharmacoeconomics* **33**(1), 5–11. doi:10.1007/s40273-014-0205-3
- Hongoro C and Dinat N** (2011) A cost analysis of a hospital-based palliative care outreach program: Implications for expanding public sector palliative care in South Africa. *Journal of Pain and Symptom Management* **41**(6), 1015–1024. doi:10.1016/j.jpainsymman.2010.08.014
- Jayawardana S, Forman R, Johnston-Webber C, et al.** (2021) Global consumption of prescription opioid analgesics between 2009–2019: A country-level observational study. *EClinicalMedicine* **42**, 101198. doi:10.1016/j.eclinm.2021.101198
- Kaasa S, Loge JH, Aapro M, et al.** (2018) Integration of oncology and palliative care: A lancet oncology commission. *The Lancet Oncology* **19**(11), e588–e653. doi:10.1016/S1470-2045(18)30415-7
- Kamal AH, Maguire JM and Meier DE** (2015) Evolving the palliative care workforce to provide responsive, serious illness care. *Annals of Internal Medicine* **163**(8), 637–638. doi:10.7326/M15-0071
- Kebudi R, Cakir FB and Silbermann M** (2021) Palliative care in high and low resource countries. *Current Pediatric Reviews* **17**(3), 220–224. doi:10.2174/1573396317666210405143649
- Kenneson SA, Hughes-Visentin A, Wrigley J, et al.** (2023) Pediatric palliative care program implementation in LMICs: A systematic review using SWOT analysis. *Journal of Pain and Symptom Management* **66**(4), 338–350.e11. doi:10.1016/j.jpainsymman.2023.06.032
- Kocarnik JM, Compton K, Dean FE, et al.** (2022) Cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life years for 29 cancer groups from 2010 to 2019. *JAMA Oncology* **8**(3), 420–444. doi:10.1001/jamaoncol.2021.6987
- Kumar SK** (2007) Kerala, India: A regional community-based palliative care model. *Journal of Pain and Symptom Management* **33**(5), 623–627. doi:10.1016/j.jpainsymman.2007.02.005
- Laabar TD, Saunders C, Auret K, et al.** (2021) Palliative care needs among patients with advanced illnesses in Bhutan. *BMC Palliative Care* **20**(1), 8. doi:10.1186/s12904-020-00697-9
- Lane T, Ramadurai D and Simonetti J** (2019) Public awareness and perceptions of palliative and comfort care. *The American Journal of Medicine* **132**(2), 129–131. doi:10.1016/j.amjmed.2018.07.032
- Lucey M, McQuillan R, MacCallion A, et al.** (2008) Access to medications in the community by patients in a palliative setting. A systems analysis. *Palliative Medicine* **22**(2), 185–189. doi:10.1177/0269216307085722
- Ly L, Pascoe A, Philip J, et al.** (2023) Social determinants of advanced chronic respiratory interventions: A scoping review. *European Respiratory Review: An Official Journal of the European Respiratory Society* **32**(169), 230068. doi:10.1183/16000617.0068-2023
- May P, Normand C, Cassel JB, et al.** (2018) Economics of palliative care for hospitalized adults with serious illness: A meta-analysis. *JAMA Internal Medicine* **178**(6), 820–829. doi:10.1001/jamainternmed.2018.0750
- Meara JG, Leather AJM, Hagander L, et al.** (2015) Global Surgery 2030: Evidence and solutions for achieving health, welfare, and economic development. *Lancet (London, England)* **386**(9993), 569–624. doi:10.1016/S0140-6736(15)60160-X
- Mkandawire-Valhmu L, Kendall N, Dressel A, et al.** (2020) Women's work at end of life: The intersecting gendered vulnerabilities of patients and caregivers in rural Malawi. *Global Public Health* **15**(7), 1062–1072. doi:10.1080/17441692.2020.1730930
- Mosoiu D, Dumitrescu M and Connor SR** (2014) Developing a costing framework for palliative care services. *Journal of Pain and Symptom Management* **48**(4), 719–729. doi:10.1016/j.jpainsymman.2013.11.017
- Nambiar AR, Rana S and Rajagopal MR** (2021) Serious health-related suffering and palliative care in South Asian countries. *Current Opinion in Supportive and Palliative Care* **15**(3), 169–173. doi:10.1097/SPC.0000000000000565
- Namisango E, Ramsey L, Dandadzi A, et al.** (2021) Data and information needs of policymakers for palliative cancer care: A multi-country qualitative study. *BMC Medical Informatics and Decision Making* **21**(1), 189. doi:10.1186/s12911-021-01555-1
- Obermeyer Z, Makar M, Abujaber S, et al.** (2014) Association between the Medicare hospice benefit and health care utilization and costs for patients with poor-prognosis cancer. *JAMA* **312**(18), 1888–1896. doi:10.1001/jama.2014.14950
- Page MJ, McKenzie JE, Bossuyt PM, et al.** (2021) The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ (Clinical Research Ed.)* **372**, n71. doi:10.1136/bmj.n71
- Palumbo N, Tilly A, Namisango E, et al.** (2023) Palliative care in Malawi: A scoping review. *BMC Palliative Care* **22**(1), 146. doi:10.1186/s12904-023-01264-8
- Potts M, Cartmell KB, Nemeth L, et al.** (2018) A systematic review of palliative care intervention outcomes and outcome measures in low-resource countries. *Journal of Pain and Symptom Management* **55**(5), 1382–1397.e7. doi:10.1016/j.jpainsymman.2017.12.487
- Pramesh CS, Badwe RA, Borthakur BB, et al.** (2014) Delivery of affordable and equitable cancer care in India. *The Lancet Oncology* **15**(6), e223–233. doi:10.1016/S1470-2045(14)70117-2
- Ratcliff C, Thyle A, Duomai S, et al.** (2017) Poverty reduction in India through palliative care: A pilot project. *Indian Journal of Palliative Care* **23**(1), 41–45. doi:10.4103/0973-1075.197943
- Reid EA, Kovalerchik O, Jubanyik K, et al.** (2019) Is palliative care cost-effective in low-income and middle-income countries? A mixed-methods systematic review. *BMJ Supportive & Palliative Care* **9**(2), 120–129. doi:10.1136/bmjspcare-2018-001499
- Ritchie J, Lewis J, Lewis P, et al.** (2013) *Qualitative Research Practice: a Guide for Social Science Students and Researchers*. SAGE.

- Rosenberg LB, Brenner KO, Shalev D, *et al.* (2022) To accompany, always: Psychological elements of palliative care for the dying patient. *Journal of Palliative Medicine* 25(4), 537–541. doi:10.1089/jpm.2021.0667
- Selman L, Harding R, Gysels M, *et al.* (2011) The measurement of spirituality in palliative care and the content of tools validated cross-culturally: A systematic review. *Journal of Pain and Symptom Management* 41(4), 728–753. doi:10.1016/j.jpainsymman.2010.06.023
- Shah SC, Kayamba V, Peek RM, *et al.* (2019) Cancer control in low- and middle-income countries: Is it time to consider screening? *Journal of Global Oncology* 5, 1–8. doi:10.1200/JGO.18.00200
- Shamseer L, Moher D, Clarke M, *et al.* (2015) Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: Elaboration and explanation. *BMJ (Clinical Research Ed.)* 350, g7647. doi:10.1136/bmj.g7647
- Singh T and Harding R (2015) Palliative care in South Asia: A systematic review of the evidence for care models, interventions, and outcomes. *BMC Research Notes* 8(1), 172. doi:10.1186/s13104-015-1102-3
- Soerjomataram I and Bray F (2021) Planning for tomorrow: Global cancer incidence and the role of prevention 2020-2070. *Nature Reviews Clinical Oncology* 18(10), 663–672. doi:https://doi.org/10.1038/s41571-021-00514-z
- Sullivan R, Alatise OI, Anderson BO, *et al.* (2015) Global cancer surgery: Delivering safe, affordable, and timely cancer surgery. *The Lancet Oncology* 16(11), 1193–1224. doi:10.1016/S1470-2045(15)00223-5
- Sung H, Ferlay J, Siegel RL, *et al.* (2021) Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *Ca A Cancer Journal for Clinicians* 71(3), 209–249. doi:10.3322/caac.21660
- Thayyil J and Cherumanalil JM (2012) Assessment of status of patients receiving palliative home care and services provided in a rural area-Kerala, India. *Indian Journal of Palliative Care* 18(3), 213–218. doi:10.4103/0973-1075.105693
- Tong A, Flemming K, McInnes E, *et al.* (2012) Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Medical Research Methodology* 12, 181. doi:10.1186/1471-2288-12-181
- Vanderpuye V, Grover S, Hammad N, *et al.* (2017) An update on the management of breast cancer in Africa. *Infectious Agents and Cancer* 12, 13. doi:10.1186/s13027-017-0124-y
- Vernon E, Hughes MC and Kowalczyk M (2022) Measuring effectiveness in community-based palliative care programs: A systematic review. *Social Science & Medicine* 296, 114731. doi:10.1016/j.socscimed.2022.114731
- Vranken MJ, Linge-Dahl L, Mantel-Teeuwisse AK, *et al.* (2020) The perception of barriers concerning opioid medicines: A survey examining differences between policy makers, healthcare professionals and other stakeholders. *Palliative Medicine* 34(4), 493–503. doi:10.1177/0269216319894190
- Wirtz VJ, Hogerzeil HV, Gray AL, *et al.* (2017) Essential medicines for universal health coverage. *Lancet (London, England)* 389(10067), 403–476. doi:10.1016/S0140-6736(16)31599-9
- World Bank Country and Lending Groups – World Bank Data Help Desk (2024) *Country Classification*. <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups> (accessed 4 February 2024).
- World Health Organization (2018) Integrating palliative care and symptom relief into primary health care: A WHO guide for planners, implementers and managers, Geneva: World Health Organization. <https://apps.who.int/iris/handle/10665/274559> (accessed 3 March 2024).
- World Health Organization (2021) Assessing the development of palliative care worldwide: A set of actionable indicators. <https://apps.who.int/iris/bitstream/handle/10665/345532/9789240033351-eng.pdf> (accessed 3 March 2024).
- World Health Organization (2023) *Integrating the Social Determinants of Health into Health Workforce Education and Training*.
- Xu MJ, Su D, Deboer R, *et al.* (2019) Palliative oncologic care curricula for providers in resource-limited and underserved communities: A systematic review. *Journal of Cancer Education: The Official Journal of the American Association for Cancer Education* 34(2), 205–215. doi:10.1007/s13187-017-1310-8
- Yeager A, LaVigne AW, Rajvanshi A, *et al.* (2016) CanSupport: A model for home-based palliative care delivery in India. *Annals of Palliative Medicine* 5(3), 166–171. doi:10.21037/apm.2016.05.04