Review Article | Public Health in Palliative Medicine and Palliative Care

Perinatal palliative care in low- and middle-income countries: a scoping review

Sharla Rent[1,2]^, Daniela Titchiner[3,4], Erin Rholl[5], Allison Lyle[6], Ellen Diego[7], Krysten North[8], Sahar Rahiem[9], Avery Garmon[1], Raziya Gaffur[10], Aisa Shayo[10,11], Ana Lucia Diez Recinos[12,13], Monica Lemmon[1,14], Sharron L. Docherty[15]

[1]Department of Pediatrics, Duke University School of Medicine, Durham, NC, USA; [2]Duke Global Health Institute, Durham, NC, USA; [3]Atrium Health Levine Children's Hospital, Charlotte, NC, USA; [4]Department of Pediatrics, Wake Forest University School of Medicine, Charlotte, NC, USA; [5]Department of Pediatrics, Medical College of Wisconsin, Milwaukee, WI, USA; [6]Department of Pediatrics, University of Louisville School of Medicine Norton Children's Medical Group, Louisville, KY, USA; [7]Department of Pediatrics, University of Minnesota, Minneapolis, MN, USA; [8]Department of Pediatrics, Brigham and Women's Hospital, Harvard University, Boston, MA, USA; [9]Department of Pediatrics, University of Washington, Seattle, WA, USA; [10]Kilimanjaro Christian Medical Center, Moshi, Tanzania; [11]Kilimanjaro Christian Medical University College, Moshi, Tanzania; [12]Hospital Herrera Llerandi, Guatemala City, Guatemala; [13]Universidad Francisco Marroquin, Guatemala City, Guatemala; [14]Department of Population Health Sciences, Duke University, Durham, NC, USA; [15]School of Nursing, Duke University, Durham, NC, USA

Contributions: (I) Conception and design: S Rent, D Titchiner, SL Docherty; (II) Administrative support: None; (III) Provision of study materials or patients: None; (IV) Collection and assembly of data: S Rent, D Titchiner; (V) Data analysis and interpretation: All authors; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

Correspondence to: Sharla Rent, MD, MScGH. Department of Pediatrics, Duke University School of Medicine, 2400 Pratt Street, 8th Floor, Durham, NC 27705, USA; Duke Global Health Institute, Durham, NC, USA. Email: Sharla.Rent@duke.edu.

Background: 2.4 million neonatal deaths and 2.6 million stillbirths occur each year. Over 98% of perinatal loss occurs in low- and middle-income countries. Despite the global burden of perinatal loss, access to relevant perinatal palliative and psychosocial care is poor and understudied.

Methods: In this review, we synthesize perinatal palliative care literature from low- and middle-income countries. We focus on the clinical practice of perinatal palliative care and educational models being used in resource-constrained settings. We used a systematic scoping review approach, following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) checklist. The PubMed, Scopus, Embase, Cochrane, CINAHL, and Global Health (embsco) databases were searched. There were no date or language restrictions placed during the search. Study selection was conducted using Covidence to facilitate a staged review process.

Results: A total of 10,145 articles remained after removing duplicate studies. Following the three-staged review, 81 studies were included in our analysis. The largest portion of published perinatal palliative care literature focused on clinical care (n=44). Nine studies focused on provider training in perinatal palliative care and 28 studies addressed parent or family experience. Of the included studies, 84.9% had a first or last author from a low- or middle-income country and 91.8% included an author from the country of focus in the manuscript. The findings presented in this scoping review reveal that healthcare workers and families desire improved guidelines about perinatal palliative care that reflect the realities of local culture and resources. Additionally, providers need enhanced training in perinatal palliative care techniques and management approaches that can be applied in a range of clinical settings.

Conclusions: Global perinatal palliative care strategies must encompass compassionate communication with families, psychosocial support after stillbirth or neonatal death, and emotional and mental health support for healthcare workers who provide perinatal palliative care.

^ ORCID: 0000-0002-8577-478X.

Keywords: Perinatal; neonatal; palliative care; global health

Submitted May 29, 2024. Accepted for publication Aug 29, 2024. Published online Nov 18, 2024.
doi: 10.21037/apm-24-87
View this article at: https://dx.doi.org/10.21037/apm-24-87

Introduction

Every year there are approximately 2.4 million neonatal deaths (1) and 2.6 million stillbirths around the world (2). Over 98% of this perinatal loss occurs in low- and middle-income countries (2). Perinatal loss, which consists of both neonatal mortality and stillbirth, is an important global and regional marker of population health. Neonatal mortality rates measure deaths of liveborn infants before 28 days of life while stillbirth rates capture fetal loss prior to delivery. Professional pediatric organizations suggest that the term "perinatal loss" should include neonatal deaths that occur at less than 28 days of age and fetal deaths at a gestational age of 20 weeks or more (3). In some settings, including many low- and middle-income countries, this definition is restricted to gestational ages 28 weeks or higher (4). In this paper, we retain the wider definition of "perinatal loss" to include gestational ages at or above 20 weeks. We also emphasize that neonatal death can occur anytime in the first 28 days of life, and that many of the infants who pass away during this time period have clinical needs, such as relief from pain and agitation, that are encompassed in perinatal palliative care yet are distinct from end-of-life care. Globally, the burden of stillbirth and neonatal death persists despite dramatic improvement in mortality for young children in recent decades. Neonatal mortality now comprises nearly half of all deaths under age 5 years (5). The importance of stillbirth as a form of perinatal loss has been recognized in leading public health journals for over a decade. For example, a 2011 series in the *Lancet* characterized stillbirth as one of the "most shamefully neglected areas of public health" (6) and called for increased investment in stillbirth research (7). Despite the rising predominance of child loss before birth and during the first month of life, especially in low- and middle-income countries, access to relevant perinatal palliative and psychosocial care is poor and understudied (8,9). Perinatal palliative care is a care model that supports families experiencing a life-limiting diagnosis for their fetus or newborn, or families who have suffered perinatal loss. Unfortunately, literature on supporting families following perinatal loss is concentrated within an Anglo-centric cultural context (10-13), in stark contrast to the communities in which most perinatal loss occurs. There exists an urgent need to better characterize the current state of global perinatal palliative practice, education, and research. Improved characterization of current perinatal palliative care practices will have the power to inform targeted palliative care interventions and address barriers to needed psychosocial support after perinatal loss in low- and middle-income countries and other resource-limited settings.

As a broader discipline, palliative care has gained increasing prominence, especially since the 1960's when publications highlighted how end-of-life issues for seriously ill patients were not being met with traditional practices (14).

Highlight box

Key findings

- Published studies on perinatal palliative were found from 2 low, 44 lower-middle, and 29 upper-middle income countries/regions. Findings from provider- and patient-focused papers reveal a need for better training in communication, bedside provision of palliative care, and the creation of national guidelines reflective of local culture and resources.

What is known and what is new?

- We know that over 98% of the six million perinatal loss cases each year occur in low and middle-income countries. Perinatal palliative care is a care model that supports families experiencing a life-limiting diagnosis for their fetus or newborn, or families who have suffered perinatal loss. This paper identifies key facilitators and barriers to providing perinatal palliative care in low and middle-income settings.

What is the implication, and what should change?

- National policies that are actively maintained and updated to reflect best practice guidelines are needed to guide the delivery of perinatal palliative care. Facility-level adaptation of guidelines based on site-specific resources and needs can aid in local integration. Such strategies must encompass compassionate communication with families, psychosocial support after stillbirth or neonatal death, and support for clinicians who work in palliative care.

On the global stage, the World Health Organization (WHO) recently identified palliative care as a public health priority, stating that "Palliative Care is explicitly recognized under the human right to health" (15). This energy has carried over to work addressing pediatric palliative care, with groups such as the International Palliative Care Network leading efforts to identify priorities within pediatric palliative care (16). Perinatal palliative care is related to pediatric palliative care yet possesses some unique challenges specific to managing fetal and neonatal patients. Similar to pediatric palliative care, perinatal palliative care aims to relieve suffering and improve the quality of life for infants and families facing severe life-limiting conditions. It also strives to address grief and coping amongst families experiencing loss. The first commentary on perinatal palliative care was published in 1997 (17) and has since sparked an ever-expanding literature base focused on this patient population (18-22). Contributions from leaders in perinatal palliative care have elucidated the role of perinatal palliative care antenatally and during birth planning (23,24), in guiding symptom management after birth (24,25), and in supporting families after the loss of their infant (25,26). Perinatal palliative care involves assisting families with managing both the actual loss of the physical fetus or newborn, as well as the loss of an envisioned future with a healthy child (27). Perinatal palliative care should be longitudinal, beginning at the time of diagnosis and proceeding throughout the time course of the disease (28,29).

Despite increased efforts addressing palliative care for children, there remain significant unmet needs in low- and middle-income countries. Data on global pediatric palliative care needs show that 98% of children requiring palliative care live in low-income countries (LICs) and lower-middle-income countries (LMICs) and that this number may be as high as 21 million children (9,30). Despite this burden, almost two-thirds of countries worldwide lack pediatric palliative care services (31). Where pediatric palliative care programs do exist in LICs and LMICs, they are often external to the mainstream health system. Key barriers to global palliative care coverage, as noted by the WHO, include insufficient training on palliative care for health professionals, cultural and social barriers, and misconceptions about the goals and breadth of palliative care services (32). Less is known about perinatal palliative care in LICs and LMICs; A 2023 integrative review of perinatal palliative care programs is emblematic of this research gap, as their search yielded 69 publications all of which were from high-income countries (21). While data on the global need for and models of perinatal palliative care services is scarce, common conditions requiring palliative services include severe prematurity, neonatal encephalopathy, and congenital anomalies (33). While perinatal palliative care extends beyond bereavement care, the heavy burden of perinatal loss in LMICs necessitates a heightened focus on bereavement care as a core component of perinatal palliative care in such resource-limited settings (34). Within the perinatal period, the 24 hours preceding delivery and the 24 hours following delivery represent nearly half of all perinatal losses (35-37). Given this concentrated burden of loss, which occurs during a time period when people expect to welcome a liveborn infant, there are unique psychosocial and palliative care needs that must be considered when caring for infants and bereaved families.

Consensus statements on palliative care recommend that all healthcare providers who care for people with advanced serious illnesses should be competent in basic palliative care skills (38,39). Similarly, high-quality bereavement care should be facilitated by health professionals with comprehensive and continuous education (25,40). These recommendations encompass those providing care during the perinatal period. In the United States, palliative care education is incorporated into the training curriculum of most pediatric and neonatology medical and nursing programs, ensuring that trainees are aware of and familiar with key palliative concepts (41,42). This is not true in most LICs and LMICs, where the burden of serious health-related suffering is the greatest (43). Despite its importance, access to training in palliative care is limited or lacking in most countries, which translates into unmet care needs for bereaved families (44). Similarly, there is a dearth of research exploring best practices in perinatal palliative care in low- and middle-income countries and the context- and culturally specific implementation of palliative care concepts. In this review, we synthesize the perinatal palliative care literature from low- and middle-income countries. We include literature from upper-middle-income countries (UMICs), LMICs, and LICs. We focus on the clinical practice of perinatal palliative care and palliative care educational models being used in these resource-constrained settings. We present this article in accordance with the PRISMA-ScR reporting checklist (45), with appropriate adaptations for the inclusion of a wider range of studies including qualitative research (available at https://apm.amegroups.com/article/view/10.21037/apm-24-87/rc).

Methods

Design

Given the underexplored nature of global perinatal palliative care education and research, we used a systematic scoping review approach (46). This review was guided by the methodologic framework established by Arksey and O'Malley (47) to map relevant literature within our area of interest, and allow our synthesis and analysis of the evidence with conceptual clarity related to the theme of global perinatal palliative care.

Research question

This scoping review aims to answer the following questions: (I) what elements of clinical perinatal palliative care are currently represented in published research from low- and middle-income countries; (II) what is the current state of perinatal palliative care training in low- and middle-income countries; (III) how do parents and families experience hospital-based perinatal palliative care in low- and middle-income countries; and (IV) what gaps in perinatal palliative care training and practice are identified based on a review of published literature.

Identifying relevant studies

The bibliographic search was initially conducted in April 2022 with a second extraction in August 2022 and a final extraction in January 2024 to extend the covered period of published articles through the end of 2022. There were no date restrictions. There were no restrictions placed on language during the initial data search, but analysis was limited to studies published in English. Unpublished literature was not searched.

The following database sources were used: PubMed, Scopus, Embase, Cochrane, CINAHL, and Global Health (embsco). The following keywords were used: "palliation", "palliative", "palliative care", "terminal care", "bereavement", "advanced care planning", "hospice", "end-of-life care", and "grief". In conjunction, a pre-populated list of "developing countries" was used. Lastly the terms "child", "infant", "newborn", "baby", "neonat*", "perinatal", and "pediatric" were used to narrow the search to the perinatal population. When possible, the searches were managed using Medical Subject Headings (MeSH) for information searchers. Please see Appendix 1 for our full search strategy by database. No formal review protocol beyond what is described in the methods of this paper was used.

A pre-defined set of inclusion and exclusion criteria was used. We focused on studies covering the clinical care of pregnant or post-partum women in low- and middle-income countries who experienced stillbirth or death of their child within the neonatal period. Studies covering the training and education of healthcare workers treating this patient population were also included. Studies focused on pediatrics, obstetrics, or palliative care were included to ensure appropriate capture of the perinatal period. Both qualitative and quantitative approaches were included. Case reports and case series were included. Topical review papers and opinion pieces were excluded. We also excluded studies focused on the care of women and newborns in high-income countries, studies covering family support outside the setting of stillbirth or neonatal death, or papers that exclusively addressed the parental experience of loss outside of a healthcare setting. We excluded studies that described palliative care for infants >12 months of age or training for providers focused exclusively on older infants and children. Since not all papers disaggregated infant loss into the neonatal and post-neonatal periods, we initially considered papers that covered infants up to a year of age, with final inclusion or exclusion based on a relevance assessment during abstract or full-text review. If a study included both neonates and older children, it was included as long as a specific discussion around neonatal palliative care needs was present. Lastly, we excluded papers discussing the care of women following the elective termination of a pregnancy.

Definitions

We used a set of core definitions when screening relevant studies.

- Stillbirth: fetal death prior to, or during, delivery at ≥20 weeks gestation and/or weighing ≥500 g.
- Neonatal death: death of a live-born infant at or before 28 days of life.
- Infant death: death of a live-born infant before 1 year of life.
- Low- and middle-income country: based on 2022 World Bank Country and Lending Groups definitions with LIC economies defined as those with a gross national income (GNI) per capita of $1,045 or less in 2020; LMIC economies as those with a GNI per capita between $1,046 and $4,095; UMIC economies as those with a GNI per capita

between $4,096 and $12,695.

- Training: any program focused on the education of healthcare workers. This can include didactic or hands-on training. Training could occur in a hospital or community setting.
- Healthcare worker: physicians, nurses, midwives, physician assistants, nurse practitioners, and any trainees associated with these roles.

Study selection

Study search and selection were conducted using Covidence (48), a web-based collaboration software platform that streamlines the production of systematic, scoping, and other literature reviews by facilitating a team-based approach to article review and organization. All documents were imported into Covidence and then screened for duplicates. Seven individuals (S.R., S.R., A.L., E.D., E.R., A.L.D.R., K.N.) were involved in study selection and data extraction. Three levels of screening took place to identify relevant and appropriate articles. First, a title and abstract screen were performed. Second, a brief full-text review was conducted. The final step was an in-depth full-text review with data extraction. For all three review stages, all remaining studies were screened by two reviewers. If both reviewers agreed on inclusion or exclusion, the article was appropriately classified. At the first two levels of screening, if there was disagreement then a third reviewer broke the tie to include or exclude the paper. At the in-depth review stage, papers for which there was a lack of reviewer consensus on inclusion or exclusion underwent a group discussion to decide on whether to include each paper.

Data collection and analysis

Prior to data extraction, we developed a classification scheme to catalog and organize the identified articles. Each article was classified first into one of three categories: clinical care, education and training, and provider experience. Articles that could be placed in multiple categories were classified into the most appropriate, based on group consensus. During the full-text review stage, an additional category of "parent experience" was added.

A qualitative analysis of the text, focused on aims, perceived gaps, and recommendations for practice change was performed. For each article, the following data were obtained and input into a shared electronic spreadsheet: title, author names, journal, publication year, study design, global region, country/countries, world-bank income status of country/countries, participants, sample size, analysis approach, and funding source. For each study we also documented if pain management was mentioned either for care while in the neonatal intensive care unit (NICU) or at end-of-life. If any question was not relevant or not reported, this observation was noted in the extraction spreadsheet. Lastly, the spreadsheet contained a column where reviewers could note any concerns about bias that may impact our interpretation of the findings presented in the associated article.

Analysis to relate studies to established elements of palliative care

After the completion of the summary tables described above, the seven data extractors met to discuss and categorize key findings and then develop themes. Next, ten core topics for perinatal palliative care were selected, building on the framework presented by Balaguer *et al.* that focused on the development of perinatal palliative care in high income countries (HICs) (19). Each extractor separately rated the included body of literature on how well it addressed these core elements of palliative care. Each topic was classified as "never", "rarely", "moderately" or "highly reported within the body of literature included in the scoping review". Frequency of response by data extractors for each topic was then reported.

Results

An initial 17,463 articles were identified across all searched databases. An additional 19 papers were added from additional sources. A total of 10,145 articles remained after removing duplicate studies. Following the three-staged review of articles, 81 studies were included in our analysis. Please see *Figure 1* for the study selection process.

Characteristics of included studies

The characteristics of our final 81 included studies are shown in *Table 1* (clinical care and the providers' experiences), *Table 2* (education and training), and *Table 3* (mothers' experiences). The largest portion of published perinatal palliative care literature focused on the provision of care in a clinical setting (n=44). Nine studies focused on provider training or education in perinatal palliative care. Lastly, there were 28 that addressed parent or family experience. Five of these papers mentioned both parent and

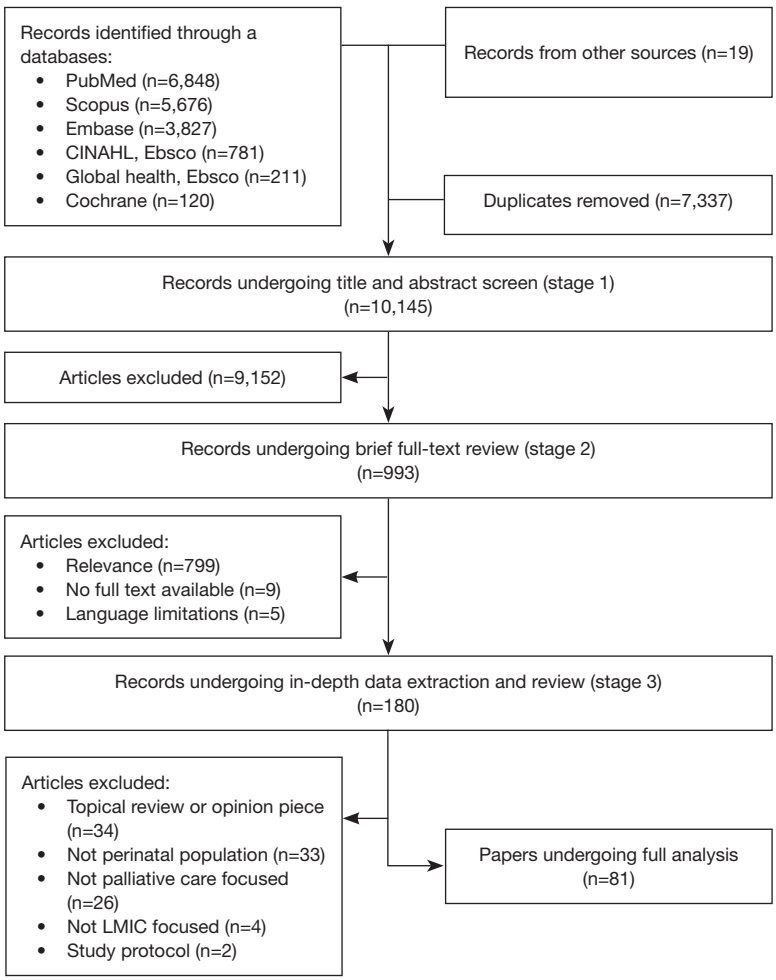

Figure 1 Study flow diagram for data extraction. LMIC, lower-middle-income country.

provider perspectives. Across topics, 17 papers mentioned the need for or use of pharmacologic or non-pharmacologic approaches to pain management within perinatal palliative care. A majority (n=14, 82%) of these studies classified pain and symptom management as a clinical or training gap.

All studies were conducted in low (n=2), lower-middle (n=44), or upper-middle income countries (n=29). In our analysis, mainland China was classified as upper-middle income while Taiwan was classified as high income. For this reason, studies from Taiwan were excluded. The largest numbers of studies came from Asia, with 28 publications coming from this region. The middle east/north Africa region was next at 21 studies. Sub-Saharan Africa had 10 studies within our sample and South America was represented in 8 studies. There were 7 studies from Europe and 2 from North America (*Figure 2*). The top three countries in terms of publications were: India [13], Iran [13], and Brazil [8]. There were 6 that represented a wide range of countries and could not be classified into a singular wealth stratum or region. In line with the broad inclusion of study types, there were 38 quantitative, 28 qualitative, and 15 mixed-methods studies included. The publication count per year was documented through 2022, as this was the final calendar year included in the data extraction. Publication counts rose steadily, increasing from 1–2 per year before 2010 and peaking at 23 publications in 2021 (*Figure 3*). Data from 2022 showed a slight downtrend at 16 publications.

Authorship of included studies

There were 73 studies that could be classified into a singular country or region and had sufficient author information provided to be included in our authorship analysis. Of these, 62 (84.9%) had a first or last author from a UMIC, LMIC,

Table 1 Clinical care and provider perspectives of perinatal palliative care

Author, year	Aims	Location	World bank status	Participants	Sample size	Data collection method	Themes/findings	Recommendations
Abdel Razeq, 2019 (49)	Explore factors predicting neonatal nurses' attitude towards end-of-life decisions in neonates	Jordan	UMIC	NICU nurses	289	Survey	Nurses were in favor of life saving decisions, regardless of the survival odds and the probable health outcomes of the neonates	End-of-life standards should be integrated into clinical practice via policies that are available to all providers. Policies should adapt to the cultural and personal values of providers and families
Abdel Razeq, 2019 (50)	Describe physician views on end-of-life decision making in neonates	Jordan	UMIC	Pediatricians	75	Survey	Most providers support life-saving measures irrespective of prognosis and were against limiting support at end-of-life	There needs to be clear end-of-life focused regulations and a special ethics committee for neonates
Abdel Razeq, 2020 (51)	Examine how clinical decisions are made at the end-of-life for infants born with specific fatal and disabling conditions	Jordan	LMIC	NICU physicians and nurses	288	Survey	Physicians were the primary decision makers in 83% of cases. Decisions were based on the infant's clinical condition. Extreme prematurity and birth asphyxia were common	End-of-life care should be family focused and involve the larger care team
Arias-Casais, 2020 (52)	Conduct a regional assessment of pediatric palliative care development and provision	European countries	Multicountry—NA	In-country pediatric palliative care experts	92	Interview	There is limited neonatal palliative care throughout LMICs in Europe. HICs have devoted more resources to pediatric palliative care, including training and education	Countries need to design national strategies that strengthen the health care level most likely to efficiently respond to national demands for specialized palliative care services
Azzizadeh Forouzi, 2017 (53)	Assess neonatal nurses' attitudes towards end-of-life care in the NICU	Iran	LMIC	NICU nurses	57	Survey	Insufficient resources and a lack of guidelines are key barriers to providing neonatal palliative care	A special environment for end-of-life care, palliative care guidelines, and improved training for nurses would minimize barriers to neonatal palliative care
Banazadeh, 2021 (54)	Describe how healthcare provider behavior influences parent participation in decision making for infants with life-limiting conditions	Iran	LMIC	Parents, nurses, and physicians	19	Interview	Providers expressed a fear of litigation and being held accountable to parents. Participants had concerns about professionalism, professional ethics, and communication skills	Training professionals in family centered care and communication supports parents. Training in ethics and developing guidelines can make professionals more sensitive to ethical aspects of work
Bazmi, 2021 (55)	Understand views of physicians in relation to decisions to save extremely premature infants	Iran	LMIC	Physicians	21	Interview	End-of-life decisions were based on personal experience, uncertainty about the consequences of involving parents, lack of ethics resources, and lack of guidelines	Physicians need specific palliative care resources including guidelines
Bilgen, 2009 (56)	Assess the attitudes and practices of doctors and nurses about end-of-life decisions	Turkey	UMIC	Doctors and nurses attending the National Neonatal Congress	135	Survey	75% believed that everything possible should be done to ensure a neonate's survival regardless of the prognosis. 65.2% agreed that severe mental disability was equal to or worse than death	In patients in whom medical intervention would be futile, hospitals should set up an ethics committee to decide when the team can withhold or withdraw medical interventions
Camilo, 2022 (57)	Describe the experiences of NICU nurses when relaying bad news to families of newborns	Brazil	UMIC	NICU nurses	17	Interview	Nurses viewed themselves as key support for the family but had challenges delivering bad news. Nurses felt like they were involved in the family's suffering	Nurses need better preparation to deal with painful family conversations. NICUs should promote spaces for reflection about neonatal palliative care
Clelland, 2020 (58)	Develop an overview of national development of children's palliative care	Global sample from 113 countries or territories	Multicountry—NA	In country palliative care experts	113	Survey	Countries with the highest level of overall palliative resources were more likely to have children's services. Countries with the highest level of children's palliative services are at high levels of universal health coverage index and high world bank income level	Global advocacy for pediatric palliative care is needed to improve care provision in LMICs
Chong, 2014 (59)	Explore the knowledge and practice of healthcare providers and their barriers to referral for palliative care	Malaysia	UMIC	Hospital-based pediatricians and pediatric nurses	292	Survey	28.8% of responders had basic palliative care knowledge. Of these, 40.5% believed morphine used in palliative care is addictive, 34.9% thought palliative care hastens death. Only 30.1% were confident in providing bereavement support	Focused training and supportive policies are necessary to develop comprehensive and competent pediatric palliative care services in Malaysia
de Castro de Oliveira, 2018 (60)	Explore the palliative care experiences of NICU nurses	Brazil	UMIC	NICU nurses	9	Interview	Nurses experienced intense grief while providing palliative care to neonates. They lacked adequate training and desired better emotional support for providing end-of-life care to neonates	NICU nurses need adequate education and emotional support to ensure quality nursing care for infants and their families
Downing, 2015 (16)	Develop an evidenced base and set of research priorities in global pediatric palliative care	Global	Multicountry—NA	Members of the ICPCN Scientific Committee and affiliated stakeholders	153 in round 1, 95 in round 2	Survey	26 research priority areas were identified. The global need for children's palliative care was ranked 9th and perinatal palliative care was ranked 14th	Collaboration is needed from policy makers, government, and training centers to help achieve research priorities in global children's palliative care
Fadadu, 2019 (61)	Explore pediatric intensivists' attitudes and practices surrounding end-of-life care	Vietnam	LMIC	Providers in tertiary PICUs and NICUs	68	Survey and interview	The financial burden of care on families was important. Varied perceptions on "good death" exist. Providers considered "the family as a whole" when making decisions	Need to strengthen palliative care training, increase family involvement in decision making, implement standardized and official DNR documentation, and expand pediatric hospice services

Table 1 *(continued)*

Table 1 *(continued)*

Author, year	Aims	Location	World bank status	Participants	Sample size	Data collection method	Themes/findings	Recommendations
Fernandes, 2021 (62)	Describe nursing staff's perceptions of palliative care for newborns in the NICU	Brazil	UMIC	NICU nurses and nursing technicians	16	Interview	NICU nurses have trouble distinguishing "end-of-life care" from "palliative care". The lack of a well-established protocol for palliative care made decision making difficult. Providers want a specialized team to provide palliative care	Academic training and professional qualifications must be developed and kept updated within the health education system
Gibelli, 2021 (63)	Describe the care offered at the end-of-life for newborns diagnosed with major congenital anomalies	Brazil	UMIC	Patients identified with major congenital anomalies	695	Chart review	The zone of parental discretion becomes a useful decision-making tool when clinicians and providers do not agree, especially in the setting of cultural differences	The values of families, the burden of disease, and quality of life should be a part of the decision-making process when deciding which treatments to offer
Girgin, 2022 (64)	Evaluate attitudes toward neonatal palliative care and identify facilitators and barriers to offering this care	Turkey	UMIC	NICU nurses and physicians	173	Survey	Providers felt that palliative care was supported. Barriers were minimal parental involvement, limited time, minimal training, and lack of guidelines focused on neonatal palliative care	Involve parents in the palliative care process, establish standard policies and guidelines, and provide in-service education for staff on neonatal palliative care
Grether, 2015 (65)	Examine the opinions of a perinatal health team regarding decisions related to palliative care for severely ill newborns	Mexico	UMIC	Health professionals who cared for fetuses or infants with anomalies	135	Survey	When fetuses are severely ill, the majority of participants would choose to allow the pregnancy to continue and provide palliative care to the newborn	Ethical reflection on perinatal palliative care should be a continuous exercise open to health professionals, parents, and individuals who create legal regulations
Grunauer, 2021 (66)	Assess how PICUs implement grief and bereavement tools as part of an integrated model of care	18 countries (32% HIC, 44.1% UMICs, 23.5% LMICs)	Multicountry—NA	Healthcare workers in PICUs	498	Survey	A third of centers offered family-specific grief and bereavement support, with the lowest rates reported in LICs. LICs and LMICs lacked specialized professionals to support grief and bereavement	Global attention should be paid to disparities in grief and bereavement support between PICUs in different parts of the world
Grüneberg, 2024 (67)	Identify challenges to the provision of pediatric palliative care	Mexico	UMIC	Healthcare providers treating children in need of palliative care	70	Survey	Barriers identified were: (I) limited number of teams able to provide out-of-hospital support, (II) absence of training centers for palliative care, (III) lack of legal, labor, and economic protection for parents	The need to improve care exists at the policy level, the health professional level, and the public societal level. Specific continuing education training is needed in palliative care
Gu, 2022 (68)	Investigate the institutional and personal barriers to and facilitators of neonatal palliative care	China (Fujian Province)	UMIC	Physicians and neonatal nurses	289	Survey	Facilitators: (I) medical staff supportive of palliative care; (II) prioritization of palliative care as equally important to curative care; (III) prioritization of pain relief; (IV) palliative care education. Barriers: (I) discomfort with technological life support; (II) parental demands; (III) sense of personal failure when a baby dies; (IV) sense of personal trauma when caring for dying babies	Neonatal clinicians should receive regular culture-specific palliative care and communication skills training
Guglani, 2008 (69)	Describe the perspectives of pediatricians about the end-of-life care for children and neonates	India	LMIC	Pediatricians	31	Survey	None of the participants had ever actively withdrawn support. Half had withheld new treatments or placed DNR orders. There was an unclear interpretation of Indian law on whether physicians can withdraw life support	Provide clarification on allowable elements of end-of-life care, such as limiting and withdrawing therapy. Need for more educational programs and policies related to palliative care for infants and children
Kadivar, 2021 (70)	Determine nurses' attitudes toward providing care for terminally ill neonates and their families	Iran	LMIC	NICU nurses	138	Survey	Nurses believe that care should include the family of the patient. Nurses working in NICUs experience moral distress regarding how to make ethical decisions about end-of-life care	Palliative care training specifically for nurses could promote positive attitudes towards palliative care by improving knowledge. Nurses need training programs on ethical decision-making and moral distress
Khalid, 2019 (71)	Estimate palliative care needs and to describe the cohort of children with life-limiting illness who die in hospitals	Malaysia	UMIC	Malaysia Ministry of Health national hospital admissions database	8,907	National database review	There were 8,907 deaths and 3,958 (44.4%) were of children with "Life Limiting Illness". The majority, 2531 (63.9%) were neonates. Extreme prematurity at <28 weeks was common (26.7%)	Pediatric palliative care services should include perinatal and neonatal palliative care
Khraisat, 2017 (72)	Identify barriers and facilitators to providing pediatric end-of-life care	Jordan	LMIC	Nurses	200	Survey	Nurses noted barriers in patient-family interactions, health professional training, and organization structure that all impeded providing pediatric palliative care	A pediatric end-of-life care team should be developed to assist in improving patients' quality of care. A tool is needed to evaluate the nursing competency in end-of-life care
Maud, 2013 (73)	Develop guidelines to care for mothers with pregnancy loss	South Africa	UMIC	Doctors, nurses, and midwives who care for mothers that experience pregnancy loss	Not stated	Interview	Staff had insufficient training and/or time to attend to needs of pregnant women. If given a choice, caregivers gravitated towards giving care to mothers of live babies	Healthcare workers need training in stress management and/or support groups. Need to improve provider knowledge on pregnancy loss and clinical care. Organizational changes, such as having women who had a stillbirth cared for in a separate area from mothers with live newborns would benefit mothers and staff

Table 1 *(continued)*

Table 1 *(continued)*

Author, year	Aims	Location	World bank status	Participants	Sample size	Data collection method	Themes/findings	Recommendations
Marçola, 2017 (74)	Characterize cases of children admitted to the NICU, including receipt of palliative care	Brazil	UMIC	NICU patients who died after 48 hours of life	49	Chart review	Palliative care was provided for 20% of patients who ultimately died	NICUs should have protocols for training and care provision for palliative care. NICUs should utilize palliative care resources in more children
Mascarenhas, 2022 (75)	Describe physician knowledge of neonatal palliative care, current practices, and barriers to its delivery	India	LMIC	Neonatologists across level III NICUs in India	65	Survey	The concept of palliative care was known to 90.8%. 81.5% of units lacked a palliative team. Only 10.8% of the units had a structured policy. The creation of memories (38.9%) and photography (75.9%) was allowed. Barriers included inadequate knowledge, infrastructure, staff and guidelines	Neonatal palliative care should be incorporated into routine care
McAdams, 2012 (76)	Describe attitudes of healthcare providers towards resuscitation of high-risk or preterm newborns	Mongolia	LMIC	Attendees of a neonatal resuscitation training course	113	Survey	90% of providers are uncomfortable talking about non-initiation or withdrawing care. This was most commonly due to religious beliefs and concerns about long-term pain for the baby	Develop culturally sensitive training on antenatal counseling. Develop resuscitation guidelines, including periviability limits, that are applicable in LMICs
Miljeteig, 2006 (77)	Describe how doctors experience ethical dilemmas concerning the withdrawal of care among critically sick or premature neonates	India	LMIC	Physicians and nurses	22	Interview	When making care decisions, providers focus on the consequences for older children, parents, and society rather than just on the individual child	Guidelines are needed on how to cope with differences in resources, and how to handle different patient groups' cultural and religious concerns
Miljeteig, 2009 (78)	Describe how NICU providers reach life or death treatment decisions based on ethics and cost factors	India	LMIC	Providers at a tertiary medical center	23	Interview	Providers were reluctant to risk outcomes with chronic disability. Staff factored in scarcity of institutional resources when making decisions and were sensitive to local, culturally entrenched intrafamilial dynamics. Providers felt relatively powerless to prevent gender discrimination	There is a need for a broader discussion and training about determinants of newborn health- in terms of perceived survivability. Providers need to understand a pragmatic approach to distribution of resources and overall burden on society based on infant outcomes
Mishra, 2017 (79)	Formulate the guidelines for 'Do Not Resuscitate' (DNR) and 'End-of-life Support'	India	LMIC	Medical professionals, administrators, legal experts, and members from Medical Council of India	Not stated	Meeting	DNR status should be a shared decision between medical providers and families. There is a need for legal guidelines defining DNR processes and decision making	A consensus is needed from the medical team and the family to determine DNR status. The process for determining DNR status should be transparent and systematic
Mohammadi, 2021 (80)	Determine the attitudes of providers towards perinatal palliative care	Iran	LMIC	Nurses, midwives, physicians	390	Survey	90.5% believed that parents should be involved in decision-making, 90% felt that the lack of infrastructure is a challenge in providing palliative care	Increased knowledge of perinatal palliative care is needed across specialties. Hospitals need dedicated staff for palliative care
Nayeri, 2017 (81)	Explore the factors affecting physician practice in management of newborns with poor prognosis	Iran	LMIC	Physicians working in the NICU	88	Survey	A significant number of physicians agreed with palliative care in infants suffering from genetic disorders or asphyxia	Better guidelines are needed to direct the use of palliative care vs aggressive care in NICU settings
Osifo, 2011 (82)	Describe the prevalence and challenges of abandoned dead neonates in an African referral center	Nigeria	LMIC	Neonates admitted to the morgue	1,093	Chart Review	77.2% of the infants in the morgue were abandoned. Higher abandonment rates were seen by parents of lower socioeconomic class. There were higher rates for infants with surgical needs and those with congenital anomalies	Create a public campaign to modify present attitudes about dead neonates. Hospital based bereavement programs should be organized for parents/caregivers who have just lost their babies to help them adjust appropriately
Rocha, 2018 (83)	Determine the frequency of hospitalization and emergency care for patients with Zika Virus and analyze this in relation to palliative care use	Brazil	UMIC	Patients with confirmed CSZV born at a tertiary care hospital in Brazil	145	Interview and medical record review	92 (63.5%) of patients had been seen at least once in the emergency room, and 49% had been hospitalized. A palliative care approach was only used in two patients	For the patient with known severe malformations, such as those caused by congenital infection with Zika virus, a palliative care approach should be used to minimize suffering
Salimi, 2020 (84)	Determine the current requirements for implementing a palliative care program in the NICU	Iran	LMIC	Staff in the NICU	45	Survey	Three key care gap domains were reported: family-related factors, managerial factors, and human resources	Need to improve preparedness across all 3 domains
Şener Taplak, 2020 (85)	Determine NICU nurses' opinions about the palliative care needs of neonates with multiple congenital anomalies	Turkey	UMIC	NICU nurses	20	Interview	Perceived needs of patients included reducing pain, managing symptoms, and reducing unnecessary interventions. Nurses lack sufficient training in the management of nonviable infants or those with anomalies	There is a need for national ethics and legal standards to guide the treatment decisions of neonatal professions during end-of-life care for neonates
Shattnawi, 2022 (86)	Explore NICU nurse perceptions and needs for the end-of-life care of neonates	Jordan	LMIC	NICU nurses	12	Interview	Key challenges for providing end-of-life care for infants included lack of preparation for nurses, unclear ethical guidelines around decision making, and workload	Involve senior nurses in end-of-life care to help support newer nurses. Provide continuing education about palliative care for all nurses

Table 1 *(continued)*

Table 1 *(continued)*

Author, year	Aims	Location	World bank status	Participants	Sample size	Data collection method	Themes/findings	Recommendations
Sülün, 2021 (87)	Determine NICU nurses' attitudes towards neonatal death	Turkey	UMIC	NICU nurses	96	Survey	Nurses have difficulty in providing palliative care to babies when they develop a negative attitude towards death	More research is needed to understand nurse responses to death and palliative care
Taib, 2021 (88)	Define the clinical spectrum of pediatric patients needing palliative care	Malaysia	LMIC	Children receiving palliative care at any of 13 hospitals	315	Survey	28.6% of pediatric patients needing palliative care were neonates. The most common diagnoses were congenital malformations and chromosomal abnormalities. Care gaps were (I) knowledge of symptom management, (II) communication with families, (III) training in psychosocial, emotional, and spiritual needs, and (IV) lack of a national policy for pediatric palliative care	Bereavement care needs to be incorporated into palliative care programs. Palliative care programs need to include neonates. Pediatricians pioneering palliative care at their hospitals need training and support to ensure all children with life-limiting illnesses receive quality care. Policy makers should be invested in this national goal
Wilkinson, 2019 (89)	Describe process used to create palliative care guidelines	Philippines	LMIC	Delegates from OB, midwives, nursing, department of health, UNICEF, and the catholic church	Not stated	Meeting	Guidelines should apply to all tertiary NICUs and incorporate patient-level risk factors. Guidelines should cover resuscitation of extremely preterm infants, with a palliative care at delivery option. There was no consensus on what gestational age should be the lower threshold for resuscitation	Countries should use a common framework for resuscitation decisions, guidelines, and gestational age limitations. Use of a wider "grey zone" (periviability zone) is appropriate in LMICs and should be incorporated into national guidelines
Yenal, 2021 (90)	Explore the experiences of midwives and nurses when caring for families with perinatal loss	Turkey	UMIC	Nurses and midwives	15	Interview	Providers experienced pain and grief when caring for women who had perinatal loss. Feelings of helplessness existed despite years of experience. If the provider was a mother, this made it harder. Coping was through positive thinking and prayer	Formal grief training at regular intervals is needed. There should be additional support for providers having a difficult time working with women who have perinatal loss
Zhong, 2022 (91)	Determine the barriers and facilitators to implementing a palliative care program for neonates	China	UMIC	Neonatal nurses	550	Survey	Three factors positively affect the use of neonatal palliative care: (I) institutional support, (II) support for family involvement in decisions, (III) opportunities to express one's opinions and beliefs. Barriers included limited time, clinical skills, education, palliative care experience, and acceptance of palliative care	Focused research and care process improvements are required to investigate barriers to palliative care delivery and improve the implementation of neonatal palliative care in mainland China

UMIC, upper-middle-income country; LMIC, lower-middle-income country; NICU, neonatal intensive care unit; UNICEF, United Nations Children's Fund; OB, obstetrics; PICU, pediatric intensive care unit; LIC, low-income country; NA, not applicable; HIC, high-income country; DNR, Do Not Resuscitate; CSZV, congenital syndrome of Zika virus.

Table 2 Education and training in perinatal palliative care

Author, year	Aims	Location	World bank status	Participants	Sample size	Data collection method	Themes/findings	Recommendations
Abuhammad, 2022 (92)	Assess knowledge and attitudes of nurses towards pediatric palliative care and examine the impact of an educational program on nurses' viewpoints	Jordan	UMIC	Nurses	120	Pre- and post-test	Targeted education on pediatric palliative care improved pediatric nurse knowledge and attitudes towards palliative care	Increase palliative care education among nurses
Amery, 2010 (93)	Describe the education needs of health professionals working in children's palliative care	Uganda	LIC	Doctors, nurses, and clinical officers at hospice sites	48	Survey and focus group	Providers wanted more training in communicating with children and families, symptom management, psychosocial care, bereavement, teamwork, and managing personal stress	Develop and test palliative care curricula, learning materials, and courses specifically for health workers in Africa and other resource poor settings
Doherty, 2021 (94)	Explore perspectives of participants in a virtual learning and mentorship program on pediatric palliative care	India, Bangladesh	LMIC	Physicians, nurses, pharmacists, palliative care coordinators	17	Focus group	Virtual learning provided an opportunity to exchange ideas, increase knowledge, and access palliative care resources. The program was time-intensive and did not address socio-cultural factors	Pair virtual trainings with local facilitators to ensure applicability and cultural awareness
Hamdoune, 2022 (95)	Assess the effectiveness of simulation in nursing education to overcome misconceptions of pediatric palliative care	Morocco	LMIC	Nursing students	24	Pre- and post-test	Short simulation training is effective at providing an accurate representation of palliative care and lessening misconceptions	Employ simulation-based education as part of palliative care training
Latha, 2014 (96)	Assess the status of pediatric palliative care education	India	LMIC	Pediatric trainees	188	Survey	88% of pediatric trainees had never received any training in palliative care and 77% felt uncomfortable having palliative conversations with families	Develop pediatric specific palliative care training that can be imbedded within existing medical education programs

Table 2 *(continued)*

Table 2 *(continued)*

Author, year	Aims	Location	World bank status	Participants	Sample size	Data collection method	Themes/findings	Recommendations
Postier, 2022 (97)	Assessment of EPEC-Pediatrics participants' self-reported perinatal palliative care knowledge, attitudes, and skills	Multi-country	LMIC	Past EPEC-Pediatrics participants	786	Survey	EPEC-Pediatrics improves participants' self-reported teaching skills and knowledge across pediatric palliative care domains. Participating clinicians reported improvement in the clinical care of children with serious illness	Leverage programs such as EPEC-Pediatrics to improve participants attitudes, knowledge, and skills across core pediatric palliative care domains
Qian, 2022 (98)	Investigate the effectiveness of a training program in increasing perinatal bereavement care confidence and reducing secondary traumatic stress/emotional exhaustion	China	UMIC	Nurses and midwives	54	Interview and pre-post test	Nurses and midwives lack sufficient training to provide bereavement care. They also suffer from heavy emotional burden	Incorporate perinatal bereavement care training into nursing and midwife education
Shen, 2022 (99)	Explore the experiences of midwifery students facing perinatal death during their internship training	China	UMIC	Midwifery students	12	Interview	Students experienced anxiety, fear related to death, self-blame and emotional inhibition, and stress over ethically challenging situations. Students are inadequately prepared to deal with perinatal death and require training to develop coping strategies	Increase structured education on perinatal loss early in student's medical careers
Zargham-Boroujeni, 2011 (100)	Describe use of a curriculum in teaching and feedback about the program's utility in practice	Iran	LMIC	Nurses	60	Survey and pre-post test	There was a significant difference in pre- and post-test scores among the experimental group that received the training	Increase the formal training of nurses in pediatric palliative care and end-of-life care for infants and children

UMIC, upper-middle-income country; LMIC, lower-middle-income country; LIC, low-income country.

Table 3 Mother's experiences with perinatal palliative care

Author, year	Aims	Location	World bank status	Participants	Sample size	Data collection method	Themes/findings	Recommendations
Abdel Razeq, 2021 (101)	Understand the needs of grieving mothers who experience the death of neonate	Jordan	UMIC	Mothers	18	Interview	News of the baby's death was conveyed to the mother by family not medical staff. Mothers participated in the preparation of the infant's body. Families want formal bereavement support but do not receive it	Policies are needed to optimize the supportive role of maternity and neonatal nurses in providing family-centered bereavement care to mothers and their families who experience neonatal death
Ahmed, 2020 (102)	Explore pregnancy and birth related cultural practices	Pakistan	LMIC	Women who had a perinatal loss	25	Interview	Poor communication around causes of perinatal death led to women having fatalistic opinions about the cause. Traditional home remedies were common	Improving general health knowledge among women may help care seeking. Grief support is needed
Asare, 2022 (103)	Map coping strategies bereaved parents adopt in response to child loss	Ghana	LMIC	Parents	20	Interview	Bereaved parents adopted both cognitive and behavioral coping mechanisms. Religion and social support were helpful	Practitioners need to develop programs around adaptive coping methods that bereaved parents are familiar with to enhance the chance of positive outcomes
Ayebare, 2021 (104)	Describe how cultural beliefs and practices impact bereavement following stillbirth	Uganda, Kenya	LMIC	Parents and health care workers	134 parents, 61 healthcare workers	Interview	Parents described a conflict between meeting their own needs and complying with community norms. Parents were prevented from seeing/ holding the baby, openly discussing the death, memory-making, and attending burials. Belief in "God's plan" and "witchcraft" were common	Health systems should develop culturally sensitive community programs geared toward demystifying stillbirths and providing an avenue for parents to grieve in their own way
Christou, 2021 (105)	Explore bereaved parents' and healthcare providers experiences of care after stillbirth in Afghanistan	Afghanistan	LIC	Women, men, female elders, healthcare providers and key informants	55	Interview	There was a delay or avoidance of sharing the diagnosis of stillbirth. Parents described not being treated with respect. There was a lack of joint decision making and limited memory making. Providers note a lack of support and training on bereavement. Many noted the lack of mental health services and trained professionals	Improving interactions between health professionals and parents, including using shared decision making, can be done through developing a basic package of perinatal bereavement training

Table 3 *(continued)*

Table 3 *(continued)*

Author, year	Aims	Location	World bank status	Participants	Sample size	Data collection method	Themes/findings	Recommendations
Das, 2021 (106)	Document grief and coping experiences of parents following stillbirth and child death	India	LMIC	Parents who experienced a stillbirth or childhood death and their support person	99 parents, 125 support people	Survey, interview, and focus groups	Mothers and fathers experienced severe grief, but mothers expressed it more openly. Some shared guilt towards themselves, the hospital, or family. Most had physical changes (poor eating, sleeping). Unanticipated losses and limited family or financial support worsened grief	Sociocultural and religion appropriate bereavement support are needed to reduce the impact of stillbirth and childhood death on parents
Das, 2021 (107)	Explore the experiences of parents and healthcare providers about end-of-life care of children	India	LMIC	Family and health care workers associated with 12 neonates and 13 children who died	49 parents, 21 family members, 16 healthcare workers	Interview	Doctors were the primary providers who communicated with families. Communication from junior/resident physicians was often brief, insensitive, and inappropriate. Most parents received no support from healthcare workers following the death. Healthcare workers said that the death of their patients affected them emotionally	Better communication training is needed for healthcare workers. Health facilities should develop a support system for parents after pediatric or neonatal death
Gozuyesil, 2022 (108)	Assess levels of grief among women who experiences a perinatal loss and changes in their ruminative style of thoughts	Turkey	UMIC	Women who experienced a perinatal loss	70	Survey	Most people experienced grief at 48 hours, median grief levels decreased over time. Having no prior children was a risk factor for perinatal grief	Nursing assessments about grief and rumination style should be integrated into nursing care for women following a perinatal loss
Hasanpour, 2016 (109)	Explore parental needs in infant end-of-life and bereavement	Iran	LMIC	NICU nurses and doctors, parents who had an infant die in the NICU	24	Interview	Mothers want their husband by their side while mourning. They desire to be in a separate room from mothers who have live infants. Fathers tended to manage the news of the infant's death	Proper facilities should be provided for mothers whose infant is going through end-of-life or has passed away
Horey, 2021 (110)	Describe bereavement care practices offered to parents across different high-income and middle-income countries	40 countries: 23 HICs, 17 MICs	Multicountry—NA	Parents of stillborn infants	3,041	Survey	Women in high-income countries reported to more bereavement care practices compared with women in middle-income countries	Research should look at why there are global differences in access to bereavement care. Countries should address effective communication, decision-making, and follow-up
Irani, 2019 (111)	Explore the emotional and cognitive experiences of pregnant women following prenatal diagnosis of fetal anomalies	Iran	LMIC	Pregnant women with a prenatal diagnosis of fetal anomalies	25	Interview	Pregnant women are often ill-prepared to hear about abnormal fetal findings. They may experience shock, panic, or disbelief. Those who elect termination experience guilt and shame	It is important to monitor emotional reactions of women following prenatal anomaly diagnosis. Training clinicians and health-care professionals for proper response to grief reaction is essential
Kuti, 2011 (112)	Determine which bereavement practices available after stillbirth are most useful	Nigeria	LMIC	Women with a history of stillbirth	45	Interview	Half of respondents were given the opportunity to see their stillborn infant. No women were given the opportunity to take pictures or name their infant. 66% wished they had seen their infant, 17.8% wished they could have held, and 4.4% wished they had photographs	Women in LMICs should be given the options recommended for bereavement care after stillbirth as practiced in other parts of the world, including the opportunity to see or hold their infant
Meyer, 2018 (113)	Understand the complex process of grieving, including how social and cultural frameworks shape mothers' experience of infant loss	Ghana	LMIC	Mothers who had a sick infant die before 1 year of age	8	Interview	There is limited communication around infant death and a cultural silence following perinatal loss. Women desire time with the infant after death. Women fear psychological harm or impaired fertility after loss. Many feel that it is "God's will" that their baby died	Better support from healthcare workers for mothers after infant death is needed
Milton, 2021 (114)	Explore the experiences and perceptions of stillbirth among mothers	Nigeria	LMIC	Mothers who had given birth to a liveborn baby in the prior 6 months. Half had a prior stillbirth	31	Focus group	Many women delivered their babies without a healthcare worker in attendance. Some report midwives yelling at them and being mean. Some women cited the need to obtain permission from family members to access medical care. Women feel "useless" and "worthless" if they do not birth a live baby	Increased investment in maternity care, health education, and public enlightenment to inform interventions at reducing stigma around stillbirth and educate mothers about care seeking is needed. Health facilities should offer postnatal bereavement support that includes the whole family
Nournorouzi, 2022 (115)	Study the effectiveness of a coping intervention on maternal grief	Iran	LMIC	Mothers	56	Survey	A group coping program following perinatal loss is effective at reducing grief reactions	Expand perinatal grief programs to include both parents and over a longer period of time following loss
Okondo, 2022 (116)	Understand the experience of parents navigating the health system for very sick children	Kenya	LMIC	Parents	25	Interview	Parents faced challenges with payments, strict visitation policies, and overcrowding while their children were hospitalized. There was limited emotional support	Providers need better training on how to show empathy and concern. Facilities should prioritize communication with families and providing emotional support
Paris, 2016 (117)	Study the association between complicated grief and demographic, reproductive, mental, marital and professional support in women after stillbirth	Brazil and Canada	UMIC	Women that experienced a still birth	34 (26 Brazil, 8 Canada)	Survey and interview	Complicated grief was higher in Brazilian women (35%) than Canadian women (12%). Complicated grief was higher if the pregnancy persisted past week 28	Brazilian women require more attention from health professionals and support by nurses when going through stillbirth

Table 3 *(continued)*

Table 3 *(continued)*

Author, year	Aims	Location	World bank status	Participants	Sample size	Data collection method	Themes/findings	Recommendations
Paris, 2021 (118)	Understand the professional care for maternal grief after stillbirth	Brazil	UMIC	Women who had a stillbirth	30	Interview	Women noted a lack of professional support and limited contact with their baby	Training for healthcare professions on bereavement and standardized protocols are needed
Popoola, 2021 (119)	Describe social networks and changes to social networks of women that experience a stillbirth	Nigeria	LMIC	Women that experienced a stillbirth	20	Interview, social network diagrams	Family accounted for most of the social network of patients. Many social networks remained similar after the loss. Some patients decreased interaction with social networks due to shame. Supportive social networks counteracted shame	Information from social network analysis can be helpful for the provision of tailored/personalized bereavement care
Punaglom, 2022 (120)	Explore the grief journey among women who experience a perinatal loss	Thailand	UMIC	Women who experienced a perinatal loss	25	Interview	Women described fear about the anticipated loss, experiencing significant grief, and engaging in self-reflection. Self-healing occurred based on the cultural belief of forgiving oneself and others	Healthcare providers should be trained with knowledge for addressing issues based on cultural sensitivity that can enhance the ability of women who experience a perinatal loss to move through their grief
Punaglom, 2022 (121)	Describe grief in women who experienced perinatal death	Thailand	UMIC	Mothers	25	Interview	Cultural beliefs can be applied in a positive way to overcome grief. Grief is an important part of overcoming loss	Nursing interventions after perinatal loss should be tailored to local cultural constructs and be aware of the phases of grief a women may experience
Ranjbar, 2021 (122)	Explore how women experience a pregnancy with fetal anomalies	Iran	LMIC	Women with a diagnosed fetal anomaly	14	Interview	Women experience emotional suffering on whether to continue or terminate the pregnancy. There was a lack of support from the treatment team, spouses, family, and society. The prevailing religious and cultural beliefs often did not align with women's personal beliefs, which caused distress	Strategies are needed to improve women's autonomy in decision-making. Healthcare professionals should be trained to provide appropriate counseling for women with fetal anomalies
Roberts, 2012 (123)	Describe predictors of perinatal grief among poor rural women	India	LMIC	Reproductive age women in randomly selected villages	355	Survey	Perinatal grief scores were higher for women who had experienced stillbirth vs those who had not. Progressive environments, social support, emotion focused coping and practical coping were protective	Countries should focus on grief and mental health of women, especially those who experience perinatal loss
Roberts, 2015 (124)	Explore mindfulness-based interventions to reduce perinatal grief	India	LMIC	Women with history of stillbirth	22	Pre and post test	Psychological symptoms and high levels of perinatal grief improved. There is stigmatization of mental health and reproductive issues	Mindfulness-based intervention for perinatal grief may be effective. These women need assistance in order to receive needed care, as they often lack power to engage the health-care system
Roberts, 2016 (125)	Explore the feasibility and effectiveness of a mindfulness-based intervention to address complex grief after stillbirth	India	LMIC	Women with history of stillbirth	26	Pre and post test	The intervention was well received and led to reductions of perinatal grief and mental health symptoms over time	Bereavement support is essential in the work of healing
Roberts, 2016 (126)	Explore the sustained effectiveness of a mindfulness-based intervention designed to address complex grief after stillbirth	India	LMIC	Women with a history of stillbirth	22	Other	There is a lack of psychosocial support for mothers suffering perinatal loss in low-income settings and an under recognition of how perinatal grief causes significant psychological distress	The significant mental health needs among rural women of various castes and ethnicities following stillbirth can successfully addressed by adapting mindfulness-based interventions
Sadeghi, 2016 (127)	Explore the information and communication needs of families in neonatal end-of-life and bereavement	Iran	LMIC	14 parents, 9 nurses, and 1 doctor	24	Interview	Good communication is important in building trust. Most parents want to understand the cause of death and have communication from providers before, during, and after the death	Healthcare workers need to address family needs during end-of-life and bereavement
Samutri, 2022 (128)	Explore the experience of chronic sorrow among Indonesian women who experienced perinatal loss	Indonesia	UMIC	Mothers	9	Interview	Recurrent experiences of grief are common, especially after exposure to triggers such as mementos. Perinatal loss associated grief often feels diminished. The birth of another child can worsen or improve grief	There is a need to create coping strategies and emotional support programs specifically for perinatal grief

UMIC, upper-middle-income country; LMIC, lower-middle-income country; LIC, low-income country; NICU, neonatal intensive care unit; NA, not applicable.

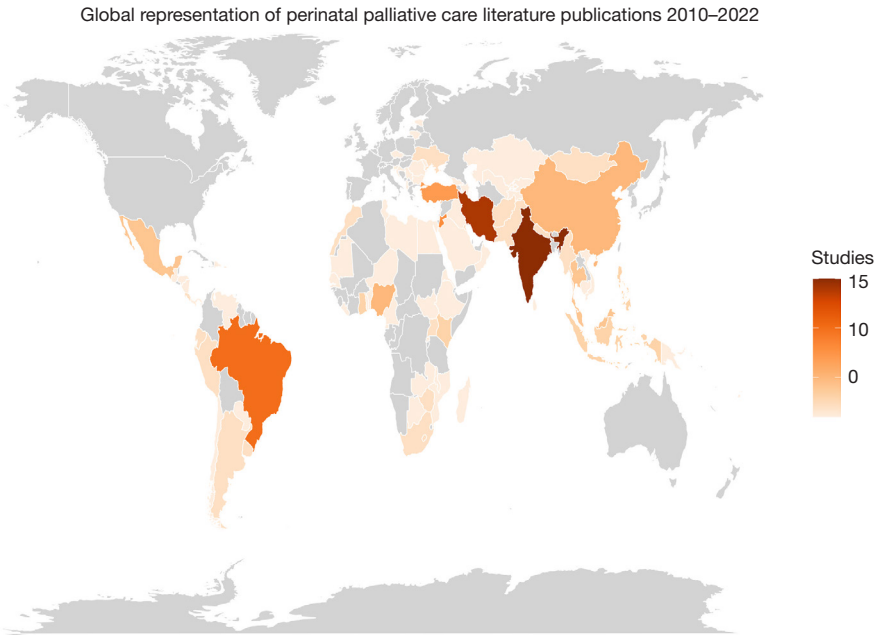

Figure 2 Geographic distribution of perinatal palliative care studies amongst low- and middle-income countries/regions. Studies from high-income regions, including Taiwan, were excluded.

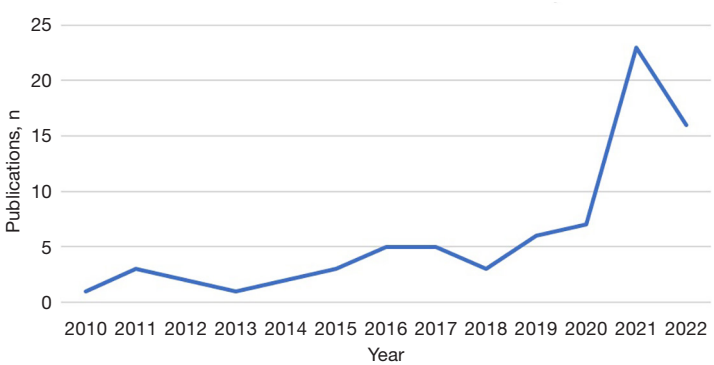

Figure 3 Perinatal palliative care publications by year from 2010 through 2022.

or LIC. Of the included studies, 67 (91.8%) included an author from the country of focus in the manuscript. When we examined just LMIC and LIC focused papers, these percentages fell slightly; 79.5% of papers had a LMIC or LIC first or last author and 86.4% included an author from the country of focus. Four of the studies that did not include an author from the study country were from the same author with a focus in a LMIC. The other two studies without focus country representation were also from LMICs. Of the five studies with a focus country author outside of the first or senior position, two were from UMICs (same first author), two from LMICs, and one from a LIC (*Figure 4*).

Perinatal palliative care provision—clinical care and providers' perspectives

From the 44 studies that focused on how, and if, perinatal palliative care is provided in low- and middle-income countries, five core themes emerged. First, the impact of resource status on the availability of perinatal palliative care. Second, a prevailing perspective from healthcare providers focused on preserving life. Third, varied perspectives on family engagement for critically ill infants. Fourth, the need for dedicated guidelines to support palliative care. Lastly, the emotional toll of providing palliative care.

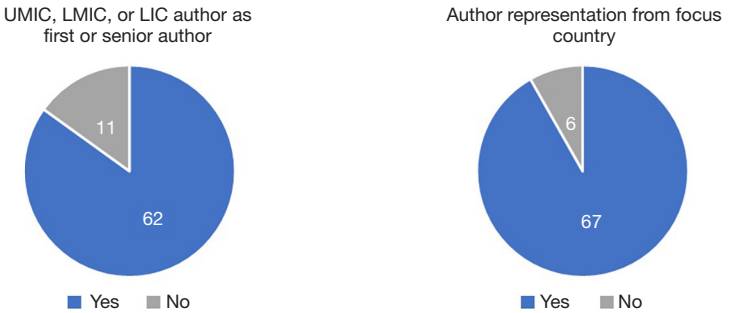

Figure 4 Author representation in included studies. UMIC, LMIC, and LIC authorship data included. UMIC, upper-middle-income country; LMIC, lower-middle-income country; LIC, low-income country.

Limited availability of perinatal palliative care

Three multinational studies highlighted how access to perinatal palliative care is limited in resource-constrained countries. Amongst 113 countries and territories, those with higher World Bank income level and the highest levels of universal health coverage were more likely to offer children's palliative care services (53). Similarly, countries with established adult palliative care programs were more likely to have pediatric and perinatal services. A European-focused study noted that countries classified as LMICs in Europe had limited access to neonatal palliative care compared to those with higher wealth rankings (52). This finding stands in stark contrast to a range of studies reporting that neonates make up a significant portion of pediatric patients classified as needing palliative care. For example, in Malaysia, Khalid *et al.* (2019) identified 63.9% of their pediatric patients with life-limiting illnesses were neonates, with 26.7% of them diagnosed with extreme prematurity, or birth before 28 weeks gestation (71). Other common situations needing neonatal palliative care included birth asphyxia and congenital malformations, including those from congenital infections such as Zika virus (51,83). Infants who died from congenital anomalies also had higher abandonment rates in the morgue following death, as reported by Osifo *et al.* (2011) from Nigeria (82).

Within settings that had perinatal or neonatal palliative care programs, a minority offered grief and bereavement support. Grunauer *et al.* (2021) assessed bereavement tools in pediatric intensive care units in 18 countries and found that LICs and LMICs lacked specialized professionals to support bereavement care and had the lowest rates of family-specific grief support (66). This limited access mirrors the work by Downing *et al.* (2015) that looked at research priorities within pediatric palliative care (16). Here, the global need for children's palliative care was ranked 9th and perinatal palliative care was ranked 14th.

Provider focus on preserving life

When reported, the prevailing attitude of providers caring for pregnant women and newborns was focused on preserving life. In Jordan, physicians and nurses were both in favor of life-saving decisions regardless of the survival odds and potential health outcomes (49,50). In Turkey, 75% of providers surveyed believed that everything possible should be done to ensure a neonate's survival, regardless of the prognosis (56). One study from India captured the hands-on experience providers had with withdrawing support, noting that none of the 31 pediatricians in the study's survey had ever withheld new treatments or placed a do not resuscitate (DNR) order (69). Similarly, in Mongolia, a survey of over 100 neonatal resuscitation providers noted that over 90% were uncomfortable talking about non-initiation or withdrawal of care for infants with a low chance of survival (76). Incorporating the antenatal period, work from Grether *et al.* (2015) observed that, in Mexico, in the setting of a fetus with a poor prognosis, the majority of providers favored continuing the pregnancy, but were open to allowing for a palliative approach after delivery (65).

Opinions on parent engagement

A handful of studies commented on the role of parent engagement, or shared decision-making, surrounding perinatal palliative care. In Jordan, Abdel Razeq *et al.* (2020) found that physicians were the primary decision makers at "end-of-life" in 83% of cases (51). The authors of this paper advocate for increased family-focused decision-making that involves the larger care team. Another Jordanian study revealed an extreme of provider-driven decision making, noting how oftentimes physicians decide "not to share with the family the decision to put their child on a

DNR order" (86). Two survey-based studies from Jordan and China found that "parental demands" or "patient-family interactions" were cited as key barriers to adopting neonatal palliative care practices (72,68). In contrast, a survey of 390 providers in Iran showed that 90.5% believed that parents should be involved in decision-making (80). Similarly, Gibelli *et al.* (2021) in Brazil reported that a shared decision-making model is very important in their clinical setting (63). Clinicians in this report incorporate parental discretion into their decision-making, especially in the setting of culture-specific preferences. Similarly, in India, Mishra *et al.* (2017) emphasized the importance of DNR status being a shared decision between medical providers and families (79). In Vietnam, Fadadu *et al.* (2019) noted that clinicians tend to make care decisions but that they consider "the family as a whole" rather than just the patient when making end-of-life decisions (61). Importantly, Miljeteig *et al.* (2009) from India commented on the gender discrimination that occurred in end-of-life decision making, noting that providers felt a duty to protect female newborns against discrimination but felt powerless against entrenched cultural prejudices (78).

Lack of perinatal palliative care guidelines

Many studies commented on the lack of guidelines to direct perinatal palliative care (53-55,62,64,75,76-78,81,85,86,89). In Iran, studies identified the lack of palliative care guidelines as a key barrier to providing perinatal palliative care (53,54,81), as well as contributing to a fear of litigation and unclear ethical expectations around the care of critically ill neonates (54). In India, Mascarenhas *et al.* (2022) reported that only 10.8% of units had a structured policy for neonatal palliative care, but that even in these units critical elements of neonatal palliative care were omitted (75). In Brazil, Daudt Fernandes *et al.* (2021) commented how NICU nurses had trouble distinguishing between "end-of-life" care and other forms of palliative care, and that guidelines would help address this gap (62). Other work, such as that from Wilkinson *et al.* (2019) from the Philippines (89), suggested that guidelines could be used on a national level, serving as a framework for care while still allowing an individualized approach based on provider and family beliefs. Wilkinson's report also suggested using a wider "gray zone", or the zone in which an infant is considered potentially viable, within low- and middle-income countries. The need for viability limits that are applicable in low- and middle-income countries, and consider local beliefs, was also reflected work from McAdams *et al.* (2012) in Mongolia (76). Several publications, specifically from Mongolia (76), India (78), Mexico (65), and China (68), emphasized that guidelines for perinatal palliative care should reflect local context and culture.

Emotional toll of providing perinatal palliative care

Clinicians from several countries commented on how caring for neonates at the end-of-life is emotionally challenging. In Brazil, Camilo *et al.* (2022) reported how nurses view themselves as key supporters for families during this time, but also feel like they become involved in the family's suffering (57). A similar Brazilian study referenced the intense grief nurses experience when providing palliative care for neonates (60). Here, nurses expressed a desire for additional training in order to properly provide emotional support for families during end-of-life care. In South Africa, Maud (2013) touched on this topic by noting that when there are limited providers, medical staff prefer to care for mothers with live babies as it is less distressing (73). In Iran, Kadivar *et al.* (2021) elevated the issue of moral distress among NICU nurses, noting that nurses need additional training and guidance on how to manage ethical decisions and thus minimize moral distress (70). Kadivar and colleagues simultaneously noted that nurses feel it is their duty to care for the family of the infant as well as the infant themselves. In Turkey, Yenal *et al.* (2021) commented on the pain and grief providers feel when caring for women who had a perinatal loss (90). The authors emphasized that this pain was magnified if the provider was a mother herself and note that providers need formal grief training in order to properly care for women who experience perinatal loss.

Perinatal palliative care training and education

Only nine papers focused on education and training in perinatal palliative care. Three studies described the general status of perinatal palliative care training. In Uganda, survey and focus groups revealed a desire for training in symptom management, psychosocial care, bereavement, teamwork, and managing personal stress (93). Here, Amery *et al.* (2010) emphasize the need for trainings tailored specifically to the African context. In India, Latha *et al.* (2014) share that 88% of pediatric trainees never received any training in palliative care and 77% felt uncomfortable having conversations with families about palliative care (96). The authors suggest that palliative care training be embedded within existing medical education programs to ensure that all providers obtain the necessary palliative care skills. Similarly, Shen *et al.* (2022)

conducted a series of interviews with midwifery students in China about their experiences caring for women suffering a perinatal loss (99). The authors concluded that students are inadequately prepared to deal with perinatal death and require training specifically focused on communication and coping skills.

Five studies reported on training or educational programs covering pediatric and perinatal palliative care. Short courses from Iran (100), Jordan (92), and Morocco (95) all showed an increase in participant knowledge after the course. Hamdoune *et al.* (2022), in Morocco, further showed the benefit of incorporating simulation training to provide an accurate representation of palliative care and lessen misconceptions about palliative care that learners may have prior to undergoing training (95). One study, by Doherty *et al.* (2021), in India and Bangladesh noted that virtual learning paired with local facilitators offered a viable method to exchange ideas across contexts and generate a supportive learning community (94). Lastly, a multinational assessment of pediatric palliative care training programs suggested that training in palliative care teaching allows for a wider reach of palliative care education and that a modularized teaching program allows for adaption across varied clinical settings (97). All five of these studies suggested that medical education programs need to increase formal training in palliative care and end-of-life care for children and neonates. Only one study, by Qian *et al.* (2022), looked at reducing secondary traumatic stress and emotional exhaustion in medical providers (98).

Mothers' perspectives on hospital provided perinatal palliative care

Twenty-eight papers focused on how mothers who suffered a perinatal loss experienced health-facility based care following their stillbirth or neonatal death. From these papers, three core themes emerged. First, mothers described poor care and communication around the time of their loss. Second, women struggled to balance cultural expectations around perinatal loss with their personal needs. Third, bereaved mothers shared unmet grief needs and a desire for better psychosocial support from their healthcare providers.

Poor care and communication

Many studies noted that gaps in communication exist, most notably around informing parents about stillbirth or neonatal death (102,105,106,113,114,116,127). In Pakistan, Ahmed *et al.* (2020) report that poor communication around the causes of perinatal death led women to have "fatalistic opinions" about the cause that were not consistent with the medical explanations (102). Other studies, such as Meyer *et al.*'s (2018) work in Ghana, comment on the "cultural silence" around perinatal loss which leads to diminished communication and a lack of explanations to parents about the cause of perinatal loss (113). In several settings, even when communication occurred it was not considered appropriate, either because parents were not treated with respect (105) or were spoken to in an insensitive and inappropriate manner (107). In Nigeria, Milton *et al.* (2021) reported that midwives would often yell at women while they were in labor, while others delivered alone without a healthcare worker in attendance (114). In two studies, the lack of communication between a provider and the mother was considered in line with cultural beliefs. In both Jordan (101) and Iran (109), the infant's father or another family member was responsible for informing the mother about the perinatal death. In contrast, in Kenya, Okondo *et al.* (2022) described how male caregivers of critically ill infants were often ignored by healthcare workers and left out of care conversations (116). Importantly, communication gaps were reported with providers from many disciplines and specialties including physicians, nurses, and midwives from both pediatric obstetric teams.

Balancing cultural expectations and personal preferences

A study that interviewed 134 women in Uganda and Kenya noted that parents were often prevented from seeing or holding their child and were barred from openly discussing the death or attending the burial of their child (104). The authors reference a common belief in "witchcraft" and "God's plan" as the causes of perinatal loss, which contribute to stigma and impair healing. They state that there is an urgent need for culturally sensitive programs aimed at allowing women to grieve in their own way. Similarly, Christou *et al.* (2021) in Afghanistan (105) and Kuti *et al.* (2011) in Nigeria (112) highlight that women often want to see their child after stillbirth but often are forbidden to do so by healthcare workers. For women who learn about a life-limiting fetal anomaly before delivery, the conflict of aligning personal and cultural beliefs also exists. In Iran, women report significant emotional suffering when trying to decide whether to continue or terminate a pregnancy based on prevailing cultural norms (111,122). In Thailand, Punaglom *et al.* (2022) highlight that cultural beliefs are not always an obstacle, but rather can be used by healthcare teams to adapt nursing interventions to the needs

of bereaved families (121).

Unmet grief needs

Eleven studies reported that families want professional bereavement support but do not receive it (101,103,107,113-118,123,125). The unmet need for grief and bereavement support was greatest in countries within a lower wealth stratum. As Horey *et al.*'s (2021) assessment of parents in 40 countries demonstrated, women in higher-income countries have access to more bereavement care practices (110), which is helpful in managing grief. Mirroring this finding, a comparative study of women in Brazil and Canada reported that complicated grief following perinatal loss was higher amongst Brazilian women compared to their high-income country counterparts in Canada (35% *vs.* 12%) (117). In many settings, the grief that women felt sometimes translated into psychological harm and concerns that the loss of their child was "God's will" (104,113), based on prevailing cultural beliefs. In other settings, local cultural practices were protective. In Thailand, Punaglom *et al.* (2022) highlighted how culture influences grieving practices, with self-healing amongst mothers in this study occurring via the Thai practice of forgiving oneself and others (120,121).

While the maternal experience was the focus of most included studies, some work included how grief impacted other family members. A study by Das *et al.* (2021) from India noted that both mothers and fathers experience grief following perinatal loss, but that women express it more openly (106). A similar finding was presented by Nournorouzi *et al.* (2022) in Iran, where they suggest that expanded perinatal grief programs should involve both parents rather than just the mother (115). In Nigeria, recognizing the role of family and social dynamics on processing perinatal loss, Milton *et al.* (2021) suggested that bereavement support should include the broader family rather than just the mother (114). Across studies, unanticipated losses and limited family support worsened grief severity (106,119,125,126). Other reported risk factors for increased grief after stillbirth or neonatal death included having no prior children (108) and having the perinatal loss after 28 weeks gestation (117). In Indonesia, Samutri *et al.* (2022) highlighted that the birth of another child after perinatal loss can have a positive or a negative effect on grief (128). Many studies note that grief is a personal journey and that providers caring for families need to be attuned to the individual support needs of each parent dyad following perinatal loss (101-105,109,111,115,128).

Relation to established elements of perinatal palliative care

Through this review we aimed to better evaluate the components of perinatal palliative care that are currently being practiced in low- and middle-income countries, as well as the identified gaps in training and clinical care. To this, we mapped key themes from our low- and middle-income country review to a collated list of integral elements of perinatal palliative care (*Table 4*). This list utilized the framework presented by Balaguer *et al.* that focused on the development of perinatal palliative care in HICs (19). Three important adaptations to this framework were made prior to our review to better capture potential gaps in PPC in low- and middle-income countries. First, we split Balaguer *et al.*'s "comprehensive care" into "spiritual care" and "mental health care". Second, we separated out "bereavement" into its own category. Lastly, we added the concept of "seeing and holding after loss" as an independent field given its importance in the literature from bereaved mothers.

Discussion

Our review of 81 studies on perinatal palliative care included studies conducted in Africa, Asia, the Middle East, Europe, as well as North and South America. Overall, the studies identify an urgent need for strengthening perinatal palliative care and for enhancing education for healthcare providers working in this field. This finding includes training in and provision of psychosocial support for bereaved parents. The studies also noted a need for improved communication skills for healthcare providers during end-of-life and bereavement care. Researchers called for improvements at the facility level as well as the health system or national levels. Several studies cited the need for standardized guidelines around perinatal palliative care and national policies directing resources to support palliative care during the perinatal period. Many of the themes identified in this scoping review were interrelated; all recognized the importance of extending global advancements in palliative care into the neonatal and fetal periods. Although palliative care has been slowly improving in low- and middle-income countries overall (129-132), the benefit to the pediatric and perinatal populations have been limited (9,58,133-135). The extent to which neonates, and the parents of stillborn infants or those with life-limiting conditions have been incorporated into practice and policy changes has been variable. Our scoping

Table 4 Prevalence of core components of palliative care in published literature from low- and middle-income countries

Core component of perinatal palliative care	Reported in literature			
	Never	Rarely	Moderately	Highly
Pain relief		85.7%	14.3%	
Comfort/non-pharmacologic care	42.9%	57.1%		
Maternal bonding/emotional care		57.1%	42.9%	
Family-centered care		14.3%	71.4%	14.3%
Spiritual or religious care		57.1%	42.9%	
Mental health care		42.9%	57.1%	
Prompt initiation of care	85.7%		14.3%	
Bereavement			42.9%	57.1%
Seeing and holding after loss		57.1%	42.9%	
Care in the antenatal period		85.7%	14.3%	

review adds to the current global body of palliative care literature by demonstrating the unique place of perinatal patients within the field of palliative care, the importance of focused training for practitioners in this space, and how institutional and national guidelines can specifically address and support perinatal palliative care in low and middle-income countries.

The issues highlighted in this review of perinatal palliative care reveal important differences in how fetal and neonatal patients are viewed relative to older children and adults who need palliative care. This finding was reflected predominantly in the qualitative studies with both healthcare providers and parents. First, several studies noted that the loss of unborn or newly born children was frequently blamed on witchcraft or described as punishment for a mother's wrongdoings (104,114), attributions which do not exist as frequently in the deaths of older children or adults. Similarly, stillborn infants or those who pass soon after delivery often do not receive customary funeral or burial rights (34). Interestingly, despite the apparent devaluation of fetuses and neonates in the study settings, clinicians favored providing life-sustaining treatments even in the context of a poor prognosis. Compared to literature from HICs, where clinicians accept withdrawal of intensive life-sustaining treatment or limiting invasive interventions for neonates with life-limiting conditions (136,137), studies within our scoping review captured a healthcare provider view favoring intervention regardless of survival potential. Another key difference between our perinatal review and prior work on pediatric palliative care is how pain management was addressed. While a few studies noted the need for improved training in neonatal symptom management, the issue of pain management and opioid access was not commonly mentioned in the body of literature included in this scoping review. Indeed, of the 17 studies that mentioned pain management, 14 did so by framing this topic as a "gap" in current clinical care and/or training. Access to pain medications is an important component of perinatal palliative care as symptoms of the dying process—such as air hunger and agitation—can be distressing (138). Opioid access is a key issue within adult and pediatric palliative care, with LICs and LMICs receiving insufficient pain-relieving medication for their palliative care populations (134,139-141). Similarly, perinatal palliative care recommendations include feeding infants who are capable of oral intake, with the focus of such feeding being on comfort rather than on growth (138,142,143). The body of literature included in this review did not address comfort-focused feeding practices as a component of palliative care. Lastly, pediatric palliative care literature in low- and middle-income countries focuses heavily on the community or outpatient setting, with palliative care often described as being delivered in the home or hospice center (31,134). In contrast, perinatal palliative care is nested primarily in the inpatient setting, whether that is in community hospitals (144) or tertiary care medical centers (25,26). This distinction is important when considering guidelines for the provision of palliative care, who provides that care, and what national policies need to be in place to support care delivery.

The need for improved training and education in

perinatal palliative care was noted by providers and parents. Studies called for improved basic training in palliative care principles for all healthcare providers who care for pregnant women and newborn infants. In addition to providing guidance and training for physicians (145) and nurses (146), midwives have been identified as critical providers of perinatal palliative care, given their prominent role at deliveries (147). Several studies included in our review highlighted the need for developing specialized palliative care training with the goal of increasing the number of palliative care providers, across disciplines, present in low- and middle-income settings. In considering how to implement and support palliative training initiatives in these regions, it is important to consider the availability of educators with contextual and cultural knowledge, as HIC training guidelines and practices may not sufficiently meet the needs of providers and patients in low- and middle-income countries (34). Secondly, training programs must consider the effect on clinics and hospitals when staff take time off for training, the delivery and travel costs associated with participating in training, and the administrative needs for a given training program (148). Distance or remote learning has been gaining traction as an approach in both palliative care and neonatal care (149-153). The International Children's Palliative Care Network (ICPCN) has online training available and includes modules on neonatal palliative care (154). This resource includes educational content on communication, grief, and bereavement. The Education in Palliative and End-of-Life (EPEC) curriculum from Kenya has also been used in sub-Saharan Africa as a way to deliver online palliative care education that is targeted to the Sub-Saharan African context (149).

The studies covering both provider and parental perspectives revealed a need for institutional and national guidelines to direct and support perinatal palliative care. Several papers highlighted the need for guidelines that are tailored to the local environment, cultural beliefs, and available resources. This need echoes recommendations seen in the pediatric and adult palliative care literature (155-157). A recent review of perinatal palliative care suggests that palliative care programs in perinatal medicine be comprehensive, integrative, and start early in the care course (19). Integrated care refers to introducing palliative care measures alongside curative care as soon as a diagnosis is made (14,158,159). This philosophy should not be resource-dependent and thus can be applied in low- and middle-income countries. When considering the perinatal population, variation existed on the perceived degree to which parents should contribute to care decisions, and therefore how much flexibility should be interwoven into perinatal palliative care guidelines. There was also limited discussion in the included publications on how to assess and provide for a family's bereavement needs post-loss. While healthcare providers and parents quoted in the included studies expressed concern about the lack of psychosocial support offered to those affected by perinatal loss, the analysis did not extend to how address these gaps. Globally, there is a plethora of literature on how perinatal loss impacts parental mental health (160,161). For example, in high-income countries, estimates of depression following perinatal loss range from 10–25% (162-164) and reported post-partum depression rates range from 30–60% (165-168). While reported rates of perinatal psychopathology in LICs and LMICs are limited, a recent review estimated depression rates in sub-Saharan Africa to be 18% (169). Globally, the literature highlights the need for better mental health support after perinatal loss but limited examples of how to enact providing such care in low- and middle-income countries. While LIC and LMIC targeted resources for postpartum depression exist, such as the WHO's *Thinking Healthy* (170), such guides do not cover the unique context of perinatal loss. Likewise, provider burnout and moral distress when working in a setting with high perinatal loss rates have been widely reported (171-176). Despite this, integrated support for perinatal providers in low- and middle-income countries is limited. Indeed, we found no examples of provider support within our reviewed body of literature.

Representation and authorship

Within this scoping review, it is imperative that we acknowledge that the articles included in the analysis do not represent the full range of experiences and perspectives within perinatal palliative care in low and middle-income countries. The lack of published evidence does not equate to a lack of innovative, resourceful, and effective clinical practice; rather, this review reflects the paucity of dissemination of research and/or clinical practices in low- and middle-income country settings. Underreporting of clinical practices and outcomes is common in low- and middle-income countries, where time, budgetary, and data collection limitations preclude the publication of clinical and educational data. We recognize the challenges of dissemination in settings with limited resources and understand that publications from any setting reflect sites

with a certain level of financial and academic support. Importantly, 96 countries from the 134 countries currently designated as lower-income, lower-middle, or upper-middle income had studies included in this scoping review. For LICs, only 2 of the 26 countries in this economic stratum were captured in this review. Furthermore, 74 of the 96 countries included in this review were only represented within one of the six multi-country publications; only 22 countries had papers dedicated to perinatal palliative care or associated training in their specific country context. There are, therefore, important global voices that were not captured in this analysis. However, we should recognize that 85% of studies included in this review had a low or middle-income author in the first or senior position and 92% had focus-country representation. Prior reviews on global health authorship have reported first-author rates amongst LIC and LMIC authors of 50% (177), and that LIC and LMIC author inclusion even within the "decolonizing global health" space was below 25% (178). A review covering 1990–2013 noted that LIC and LMIC first-authorship has increased for research funded from LMIC sources, but declined over time for research funded from high-income countries (177). Another poignant example of the limited representation of low- and middle-income country authors can be seen in recent bibliometric reviews on global palliative care research (179) and perinatal palliative care (180). In these papers, North America, Europe, and Australia were identified as the primary contributors to the global literature on palliative care. Elevating low- and middle-income country authors in this space is essential. To better understand and address barriers to perinatal palliative care provision and training in low- and middle-income countries, we need better representation of current practices, challenges, and perspectives in the global body of literature.

Limitations

This review has a few key limitations. First, as described above, barriers to dissemination of research and clinical practices for low- and middle-income experiences make it difficult to synthesize actual practices. Second, we omitted five articles from the original data extraction because they were written in languages other than English. This limit may have resulted in the oversight of unique and important perspectives on perinatal palliative care. More importantly, the fact that so few articles in languages other than English were identified reflects a broader limitation in the literature where experiences from non-anglophone countries are less well represented (181). Third, our study was not designed to evaluate the quality of services provided, nor was this information readily available in the published literature. As with related systematic and scoping reviews, we were unable to systematically critique included articles in terms of bias and quality due to the descriptive nature of many of the included manuscripts. Fourth, although we used a number of free-text and MeSH terms addressing perinatal palliative care provision and training, there is a possibility that non-reviewed studies that used other terms with similar meaning may have been overlooked. For example, our search did not include the terms "comfort" or "bonding", common components of perinatal palliative care provision but that we felt would be captured within articles retrieved using our selected terms. Next, our study intentionally focused both on palliative care delivery and training. It is possible that by combining these two important topics, we were limited in the depth to which we could assess either. However, we felt that the value added by doing a combined analysis of training and clinical care outweighed this limitation. Lastly, by focusing on training and clinical care no studies in our included article sample described home-based delivery of perinatal palliative care and we excluded studies that exclusively described the lived experience of bereaved mothers following perinatal loss. While outside the scope of this study, integrating literature that covered this important topic could have impacted our interpretation of palliative care delivery and training within certain cultural contexts.

Conclusions

Our findings demonstrate an urgent and unmet need to strengthen perinatal palliative care research, care delivery, and the associated training for healthcare workers in low- and middle-income countries. The conduct of ethical, robust, and culturally informed research amongst pregnant women and neonates must address problems that are specific to those patient populations. Such research can guide future practice and policy. Healthcare workers and families desire improved guidelines about perinatal palliative care that reflect the realities of local culture and resources. National policies, that are actively maintained and updated to reflect best practice guidelines, are needed to guide the appropriate delivery of perinatal palliative care. Facility-level adaptation of national guidelines based on site-specific resources and needs can then aid in local integration. Such strategies must encompass symptom management,

compassionate communication with families, psychosocial support after stillbirth or neonatal death, and emotional and mental health support for healthcare workers who work in palliative care. Resource investment should focus on these challenges as well as foundational factors such as recognizing the importance of perinatal palliative care as a unique discipline within palliative care, the importance of data collection in driving health policy, and the vitality of incorporating palliative care training across disciplines and specialties.

Acknowledgments

Funding: None.

Footnote

Reporting Checklist: The authors have completed the PRISMA-ScR reporting checklist. Available at https://apm.amegroups.com/article/view/10.21037/apm-24-87/rc

Peer Review File: Available at https://apm.amegroups.com/article/view/10.21037/apm-24-87/prf

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at https://apm.amegroups.com/article/view/10.21037/apm-24-87/coif). Sharla Rent reports the grant from National Palliative Care Research Center and support for attending meeting from American Academy of Pediatrics. M.L. has received grant support from the National Institutes of Health, BAND foundation, and Child Neurology Society. The other authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References

1. Sharrow D, Hug L, You D, et al. Global, regional, and national trends in under-5 mortality between 1990 and 2019 with scenario-based projections until 2030: a systematic analysis by the UN Inter-agency Group for Child Mortality Estimation. Lancet Glob Health 2022;10:e195-206.
2. Blencowe H, Cousens S, Jassir FB, et al. National, regional, and worldwide estimates of stillbirth rates in 2015, with trends from 2000: a systematic analysis. Lancet Glob Health 2016;4:e98-e108.
3. Barfield WD; . Standard Terminology for Fetal, Infant, and Perinatal Deaths. Pediatrics 2016;137:e20160551.
4. World Health Organization. Every newborn: an action plan to end preventable deaths. Geneva: World Health Organization; 2014.
5. Unicef. Global under-five, infant and neonatal mortality rates, 1990-2017 New York, NY: United Nations Children's Fund. Available online: https://data.unicef.org/topic/child-survival/under-five-mortality/
6. Darmstadt GL. Stillbirths: missing from the family and from family health. Lancet 2011;377:1550-1.
7. Goldenberg RL, McClure EM, Bhutta ZA, et al. Stillbirths: the vision for 2020. Lancet 2011;377:1798-805.
8. Morisaki N, Ganchimeg T, Vogel JP, et al. Impact of stillbirths on international comparisons of preterm birth rates: a secondary analysis of the WHO multi-country survey of Maternal and Newborn Health. BJOG 2017;124:1346-54.
9. Connor SR, Downing J, Marston J. Estimating the Global Need for Palliative Care for Children: A Cross-sectional Analysis. J Pain Symptom Manage 2017;53:171-7.
10. Camacho Ávila M, Fernández Medina IM, Jiménez-López FR, et al. Parents' Experiences About Support Following Stillbirth and Neonatal Death. Adv Neonatal Care 2020;20:151-60.
11. Obst KL, Due C, Oxlad M, et al. Men's grief following pregnancy loss and neonatal loss: a systematic review and emerging theoretical model. BMC Pregnancy Childbirth 2020;20:11.
12. Sieg SE, Bradshaw WT, Blake S. The Best Interests of Infants and Families During Palliative Care at the End of Life: A Review of the Literature. Adv Neonatal Care 2019;19:E9-E14.
13. Ravaldi C, Levi M, Angeli E, et al. Stillbirth and perinatal care: Are professionals trained to address parents' needs? Midwifery 2018;64:53-9.

14. Calhoun BC, Napolitano P, Terry M, et al. Perinatal hospice. Comprehensive care for the family of the fetus with a lethal condition. J Reprod Med 2003;48:343-8.
15. World Health Organization- Palliative Care. 2004 [cited January 13 2021]. Available online: http://www.who.int/cancer/palliative/definition/en/
16. Downing J, Knapp C, Muckaden MA, et al. Priorities for global research into children's palliative care: results of an International Delphi Study. BMC Palliat Care 2015;14:36.
17. Calhoun BC, Hoeldtke NJ, Hinson RM, et al. Perinatal hospice: should all centers have this service? Neonatal Netw 1997;16:101-2.
18. Limbo R, Wool C. Perinatal Palliative Care. J Obstet Gynecol Neonatal Nurs 2016;45:611-3.
19. Balaguer A, Martín-Ancel A, Ortigoza-Escobar D, et al. The model of Palliative Care in the perinatal setting: a review of the literature. BMC Pediatr 2012;12:25.
20. Bidegain M, Younge N. Comfort care vs. Palliative Care: is there a difference in neonates? Neoreviews. 2015;16:333-9.
21. Dombrecht L, Chambaere K, Beernaert K, et al. Components of Perinatal Palliative Care: An Integrative Review. Children (Basel) 2023;10:482.
22. Silveira AO, Wernet M, Franco LF, et al. Parents' hope in perinatal and neonatal palliative care: a scoping review. BMC Palliat Care 2023;22:202.
23. Marc-Aurele KL. Decisions Parents Make When Faced With Potentially Life-Limiting Fetal Diagnoses and the Importance of Perinatal Palliative Care. Front Pediatr 2020;8:574556.
24. Cortezzo DE, Ellis K, Schlegel A. Perinatal Palliative Care Birth Planning as Advance Care Planning. Front Pediatr 2020;8:556.
25. Wool C, Parravicini E. The Neonatal Comfort Care Program: Origin and Growth Over 10 Years. Front Pediatr 2020;8:588432.
26. Younge N, Smith PB, Goldberg RN, et al. Impact of a palliative care program on end-of-life care in a neonatal intensive care unit. J Perinatol 2015;35:218-22.
27. Dyer KA. Identifying, understanding, and working with grieving parents in the NICU, Part I: Identifying and understanding loss and the grief response. Neonatal Netw 2005;24:35-46.
28. Lemmon ME, Bidegain M, Boss RD. Palliative care in neonatal neurology: robust support for infants, families and clinicians. J Perinatol 2016;36:331-7.
29. Kenner C, Press J, Ryan D. Recommendations for palliative and bereavement care in the NICU: a family-centered integrative approach. J Perinatol 2015;35 Suppl 1:S19-23.
30. Palliative Care key Facts. 2020 [cited January 13, 2020]. Available online: https://www.who.int/news-room/fact-sheets/detail/palliative-care
31. Knapp C, Woodworth L, Wright M, et al. Pediatric palliative care provision around the world: a systematic review. Pediatr Blood Cancer 2011;57:361-8.
32. World Health Organization. Palliative Care Geneva 2020. Available online: https://www.who.int/news-room/fact-sheets/detail/palliative-care
33. World Health Organization. Integrating Palliative Care and symptom relief into paediatrics: a WHO guide for health care planners, implementers and managers. World Health Organization. Geneva; 2018.
34. Abayneh M, Rent S, Ubuane PO, et al. Perinatal palliative care in sub-Saharan Africa: recommendations for practice, future research, and guideline development. Front Pediatr 2023;11:1217209.
35. Sankar MJ, Natarajan CK, Das RR, et al. When do newborns die? A systematic review of timing of overall and cause-specific neonatal deaths in developing countries. J Perinatol 2016;36 Suppl 1:S1-S11.
36. Dol J, Hughes B, Bonet M, et al. Timing of neonatal mortality and severe morbidity during the postnatal period: a systematic review. JBI Evid Synth 2023;21:98-199.
37. Hug L, You D, Blencowe H, et al. Global, regional, and national estimates and trends in stillbirths from 2000 to 2019: a systematic assessment. Lancet 2021;398:772-85.
38. Committee on Approaching Death: Addressing Key End of Life Issues; Institute of Medicine. Dying in America: Improving Quality and Honoring Individual Preferences Near the End of Life. Washington (DC): National Academies Press (US); 2015 Mar 19.
39. Catlin A, Brandon D, Wool C, et al. Palliative and End-of-Life Care for Newborns and Infants: From the National Association of Neonatal Nurses. Adv Neonatal Care 2015;15:239-40.
40. Shakespeare C, Merriel A, Bakhbakhi D, et al. The RESPECT Study for consensus on global bereavement care after stillbirth. Int J Gynaecol Obstet 2020;149:137-47.
41. ACGME. ACGME Program Requirements for Graduate Medical Education in Pediatrics 2019 Available online: https://www.acgme.org/Specialties/Program-Requirements-and-FAQs-and-Applications/pfcatid/16/Pediatrics
42. Paulsen K, Wu DS, Mehta AK. Primary Palliative Care Education for Trainees in U.S. Medical Residencies and Fellowships: A Scoping Review. J Palliat Med

2021;24:354-75.
43. Knaul FM, Farmer PE, Krakauer EL, et al. Alleviating the access abyss in palliative care and pain relief-an imperative of universal health coverage: the Lancet Commission report. Lancet 2018;391:1391-454.
44. Benini F, Papadatou D, Bernadá M, et al. International Standards for Pediatric Palliative Care: From IMPaCCT to GO-PPaCS. J Pain Symptom Manage 2022;63:e529-43.
45. Tricco AC, Lillie E, Zarin W, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med 2018;169:467-73.
46. Peters MD, Godfrey CM, Khalil H, et al. Guidance for conducting systematic scoping reviews. Int J Evid Based Healthc 2015;13:141-6.
47. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int J Soc Res Methodol 2005;8:19-32.
48. Innovation VH. Covidence systematic review software Available from: www.covidence.org.
49. Abdel Razeq NM. End-of-life Decisions at Neonatal Intensive Care Units: Jordanian Nurses Attitudes and Viewpoints of Who, When, and How. J Pediatr Nurs 2019;44:e36-44.
50. Abdel Razeq NM. Physicians' standpoints on end-of-life decisions at the neonatal intensive care units in Jordan. J Child Health Care 2019;23:579-95.
51. Abdel Razeq NM, Alduraidi H, Halasa S, et al. Clinicians' Self-Reported Practices Related to End-of-Life Care for Infants in NICUs in Jordan. J Obstet Gynecol Neonatal Nurs 2020;49:78-90.
52. Arias-Casais N, Garralda E, Pons JJ, et al. Mapping Pediatric Palliative Care Development in the WHO-European Region: Children Living in Low-to-Middle-Income Countries Are Less Likely to Access It. J Pain Symptom Manage 2020;60:746-53.
53. Azzizadeh Forouzi M, Banazadeh M, Ahmadi JS, et al. Barriers of Palliative Care in Neonatal Intensive Care Units. Am J Hosp Palliat Care 2017;34:205-11.
54. Banazadeh M, Khanjari S, Naddaf A, et al. Healthcare professionals-related factors affecting parents' participation in decision making for neonates with life-threatening conditions: A qualitative study. J Eval Clin Pract 2021;27:885-97.
55. Bazmi S, Forouzandeh M. Ethical Challenges of Saving Extremely Premature Infants Using a Grounded Theory: Iranian Neonatologists' Perception. Iranian Journal of Neonatology 2021;12:70-80.
56. Bilgen H, Topuzoğlu A, Kuşçu K, et al. End-of-life decisions in the newborn period: attitudes and practices of doctors and nurses. Turk J Pediatr 2009;51:248-56.
57. Camilo BHN, Serafim TC, Salim NR, et al. Communication of bad news in the context of neonatal palliative care: experience of intensivist nurses. Rev Gaucha Enferm 2022;43:e20210040.
58. Clelland D, van Steijn D, Macdonald ME, et al. Global development of children's palliative care: An international survey of in-nation expert perceptions in 2017. Wellcome Open Res 2020;5:99.
59. Chong L, Khalid F. Paediatric palliative care in Malaysia: Survey of knowledge base and barriers to referral. Prog Palliat Care 2014;22:195-200.
60. de Castro de Oliveira F, Cleveland LM, Darilek U, et al. Brazilian Neonatal Nurses' Palliative Care Experiences. J Perinat Neonatal Nurs 2018;32:E3-10.
61. Fadadu PP, Liu JC, Schiltz BM, et al. A Mixed-Methods Exploration of Pediatric Intensivists' Attitudes toward End-of-Life Care in Vietnam. J Palliat Med 2019;22:885-93.
62. Fernandes VD, Neto JAS, Coutinho KAA, et al. Nursing team's conceptions about palliative care in newborns/Concepcoes da equipe de enfermagem sobre cuidados paliativos em recem-nascidos/Concepciones del equipo de enfermeria sobre los cuidados paliativos en los neonatos. Rev enferm UERJ 2021;29:e57257.
63. Gibelli MABC, de Carvalho WB, Krebs VLJ. Limits of therapeutic intervention in a tertiary neonatal intensive care unit in patients with major congenital anomalies in Brazil. J Paediatr Child Health 2021;57:1966-70.
64. Girgin BA, Gözen D, Aktaş E, et al. Attitudes Toward Neonatal Palliative Care Among Turkish Nurses and Physicians: A Comparative Cross-sectional Study. J Hosp Palliat Nurs 2022;24:E185-96.
65. Grether P, Lisker R, Loria A, et al. End-of-life decisions in perinatal care: A view from health-care providers in Mexico. Salud Publica Mex 2015;57:489-95.
66. Grunauer M, Mikesell C, Bustamante G, et al. Availability and Quality of Grief and Bereavement Care in Pediatric Intensive Care Units Around the World, Opportunities for Improvement. Front Pediatr 2021;9:742916.
67. Grüneberg ES, Ramos-Guerrero J, Pastrana T. Challenges in the Provision of Pediatric Palliative Care in Mexico: A Cross-Sectional Web-Based Survey. J Palliat Care 2024;39:58-67.
68. Gu L, Li ZZ, Peng NH, et al. Barriers to and Facilitators of Neonatal Palliative Care Among Neonatal Professionals in China. Am J Hosp Palliat Care 2022;39:695-700.
69. Guglani L, Lodha R. Attitudes towards end-of-life issues

amongst pediatricians in a tertiary hospital in a developing country. J Trop Pediatr 2008;54:261-4.
70. Kadivar M, Mardani-Hamooleh M, Kouhnavard M, et al. Nurses' attitudes toward caring for terminally ill neonates and their families in Iran: a cross-sectional study. J Med Ethics Hist Med 2021;14:4.
71. Khalid F, Chong LA. National Pediatric Palliative Care Needs from Hospital Deaths. Indian J Palliat Care 2019;25:135-41.
72. Khraisat OM, Alakour NA, O'Neill TM. Pediatric End-of-life Care Barriers and Facilitators: Perception of Nursing Professionals in Jordan. Indian J Palliat Care 2017;23:199-206.
73. Maud L. Guidelines to supporting mothers with pregnancy loss at a public hospital in South Africa. Life Science Journal 2013;10:972-7.
74. Marçola L, Barbosa SMM, Zoboli I, et al. Analysis of death and palliative care in a neonatal intensive care unit. Rev Paul Pediatr 2017;35:125-9.
75. Mascarenhas D, Goyal M, Nanavati R. Neonatal palliative care practices: an Indian perspective. Paediatr Int Child Health 2022;42:22-8.
76. McAdams RM, Erdenebileg A, Batra M, et al. Attitudes of healthcare providers towards non-initiation and withdrawal of neonatal resuscitation for preterm infants in Mongolia. J Health Popul Nutr 2012;30:346-52.
77. Miljeteig I, Norheim OF. My job is to keep him alive, but what about his brother and sister? How Indian doctors experience ethical dilemmas in neonatal medicine. Dev World Bioeth 2006;6:23-32.
78. Miljeteig I, Sayeed SA, Jesani A, et al. Impact of ethics and economics on end-of-life decisions in an Indian neonatal unit. Pediatrics 2009;124:e322-8.
79. Mishra S, Mukhopadhyay K, Tiwari S, et al. End-of-Life Care: Consensus Statement by Indian Academy of Pediatrics. Indian Pediatr 2017;54:851-9.
80. Mohammadi A, Tahmasebi M, Mojen LK, et al. Evaluation of Care Providers' Attitude toward Perinatal Palliative Care and its Challenges in the Selected Teaching Hospitals of Tehran in 2019. Indian J Palliat Care 2021;27:513-20.
81. Nayeri F, Asghari F, Baser A, et al. Views and Decisions of Physicians in Encountering Neonates with Poor Prognosis. Arch Iran Med 2017;20:172-7.
82. Osifo OD, Ugiagbe EE. The prevalence and challenges of abandoned dead neonates in an African referral center. Annals of Pediatric Surgery 2011;7:105-7.
83. Rocha AMO, de Mello MJG, Torres JRD, et al. Palliative Care in Congenital Syndrome of the Zika Virus Associated with Hospitalization and Emergency Consultation: Palliative Care and Congenital Syndrome of Zika. J Trop Med 2018;2018:1025193.
84. Salimi P, Farahani AS, Rasouli M, et al. An investigation to the palliative care requirements in neonatal intensive care units from the perspective of care providers. PJMHS 2020;14:1603-9.
85. Şener Taplak A, Gürol A, Polat S. Nurses' Perceptions of the Palliative Care Needs of Neonates With Multiple Congenital Anomalies. J Hosp Palliat Nurs 2020;22:137-44.
86. Shattnawi KK, Younis BJ, Omran SM. Neonatal Nurses' Perceptions and Needs of End-of-Life Care Practice: A Jordanian Qualitative Study. J Hosp Palliat Nurs 2022. [Epub ahead of print]. doi: 10.1097/NJH.0000000000000903.
87. Sülün AA, Yayan EH, Yıldırım M. Effect of Neonatal Nurses' Attitudes to Death on Palliative Care. J Pediatr Emerg Intensive Care Med 2021;8:151-8.
88. Taib F, Alias S, Yusoff W. Clinical Characteristic of Paediatric Palliative Care Cases in North Eastern of Peninsular Malaysia. Malays J Med Sci 2021;17:133-6.
89. Wilkinson DJ, Villanueva-Uy ME, Hayden D, et al. Decision-making around resuscitation of extremely preterm infants in the Philippines: A consensus guideline. J Paediatr Child Health 2019;55:1023-8.
90. Yenal K, Tektaş P, Dönmez A, et al. Perinatal Loss: Experiences of Midwives and Nurses. Omega (Westport) 2023;87:1174-88.
91. Zhong Y, Black BP, Kain VJ, et al. Facilitators and Barriers Affecting Implementation of Neonatal Palliative Care by Nurses in Mainland China. Front Pediatr 2022;10:887711.
92. Abuhammad S, Almasri R. Impact of educational programs on nurses' knowledge and attitude toward pediatric palliative care. Palliat Support Care 2022;20:397-406.
93. Amery JM, Rose CJ, Byarugaba C, et al. A study into the children's palliative care educational needs of health professionals in Uganda. J Palliat Med 2010;13:147-53.
94. Doherty M, Rayala S, Evans E, et al. Using Virtual Learning to Build Pediatric Palliative Care Capacity in South Asia: Experiences of Implementing a Teleteaching and Mentorship Program (Project ECHO). JCO Glob Oncol 2021;7:210-22.
95. Hamdoune M, Gantare A. Study to Assess the Effectiveness of Simulation Technique to Overcome Misperceptions of Undergraduate Nursing Students' About Paediatric Palliative Care. Indian J Palliat Care 2022;28:192-8.
96. Latha MS, Thirugnanasambandam RP, Balakrishnan N, et

al. The need of pediatric palliative care education among pediatric postgraduates in South India. Indian J Pediatr 2014;81:455-9.
97. Postier AC, Wolfe J, Hauser J, et al. Education in Palliative and End-of-Life Care-Pediatrics: Curriculum Use and Dissemination. J Pain Symptom Manage 2022;63:349-58.
98. Qian J, Sun S, Wang M, et al. Effectiveness of the implementation of a perinatal bereavement care training programme on nurses and midwives: protocol for a mixed-method study. BMJ Open 2022;12:e059660.
99. Shen Q, Liang J, Gao Y. Experience of undergraduate midwifery students faced with perinatal death in clinical practice: A qualitative study. Nurse Educ Today 2022;108:105159.
100. Zargham-Boroujeni A, Bagheri SH, Kalantari M, et al. Effect of end-of-life care education on the attitudes of nurses in infants' and children's wards. Iran J Nurs Midwifery Res 2011;16:93-9.
101. Abdel Razeq NM, Al-Gamal E. Informing mothers of neonatal death and the need for family-centered bereavement care: A phenomenological qualitative study. J Spec Pediatr Nurs 2021;26:e12328.
102. Ahmed J, Raynes-Greenow C, Alam A. Traditional practices during pregnancy and birth, and perceptions of perinatal losses in women of rural Pakistan. Midwifery 2020;91:102854.
103. Asare GO, Annor F, Yendork JS. "There Is Nothing I Can't Face Now": Coping With Child Loss Among Bereaved Parents in Ghana. Omega (Westport) 2022. [Epub ahead of print]. doi: 10.1177/00302228221135296.
104. Ayebare E, Lavender T, Mweteise J, et al. The impact of cultural beliefs and practices on parents' experiences of bereavement following stillbirth: a qualitative study in Uganda and Kenya. BMC Pregnancy Childbirth 2021;21:443.
105. Christou A, Alam A, Hofiani SMS, et al. 'I should have seen her face at least once': parent's and healthcare providers' experiences and practices of care after stillbirth in Kabul province, Afghanistan. J Perinatol 2021;41:2182-95.
106. Das MK, Arora NK, Gaikwad H, et al. Grief reaction and psychosocial impacts of child death and stillbirth on bereaved North Indian parents: A qualitative study. PLoS One 2021;16:e0240270.
107. Das MK, Arora NK, Chellani HK, et al. Perceptions of the parents of deceased children and of healthcare providers about end-of-life communication and breaking bad news at a tertiary care public hospital in India: A qualitative exploratory study. PLoS One 2021;16:e0248661.
108. Gozuyesil E, Manav AI, Yesilot SB, et al. Grief and ruminative thought after perinatal loss among Turkish women: one-year cohort study. Sao Paulo Med J 2022;140:188-98.
109. Hasanpour M, Sadeghi N, Heidarzadeh M. Parental needs in infant's end-of-life and bereavement in NICU: A qualitative study. J Educ Health Promot 2016;5:19.
110. Horey D, Boyle FM, Cassidy J, et al. Parents' experiences of care offered after stillbirth: An international online survey of high and middle-income countries. Birth 2021;48:366-74.
111. Irani M, Khadivzadeh T, Asghari-Nekah SM, et al. Coping Strategies of Pregnant Women with Detected Fetal Anomalies in Iran: A Qualitative Study. Iran J Nurs Midwifery Res 2019;24:227-33.
112. Kuti O, Ilesanmi CE. Experiences and needs of Nigerian women after stillbirth. Int J Gynaecol Obstet 2011;113:205-7.
113. Meyer AC, Opoku C, Gold KJ. "They Say I Should not Think About It:": A Qualitative Study Exploring the Experience of Infant Loss for Bereaved Mothers in Kumasi, Ghana. Omega (Westport) 2018;77:267-79.
114. Milton R, Alkali FI, Modibbo F, et al. A qualitative focus group study concerning perceptions and experiences of Nigerian mothers on stillbirths. BMC Pregnancy Childbirth 2021;21:830.
115. Nournorouzi L, Nourizadeh R, Hakimi S, et al. The effect of a coping program on mothers' grief following perinatal deaths. J Educ Health Promot 2022;11:248.
116. Okondo C, Ndwiga C, Sripad P, et al. "You can't even ask a question about your child": Examining experiences of parents or caregivers during hospitalization of their sick young children in Kenya: A qualitative study. Front Health Serv 2022;2:947334.
117. Paris GF, Montigny F, Pelloso SM. Factors associated with the grief after stillbirth: a comparative study between Brazilian and Canadian women. Rev Esc Enferm USP 2016;50:546-53.
118. Paris GF, Montigny F, Pelloso SM. Professional practice in caring for maternal grief in the face of stillbirth in two countries. Rev Bras Enferm 2021;74:e20200253.
119. Popoola T, Skinner J, Woods M. Exploring the Social Networks of Women Bereaved by Stillbirth: A Descriptive Qualitative Study. J Pers Med 2021;11:1056.
120. Punaglom N, Kongvattananon P, Shu BC. Grief Journey: Perception and Response Based on Cultural Beliefs in Thai Women Experiencing Perinatal Death. PRIJNR 2022;26:327-40.

121. Punaglom N, Kongvattananon P, Shu BC. Overcoming Grief in Thai Women Experiencing Perinatal Death: A Grounded Theory Study. PRIJNR 2022;26:627-41.
122. Ranjbar F, Oskouie F, Dizaji H, et al. Experiences of Iranian Women with Prenatal Diagnosis of Fetal Abnormalities: A Qualitative Study. The Qualitative Report 2021;26:2282-96.
123. Roberts LR, Montgomery S, Lee JW, et al. Social and cultural factors associated with perinatal grief in Chhattisgarh, India. J Community Health 2012;37:572-82.
124. Roberts LR, Montgomery SB. Mindfulness-based Intervention for Perinatal Grief after Stillbirth in Rural India. Issues Ment Health Nurs 2015;36:222-30.
125. Roberts L, Montgomery S. Mindfulness-based Intervention for Perinatal Grief Education and Reduction among Poor Women in Chhattisgarh, India: a Pilot Study. Interdiscip J Best Pract Glob Dev 2016;2:1.
126. Roberts LR, Montgomery SB. Mindfulness-Based Intervention for Perinatal Grief in Rural India: Improved Mental Health at 12 Months Follow-Up. Issues Ment Health Nurs 2016;37:942-51.
127. Sadeghi N, Hasanpour M, Heidarzadeh M. Information and Communication Needs of Parents in Infant End-of-Life: A Qualitative Study. Iran Red Crescent Med J 2016;18:e25665.
128. Samutri E, Widyawati W, Nisman WA, et al. The experience of chronic sorrow among Indonesian mothers who have suffered recent perinatal loss. Open Access Maced J Med Sci 2022;10:114-21.
129. Silbermann M, Arnaout M, Daher M, et al. Palliative cancer care in Middle Eastern countries: accomplishments and challenges. Ann Oncol 2012;23 Suppl 3:15-28.
130. Palumbo N, Tilly A, Namisango E, et al. Palliative care in Malawi: a scoping review. BMC Palliat Care 2023;22:146.
131. Rhee JY, Garralda E, Torrado C, et al. Palliative care in Africa: a scoping review from 2005-16. Lancet Oncol 2017;18:e522-31.
132. Rhee JY, Garralda E, Namisango E, et al. An Analysis of Palliative Care Development in Africa: A Ranking Based on Region-Specific Macroindicators. J Pain Symptom Manage 2018;56:230-8.
133. Siddiqui MF, Nohra L, Saleh M, et al. Pediatric Oncology, Palliative Care and Low- or Middle- Income Countries: A Call for Action. Glob Pediatr Health 2023;10:2333794X231188591.
134. Caruso Brown AE, Howard SC, Baker JN, et al. Reported availability and gaps of pediatric palliative care in low- and middle-income countries: a systematic review of published data. J Palliat Med 2014;17:1369-83.
135. Connor S, Sisimayi C, Downing J, et al. Assessment of the need for palliative care for children in South Africa. Int J Palliat Nurs 2014;20:130-4.
136. Kukora S, Keefer P, Pituch K, et al. Thematic Analysis of Interprofessional Provider Perceptions of Pediatric Death. J Pediatr Nurs 2019;47:92-9.
137. Cortezzo DE, Sanders MR, Brownell EA, et al. End-of-life care in the neonatal intensive care unit: experiences of staff and parents. Am J Perinatol 2015;32:713-24.
138. McCarthy FT, Kenis A, Parravicini E. Perinatal palliative care: focus on comfort. Front Pediatr 2023;11:1258285.
139. Berterame S, Erthal J, Thomas J, et al. Use of and barriers to access to opioid analgesics: a worldwide, regional, and national study. Lancet 2016;387:1644-56.
140. Ju C, Wei L, Man KKC, et al. Global, regional, and national trends in opioid analgesic consumption from 2015 to 2019: a longitudinal study. Lancet Public Health 2022;7:e335-46.
141. Hannon B, Zimmermann C, Knaul FM, et al. Provision of Palliative Care in Low- and Middle-Income Countries: Overcoming Obstacles for Effective Treatment Delivery. J Clin Oncol 2016;34:62-8.
142. Chichester M, Wool C. The Meaning of Food and Multicultural Implications for Perinatal Palliative Care. Nurs Womens Health 2015;19:224-35.
143. Diekema DS, Botkin JR; . Clinical report--Forgoing medically provided nutrition and hydration in children. Pediatrics 2009;124:813-22.
144. Ziegler TR, Kuebelbeck A. Close to Home: Perinatal Palliative Care in a Community Hospital. Adv Neonatal Care 2020;20:196-203.
145. Perinatal Palliative Care: ACOG COMMITTEE OPINION, Number 786. Obstet Gynecol 2019;134:e84-9.
146. Perinatal Palliative Care. J Obstet Gynecol Neonatal Nurs 2024;53:e1-3.
147. Schafer R, LoGiudice JA, Hargwood P, et al. The Role of Midwives in US Perinatal Palliative Care: A Scoping Review. J Midwifery Womens Health 2024. [Epub ahead of print]. doi: 10.1111/jmwh.13664.
148. Rawlinson F, Gwyther L, Kiyange F, et al. The current situation in education and training of health-care professionals across Africa to optimise the delivery of palliative care for cancer patients. Ecancermedicalscience 2014;8:492.
149. Ogbenna A, Drane D, Crowe AN, et al. Building the Nigerian Palliative Care Workforce: An Interdisciplinary Distance Learning Training Program. Ann Glob Health

2022;88:96.
150. Kwok IB, Vembu K, Brown K, et al. Project ECHO in the Caribbean: Building a Virtual Community for Palliative Care Education Needs. J Pain Symptom Manage 2022;64:e77-81.
151. Lynch-Godrei A, Sapkota S, Rowe J, et al. An Online Pediatric Palliative Care Education and Mentoring (Project ECHO) in Nepal: A Program Implementation Case Study and Assessment of Changes in Healthcare Providers' Knowledge, Confidence, and Attitudes. J Med Educ Curric Dev 2024;11:23821205241234541.
152. Abou-Zamzam A, McCaw J, Niarison HR, et al. Cross-sectional study in Madagascar demonstrates efficacy of virtual mentoring and flipped classroom modifications of neonatal resuscitation programme Helping Babies Breathe. Acta Paediatr 2023;112:1783-9.
153. Umoren R, Bucher S, Hippe DS, et al. eHBB: a randomised controlled trial of virtual reality or video for neonatal resuscitation refresher training in healthcare workers in resource-scarce settings. BMJ Open 2021;11:e048506.
154. Netowrk ICPC. ICPCN's e-leanring Programme. Available online: https://icpcn.org/resources/icpcns-e-learning-programme/
155. Kenneson SA, Hughes-Visentin A, Wrigley J, et al. Pediatric Palliative Care Program Implementation in LMICs: A Systematic Review using SWOT Analysis. J Pain Symptom Manage 2023;66:338-350.e11.
156. Stoltenberg M, Spence D, Daubman BR, et al. The central role of provider training in implementing resource-stratified guidelines for palliative care in low-income and middle-income countries: Lessons from the Jamaica Cancer Care and Research Institute in the Caribbean and Universidad Católica in Latin America. Cancer 2020;126 Suppl 10:2448-57.
157. Rhee JY, Garralda E, Namisango E, et al. Developing Macroindicators of Palliative Care Development in Africa: A Process with In-Country and International Experts. J Palliat Med 2018;21:342-53.
158. Milstein J. A paradigm of integrative care: healing with curing throughout life, "being with" and "doing to". J Perinatol 2005;25:563-8.
159. Hoeldtke NJ, Calhoun BC. Perinatal hospice. Am J Obstet Gynecol 2001;185:525-9.
160. Davoudian T, Gibbins K, Cirino NH. Perinatal Loss: The Impact on Maternal Mental Health. Obstet Gynecol Surv 2021;76:223.
161. Johnson JE, Price AB, Kao JC, et al. Interpersonal psychotherapy (IPT) for major depression following perinatal loss: a pilot randomized controlled trial. Arch Womens Ment Health 2016;19:845-59.
162. Lok IH, Yip AS, Lee DT, et al. A 1-year longitudinal study of psychological morbidity after miscarriage. Fertil Steril 2010;93:1966-75.
163. O'Hara MW, Wisner KL. Perinatal mental illness: definition, description and aetiology. Best Pract Res Clin Obstet Gynaecol 2014;28:3-12.
164. Lewkowitz AK, Rosenbloom JI, Keller M, et al. Association between stillbirth ≥23 weeks gestation and acute psychiatric illness within 1 year of delivery. Am J Obstet Gynecol 2019;221:491.e1-491.e22.
165. Chung MC, Reed J. Posttraumatic Stress Disorder Following Stillbirth: Trauma Characteristics, Locus of Control, Posttraumatic Cognitions. Psychiatr Q 2017;88:307-21.
166. Westby CL, Erlandsen AR, Nilsen SA, et al. Depression, anxiety, PTSD, and OCD after stillbirth: a systematic review. BMC Pregnancy Childbirth 2021;21:782.
167. Daugirdaitė V, van den Akker O, Purewal S. Posttraumatic stress and posttraumatic stress disorder after termination of pregnancy and reproductive loss: a systematic review. J Pregnancy 2015;2015:646345.
168. Gold KJ, Leon I, Boggs ME, et al. Depression and Posttraumatic Stress Symptoms After Perinatal Loss in a Population-Based Sample. J Womens Health (Larchmt) 2016;25:263-9.
169. Sawyer A, Ayers S, Smith H. Pre- and postnatal psychological wellbeing in Africa: a systematic review. J Affect Disord 2010;123:17-29.
170. World Health Organization. Thinking Healthy: A Manual for Psychosocial Management of Perinatal Depression. Geneva; 2015.
171. Thomas AO, Bakas T, Miller E, et al. Burnout and Turnover among NICU Nurses. MCN Am J Matern Child Nurs 2022;47:33-9.
172. Ravaldi C, Mosconi L, Mannetti L, et al. Post-traumatic stress symptoms and burnout in healthcare professionals working in neonatal intensive care units: Results from the STRONG study. Front Psychiatry 2023;14:1050236.
173. Ravaldi C, Carelli E, Frontini A, et al. The BLOSSoM study: Burnout after perinatal LOSS in Midwifery. Results of a nation-wide investigation in Italy. Women Birth 2022;35:48-58.
174. Almansa-Sáez AM, Carmona-Samper ME, Merchán-Carrillo AM, et al. Level of professional quality of life and coping with death competence in healthcare professionals

exposed to perinatal loss: A cross-sectional study. Death Stud 2024;48:140-9.
175. Mills M, Cortezzo DE. Moral Distress in the Neonatal Intensive Care Unit: What Is It, Why It Happens, and How We Can Address It. Front Pediatr 2020;8:581.
176. Grauerholz KR, Fredenburg M, Jones PT, et al. Fostering Vicarious Resilience for Perinatal Palliative Care Professionals. Front Pediatr 2020;8:572933.
177. Kelaher M, Ng L, Knight K, et al. Equity in global health research in the new millennium: trends in first-authorship for randomized controlled trials among low- and middle-income country researchers 1990-2013. Int J Epidemiol 2016;45:2174-83.
178. Rees CA, Rajesh G, Manji HK, et al. Has Authorship in the Decolonizing Global Health Movement Been Colonized? Ann Glob Health 2023;89:42.
179. Abu-Odah H, Molassiotis A, Liu JYW. Global palliative care research (2002-2020): bibliometric review and mapping analysis. BMJ Support Palliat Care 2022;12:376-87.
180. Wang Y, Shan C, Tian Y, et al. Bibliometric Analysis of Global Research on Perinatal Palliative Care. Front Pediatr 2022;9:827507.
181. Rhee JY, Garralda E, Torrado C, et al. Publications on Palliative Care Development Can Be Used as an Indicator of Palliative Care Development in Africa. J Palliat Med 2017;20:1372-7.

Cite this article as: Rent S, Titchiner D, Rholl E, Lyle A, Diego E, North K, Rahiem S, Garmon A, Gaffur R, Shayo A, Diez Recinos AL, Lemmon M, Docherty SL. Perinatal palliative care in low- and middle-income countries: a scoping review. Ann Palliat Med 2024;13(6):1420-1448. doi: 10.21037/apm-24-87

Supplementary

Appendix 1 Databases & search strategy

Pubmed

Set #	Date of Search: 8/18/2022	Results
1	"palliation"[tiab] OR "palliative"[tiab] OR "palliative care"[MeSH] OR "terminal care"[MeSH] OR "terminal care"[tiab] OR "bereavement"[MeSH] OR "bereavement"[tiab] OR "Advance Care Planning"[Mesh] OR "advance care planning"[tiab] OR "Hospice Care"[Mesh] OR "hospice*"[tiab] OR "Hospices"[Mesh] OR "end of life care"[tiab] OR "Grief"[Mesh] OR "grief"[tiab]	177,305
2	"Developing Countries"[Mesh] OR "Afghanistan"[Mesh] OR "Bangladesh"[Mesh] OR "Benin"[Mesh] OR "Burkina Faso"[Mesh] OR "Burundi"[Mesh] OR "Cambodia"[Mesh] OR "Central African Republic"[Mesh] OR "Chad"[Mesh] OR "Comoros"[Mesh] OR "Democratic Republic of the Congo"[Mesh] OR "Eritrea"[Mesh] OR "Ethiopia"[Mesh] OR "Gambia"[Mesh] OR "Guinea"[Mesh] OR "Guinea-Bissau"[Mesh] OR "Haiti"[Mesh] OR "Kenya"[Mesh] OR "Democratic People's Republic of Korea"[Mesh] OR "Liberia"[Mesh] OR "Madagascar"[Mesh] OR "Malawi"[Mesh] OR "Mali"[Mesh] OR "Mozambique"[Mesh] OR "Myanmar"[Mesh] OR "Nepal"[Mesh] OR "Niger"[Mesh] OR "Rwanda"[Mesh] OR "Sierra Leone"[Mesh] OR "Somalia"[Mesh] OR "Tajikistan"[Mesh] OR "Tanzania"[Mesh] OR "Togo"[Mesh] OR "Uganda"[Mesh] OR "Zimbabwe"[Mesh] OR "Armenia"[Mesh] OR "Bhutan"[Mesh] OR "Bolivia"[Mesh] OR "Cameroon"[Mesh] OR "Cabo Verde"[Mesh] OR "Congo"[Mesh] OR "Cote d'Ivoire"[Mesh] OR "Djibouti"[Mesh] OR "Egypt"[Mesh] OR "El Salvador"[Mesh] OR "Georgia (Republic)"[Mesh] OR "Ghana"[Mesh] OR "Guatemala"[Mesh] OR "Guyana"[Mesh] OR "Honduras"[Mesh] OR "Indonesia"[Mesh] OR "India"[Mesh] OR "Kosovo"[Mesh] OR "Kyrgyzstan"[Mesh] OR "Laos"[Mesh] OR "Lesotho"[Mesh] OR "Mauritania"[Mesh] OR "Micronesia"[Mesh] OR "Moldova"[Mesh] OR "Mongolia"[Mesh] OR "Morocco"[Mesh] OR "Nicaragua"[Mesh] OR "Nigeria"[Mesh] OR "Pakistan"[Mesh] OR "Papua New Guinea"[Mesh] OR "Paraguay"[Mesh] OR "Philippines"[Mesh] OR "Independent State of Samoa"[Mesh] OR "Atlantic Islands"[Mesh] OR "Senegal"[Mesh] OR "Melanesia"[Mesh] OR "Sri Lanka"[Mesh] OR "Sudan"[Mesh] OR "Eswatini"[Mesh] OR "Syria"[Mesh] OR "Timor-Leste"[Mesh] OR "Ukraine"[Mesh] OR "Uzbekistan"[Mesh] OR "Vanuatu"[Mesh] OR "Vietnam"[Mesh] OR "Middle East"[Mesh] OR "Yemen"[Mesh] OR "Zambia"[Mesh] OR "Angola"[Mesh] OR "Albania"[Mesh] OR "Algeria"[Mesh] OR "American Samoa"[Mesh] OR "Argentina"[Mesh] OR "Azerbaijan"[Mesh] OR "Republic of Belarus"[Mesh] OR "Belize"[Mesh] OR "Bosnia and Herzegovina"[Mesh] OR "Botswana"[Mesh] OR "Brazil"[Mesh] OR "Bulgaria"[Mesh] OR "China"[Mesh] OR "Colombia"[Mesh] OR "Costa Rica"[Mesh] OR "Cuba"[Mesh] OR "Dominica"[Mesh] OR "Dominican Republic"[Mesh] OR "Ecuador"[Mesh] OR "Equatorial Guinea"[Mesh] OR "Fiji"[Mesh] OR "Gabon"[Mesh] OR "Grenada"[Mesh] OR "Iran"[Mesh] OR "Iraq"[Mesh] OR "Jamaica"[Mesh] OR "Jordan"[Mesh] OR "Kazakhstan"[Mesh] OR "Lebanon"[Mesh] OR "Libya"[Mesh] OR "Republic of North Macedonia"[Mesh] OR "Malaysia"[Mesh] OR "Indian Ocean Islands"[Mesh] OR "Mexico"[Mesh] OR "Montenegro"[Mesh] OR "Namibia"[Mesh] OR "Palau"[Mesh] OR "Panama"[Mesh] OR "Peru"[Mesh] OR "Romania"[Mesh] OR "Russia"[Mesh] OR "Serbia"[Mesh] OR "Seychelles"[Mesh] OR "South Africa"[Mesh] OR "Saint Lucia"[Mesh] OR "Saint Vincent and the Grenadines"[Mesh] OR "Suriname"[Mesh] OR "Thailand"[Mesh] OR "Tonga"[Mesh] OR "Tunisia"[Mesh] OR "Turkey"[Mesh] OR "Turkmenistan"[Mesh] OR "Venezuela"[Mesh] OR "Afghanistan"[all fields] OR "Bangladesh"[all fields] OR "Benin"[all fields] OR "Burkina Faso"[all fields] OR "Burundi"[all fields] OR "Cambodia"[all fields] OR "cabo verde"[all fields] OR "Central African Republic"[all fields] OR "Chad"[all fields] OR "Comoros"[all fields] OR "Democratic Republic of the Congo"[all fields] OR "Eritrea"[all fields] OR "Ethiopia"[all fields] OR "Gambia"[all fields] OR "Guinea"[all fields] OR "Guinea-Bissau"[all fields] OR "Haiti"[all fields] OR "Kenya"[all fields] OR "Democratic People's Republic of Korea"[all fields] OR "Liberia"[all fields] OR "Madagascar"[all fields] OR "Malawi"[all fields] OR "Mali"[all fields] OR "Mozambique"[all fields] OR "Myanmar"[all fields] OR "Nepal"[all fields] OR "Niger"[all fields] OR "Rwanda"[all fields] OR "Sierra Leone"[all fields] OR "Somalia"[all fields] OR "Tajikistan"[all fields] OR "Tanzania"[all fields] OR "Togo"[all fields] OR "Uganda"[all fields] OR "Zimbabwe"[all fields] OR "Armenia"[all fields] OR "Bhutan"[all fields] OR "Bolivia"[all fields] OR "Cameroon"[all fields] OR "Cape Verde"[all fields] OR "Congo"[all fields] OR "Cote d'Ivoire"[all fields] OR "Djibouti"[all fields] OR "Egypt"[all fields] OR "El Salvador"[all fields] OR "Georgia (Republic)"[all fields] OR "Ghana"[all fields] OR "Guatemala"[all fields] OR "Guyana"[all fields] OR "Honduras"[all fields] OR "Indonesia"[all fields] OR "India"[all fields] OR "Kiribati"[all fields] OR "Kosovo"[all fields] OR "Kyrgyzstan"[all fields] OR "Kyrgyz"[all fields] OR "Laos"[all fields] OR "lao"[all fields] OR "Lesotho"[all fields] OR "Mauritania"[all fields] OR "Micronesia"[all fields] OR "Moldova"[all fields] OR "Mongolia"[all fields] OR "Morocco"[all fields] OR "Nicaragua"[all fields] OR "Nigeria"[all fields] OR "Pakistan"[all fields] OR "Papua New Guinea"[all fields] OR "Paraguay"[all fields] OR "Philippines"[all fields] OR "Independent State of Samoa"[all fields] OR "Atlantic Islands"[all fields] OR "Sao Tome"[all fields] OR Principe[all fields] OR "Senegal"[all fields] OR "Melanesia"[all fields] OR "Solomon islands"[all fields] OR "Sri Lanka"[all fields] OR "Sudan"[all fields] OR "Swaziland"[all fields] OR "Eswatini"[all fields] OR "Syria"[all fields] OR "East Timor"[all fields] OR "Timor leste"[all fields] OR "Ukraine"[all fields] OR "Uzbekistan"[all fields] OR "Vanuatu"[all fields] OR "Vietnam"[all fields] OR "Middle East"[all fields] OR "west bank"[all fields] OR "Gaza"[all fields] OR "Yemen"[all fields] OR "Zambia"[all fields] OR "Angola"[all fields] OR "Albania"[all fields] OR "Algeria"[all fields] OR "Argentina"[all fields] OR "Samoa"[all fields] OR "Azerbaijan"[all fields] OR "Republic of Belarus"[all fields] OR "Belize"[all fields] OR "Bosnia-Herzegovina"[all fields] OR "Botswana"[all fields] OR "Brazil"[all fields] OR "Bulgaria"[all fields] OR "China"[all fields] OR "Colombia"[all fields] OR "Costa Rica"[all fields] OR "Cuba"[all fields] OR "Dominica"[all fields] OR "Dominican Republic"[all fields] OR "Ecuador"[all fields] OR "Equatorial Guinea"[all fields] OR "Fiji"[all fields] OR "Gabon"[all fields] OR "Grenada"[all fields] OR "Iran"[all fields] OR "Iraq"[all fields] OR "Jamaica"[all fields] OR "Jordan"[all fields] OR "Kazakhstan"[all fields] OR "Lebanon"[all fields] OR "Libya"[all fields] OR "Macedonia"[all fields] OR "Malaysia"[all fields] OR "Indian Ocean Islands"[all fields] OR "Maldives"[all fields] OR "Marshall Islands"[all fields] OR "Mauritius"[all fields] OR "Mexico"[all fields] OR "Montenegro"[all fields] OR "Namibia"[all fields] OR "Palau"[all fields] OR "Panama"[all fields] OR "Peru"[all fields] OR "Romania"[all fields] OR "Russia"[all fields] OR "Russian Federation"[all fields] OR "Serbia"[all fields] OR "Seychelles"[all fields] OR "South Africa"[all fields] OR "Saint Lucia"[all fields] OR "Saint Vincent and the Grenadines"[all fields] OR "Suriname"[all fields] OR "Thailand"[all fields] OR "Tonga"[all fields] OR "Tunisia"[all fields] OR "Turkey"[all fields] OR "Turkmenistan"[all fields] OR "Tuvalu"[all fields] OR "Venezuela"[all fields] OR "low resource"[all fields] OR "under-resourced"[all fields] OR "resource poor"[all fields] OR "under-developed"[all fields] OR "underdeveloped"[all fields] OR "developing country"[all fields] OR "developing countries"[all fields] OR "developing world"[all fields] OR "third world"[all fields] OR lmic[all fields] OR (low[all fields] AND middle[all fields] AND income[all fields])	6,181,670
3	“child*”[tiab] OR "Child"[Mesh] OR infant*[tiab] OR “newborn”[tiab] OR "Infant"[Mesh] OR baby[tiab] OR "Infant, Newborn"[Mesh] OR youth[tiab] OR neonat*[tiab] OR perinatal[tiab] or pediatric*[tiab]	3,502,769
4	#1 AND #2 AND #3	6,171

https://dx.doi.org/10.21037/apm-24-87

Scopus

Set #	Date of Search: 8/18/22	Results
1	TITLE-ABS-KEY(palliation OR "palliative" OR "terminal care" OR bereavement OR "advance care planning" OR "hospice care" OR hospice* OR "end of life care" OR grief)	222,369
2	AFFIL("Afghanistan" OR "Bangladesh" OR "Benin" OR "Burkina Faso" OR "Burundi" OR "Cambodia" OR "cabo verde" OR "Central African Republic" OR "Chad" OR "Comoros" OR "Democratic Republic of the Congo" OR "Eritrea" OR "Ethiopia" OR "Gambia" OR "Guinea" OR "Guinea-Bissau" OR "Haiti" OR "Kenya" OR "Democratic People's Republic of Korea" OR "Liberia" OR "Madagascar" OR "Malawi" OR "Mali" OR "Mozambique" OR "Myanmar" OR "Nepal" OR "Niger" OR "Rwanda" OR "Sierra Leone" OR "Somalia" OR "Tajikistan" OR "Tanzania" OR "Togo" OR "Uganda" OR "Zimbabwe" OR "Armenia" OR "Bhutan" OR "Bolivia" OR "Cameroon" OR "Cape Verde" OR "Congo" OR "Cote d'Ivoire" OR "Djibouti" OR "Egypt" OR "El Salvador" OR "Georgia" OR "Ghana" OR "Guatemala" OR "Guyana" OR "Honduras" OR "Indonesia" OR "India" OR “Kiribati” OR "Kosovo" OR "Kyrgyzstan" OR "Kyrgyz" OR "Laos" OR "lao" OR "Lesotho" OR "Mauritania" OR "Micronesia" OR "Moldova" OR "Mongolia" OR "Morocco" OR "Nicaragua" OR "Nigeria" OR "Pakistan" OR "Papua New Guinea" OR "Paraguay" OR "Philippines" OR "Independent State of Samoa" OR "Atlantic Islands" OR "Sao Tome" OR Principe OR "Senegal" OR "Melanesia" OR "Solomon islands" OR "Sri Lanka" OR "Sudan" OR "Swaziland" OR "Eswatini" OR "Syria" OR "East Timor" OR "Timor leste" OR "Ukraine" OR "Uzbekistan" OR "Vanuatu" OR "Vietnam" OR "Middle East" OR "west bank" OR "Gaza" OR "Yemen" OR "Zambia" OR "Angola" OR "Albania" OR "Algeria" OR "Argentina" OR "Samoa" OR "Azerbaijan" OR "Belarus" OR "Belize" OR "Bosnia-Herzegovina" OR "Botswana" OR "Brazil" OR "Bulgaria" OR "China" OR "Colombia" OR "Costa Rica" OR "Cuba" OR "Dominica" OR "Dominican Republic" OR "Ecuador" OR "Equatorial Guinea" OR "Fiji" OR "Gabon" OR "Grenada" OR "Iran" OR "Iraq" OR "Jamaica" OR "Jordan" OR "Kazakhstan" OR "Lebanon" OR "Libya" OR "Macedonia" OR "Malaysia" OR "Indian Ocean Islands" OR "Maldives" OR “Marshall Islands” OR "Mauritius" OR "Mexico" OR "Montenegro" OR "Namibia" OR "Palau" OR "Panama" OR "Peru" OR "Romania" OR "Russia" OR "Russian Federation" OR "Serbia" OR "Seychelles" OR "South Africa" OR "Saint Lucia" OR "Saint Vincent and the Grenadines" OR "Suriname" OR "Thailand" OR "Tonga" OR "Tunisia" OR "Turkey" OR "Turkmenistan" OR "Tuvalu" OR "Venezuela") OR TITLE-ABS-KEY("Afghanistan" OR "Bangladesh" OR "Benin" OR "Burkina Faso" OR "Burundi" OR "Cambodia" OR "cabo verde" OR "Central African Republic" OR "Chad" OR "Comoros" OR "Democratic Republic of the Congo" OR "Eritrea" OR "Ethiopia" OR "Gambia" OR "Guinea" OR "Guinea-Bissau" OR "Haiti" OR "Kenya" OR "Democratic People's Republic of Korea" OR "Liberia" OR "Madagascar" OR "Malawi" OR "Mali" OR "Mozambique" OR "Myanmar" OR "Nepal" OR "Niger" OR "Rwanda" OR "Sierra Leone" OR "Somalia" OR "Tajikistan" OR "Tanzania" OR "Togo" OR "Uganda" OR "Zimbabwe" OR "Armenia" OR "Bhutan" OR "Bolivia" OR "Cameroon" OR "Cape Verde" OR "Congo" OR "Cote d'Ivoire" OR "Djibouti" OR "Egypt" OR "El Salvador" OR "Georgia" OR "Ghana" OR "Guatemala" OR "Guyana" OR "Honduras" OR "Indonesia" OR "India" OR “Kiribati” OR "Kosovo" OR "Kyrgyzstan" OR "Kyrgyz" OR "Laos" OR "lao" OR "Lesotho" OR "Mauritania" OR "Micronesia" OR "Moldova" OR "Mongolia" OR "Morocco" OR "Nicaragua" OR "Nigeria" OR "Pakistan" OR "Papua New Guinea" OR "Paraguay" OR "Philippines" OR "Independent State of Samoa" OR "Atlantic Islands" OR "Sao Tome" OR Principe OR "Senegal" OR "Melanesia" OR "Solomon islands" OR "Sri Lanka" OR "Sudan" OR "Swaziland" OR "Eswatini" OR "Syria" OR "East Timor" OR "Timor leste" OR "Ukraine" OR "Uzbekistan" OR "Vanuatu" OR "Vietnam" OR "Middle East" OR "west bank" OR "Gaza" OR "Yemen" OR "Zambia" OR "Angola" OR "Albania" OR "Algeria" OR "Argentina" OR "Samoa" OR "Azerbaijan" OR "Belarus" OR "Belize" OR "Bosnia-Herzegovina" OR "Botswana" OR "Brazil" OR "Bulgaria" OR "China" OR "Colombia" OR "Costa Rica" OR "Cuba" OR "Dominica" OR "Dominican Republic" OR "Ecuador" OR "Equatorial Guinea" OR "Fiji" OR "Gabon" OR "Grenada" OR "Iran" OR "Iraq" OR "Jamaica" OR "Jordan" OR "Kazakhstan" OR "Lebanon" OR "Libya" OR "Macedonia" OR "Malaysia" OR "Indian Ocean Islands" OR "Maldives" OR “Marshall Islands” OR "Mauritius" OR "Mexico" OR "Montenegro" OR "Namibia" OR "Palau" OR "Panama" OR "Peru" OR "Romania" OR "Russia" OR "Russian Federation" OR "Serbia" OR "Seychelles" OR "South Africa" OR "Saint Lucia" OR "Saint Vincent and the Grenadines" OR "Suriname" OR "Thailand" OR "Tonga" OR "Tunisia" OR "Turkey" OR "Turkmenistan" OR "Tuvalu" OR "Venezuela" OR "low resource" OR "under-resourced" OR "resource poor" OR "under-developed" OR "underdeveloped" OR "developing country" OR "developing countries" OR "developing world" OR "third world" OR lmic OR (low AND middle AND income))	24,148,112
3	TITLE-ABS-KEY (child* OR infant OR baby OR youth OR neonat* OR perinatal OR pediatric*)	4,633,734
3	#1 AND #2 AND #3	5,676

https://dx.doi.org/10.21037/apm-24-87

Embase

Set #	Date of Search: 8/18/22	Results
1	'palliation':ab,ti OR 'palliative care'/exp OR 'palliative':ab,ti OR 'terminal care'/exp OR 'terminal care':ab,ti OR 'bereavement':ab,ti OR 'advance care planning'/exp OR 'advance care planning':ab,ti OR 'hospice'/de OR 'hospice':ab,ti OR 'end of life care':ab,ti OR 'grief'/de OR 'grief':ab,ti	261,106
2	'developing country'/exp OR 'Afghanistan'/exp OR 'Bangladesh'/exp OR 'Benin'/exp OR 'Burkina Faso'/exp OR 'Burundi'/exp OR 'Cambodia'/exp OR 'Central African Republic'/exp OR 'Chad'/exp OR 'Comoros'/exp OR 'Democratic Republic Congo'/exp OR 'Congo'/exp OR 'Eritrea'/exp OR 'Ethiopia'/exp OR 'Gambia'/exp OR 'Guinea'/exp OR 'Guinea-Bissau'/exp OR 'Haiti'/exp OR 'Kenya'/exp OR 'North Korea'/exp OR 'Liberia'/exp OR 'Madagascar'/exp OR 'Malawi'/exp OR 'Mozambique'/exp OR 'Myanmar'/exp OR 'Nepal'/exp OR 'Niger'/exp OR 'Nigeria'/exp OR 'Rwanda'/exp OR 'Sierra Leone'/exp OR 'Somalia'/exp OR 'Tajikistan'/exp OR 'Tanzania'/exp OR 'Togo'/exp OR 'Uganda'/exp OR 'Zimbabwe'/exp OR 'Armenia'/exp OR 'Bhutan'/exp OR 'Bolivia'/exp OR 'Cameroon'/exp OR 'Cape Verde'/exp OR 'Cote d`Ivoire'/exp OR 'Djibouti'/exp OR 'Egypt'/exp OR 'El Salvador'/exp OR 'Georgia (republic)'/exp OR 'Ghana'/exp OR 'Guatemala'/exp OR 'Guyana'/exp OR 'Honduras'/exp OR 'Indonesia'/exp OR 'India'/exp OR 'Kosovo'/exp OR 'Kyrgyzstan'/exp OR 'Laos'/exp OR 'Lesotho'/exp OR 'Mauritania'/exp OR 'Federated States of Micronesia'/exp OR 'Moldova'/exp OR 'Mongolia'/exp OR 'Nicaragua'/exp OR 'Pakistan'/exp OR 'Papua New Guinea'/exp OR 'Philippines'/exp OR 'Samoa'/exp OR 'Sao Tome and Principe'/exp OR 'Senegal'/exp OR 'Solomon Islands'/exp OR 'Sri Lanka'/exp OR 'Sudan'/exp OR 'Swaziland'/exp OR 'Syrian Arab Republic'/exp OR 'Timor-Leste'/exp OR 'Ukraine'/exp OR 'Uzbekistan'/exp OR 'Vanuatu'/exp OR 'Viet Nam'/exp OR 'Yemen'/exp OR 'Zambia'/exp OR 'Angola'/exp OR 'Albania'/exp OR 'Algeria'/exp OR 'American Samoa'/exp OR 'Argentina'/exp OR 'Azerbaijan'/exp OR 'Belarus'/exp OR 'Belize'/exp OR 'Bosnia and Herzegovina'/exp OR 'Botswana'/exp OR 'Brazil'/exp OR 'Bulgaria'/exp OR 'China'/exp OR 'Colombia'/exp OR 'Costa Rica'/exp OR 'Cuba'/exp OR 'Dominica'/exp OR 'Dominican Republic'/exp OR 'Ecuador'/exp OR 'Equatorial Guinea'/exp OR 'Fiji'/exp OR 'Gabon'/exp OR 'Grenada'/exp OR 'Iran'/exp OR 'Iraq'/exp OR 'Jamaica'/exp OR 'Jordan'/exp OR 'Kazakhstan'/exp OR 'Lebanon'/exp OR 'Libyan Arab Jamahiriya'/exp OR 'Macedonia (republic)'/exp OR 'Malaysia'/exp OR 'Maldives'/exp OR 'Mexico'/exp OR 'Montenegro (republic)'/exp OR 'Namibia'/exp OR 'Palau'/exp OR 'Panama'/exp OR 'Peru'/exp OR 'Romania'/exp OR 'Russian Federation'/exp OR 'Serbia'/exp OR 'Seychelles'/exp OR 'South Africa'/exp OR 'Saint Lucia'/exp OR 'Saint Vincent and the Grenadines'/exp OR 'Suriname'/exp OR 'Thailand'/exp OR 'Tonga'/exp OR 'Tunisia'/exp OR 'Turkey (republic)'/exp OR 'Turkmenistan'/exp OR 'Venezuela'/exp OR 'Afghanistan':ab,ti,ca OR 'Bangladesh':ab,ti,ca OR 'Benin':ab,ti,ca OR 'Burkina Faso':ab,ti,ca OR 'Burundi':ab,ti,ca OR 'Cambodia':ab,ti,ca OR 'cabo verde':ab,ti,ca OR 'Central African Republic':ab,ti,ca OR 'Chad':ab,ti,ca OR 'Comoros':ab,ti,ca OR 'Congo':ab,ti,ca OR 'Eritrea':ab,ti,ca OR 'Ethiopia':ab,ti,ca OR 'Gambia':ab,ti,ca OR 'Guinea':ab,ti,ca OR 'Haiti':ab,ti,ca OR 'Kenya':ab,ti,ca OR 'Korea':ab,ti,ca OR 'Liberia':ab,ti,ca OR 'Madagascar':ab,ti,ca OR 'Malawi':ab,ti,ca OR 'Mali':ab,ti,ca OR 'Mozambique':ab,ti,ca OR 'Myanmar':ab,ti,ca OR 'Nepal':ab,ti,ca OR 'Niger':ab,ti,ca OR 'Rwanda':ab,ti,ca OR 'Sierra Leone':ab,ti,ca OR 'Somalia':ab,ti,ca OR 'Tajikistan':ab,ti,ca OR 'Tanzania':ab,ti,ca OR 'Togo':ab,ti,ca OR 'Uganda':ab,ti,ca OR 'Zimbabwe':ab,ti,ca OR 'Armenia':ab,ti,ca OR 'Bhutan':ab,ti,ca OR 'Bolivia':ab,ti,ca OR 'Cameroon':ab,ti,ca OR 'Cape Verde':ab,ti,ca OR 'Congo':ab,ti,ca OR 'Cote dIvoire':ab,ti,ca OR 'ivory coast':ab,ti,ca OR 'Djibouti':ab,ti,ca OR 'Egypt':ab,ti,ca OR 'El Salvador':ab,ti,ca OR 'Georgia':ab,ti,ca OR 'Ghana':ab,ti,ca OR 'Guatemala':ab,ti,ca OR 'Guyana':ab,ti,ca OR 'Honduras':ab,ti,ca OR 'Indonesia':ab,ti,ca OR 'India':ab,ti,ca OR 'Kiribati':ab,ti,ca OR 'Kosovo':ab,ti,ca OR 'Kyrgyzstan':ab,ti,ca OR 'Kyrgyz':ab,ti,ca OR 'Laos':ab,ti,ca OR 'lao':ab,ti,ca OR 'Lesotho':ab,ti,ca OR 'Mauritania':ab,ti,ca OR 'Micronesia':ab,ti,ca OR 'Moldova':ab,ti,ca OR 'Mongolia':ab,ti,ca OR 'Morocco':ab,ti,ca OR 'Nicaragua':ab,ti,ca OR 'Nigeria':ab,ti,ca OR 'Pakistan':ab,ti,ca OR 'Papua New Guinea':ab,ti,ca OR 'Paraguay':ab,ti,ca OR 'Philippines':ab,ti,ca OR 'Samoa':ab,ti,ca OR 'Atlantic Islands':ab,ti,ca OR 'Sao Tome':ab,ti,ca OR Principe:ab,ti,ca OR 'Senegal':ab,ti,ca OR 'Melanesia':ab,ti,ca OR 'Solomon islands':ab,ti,ca OR 'Sri Lanka':ab,ti,ca OR 'Sudan':ab,ti,ca OR 'Swaziland':ab,ti,ca OR 'Eswatini':ab,ti,ca OR 'Syria':ab,ti,ca OR 'East Timor':ab,ti,ca OR 'Timor leste':ab,ti,ca OR 'Ukraine':ab,ti,ca OR 'Uzbekistan':ab,ti,ca OR 'Vanuatu':ab,ti,ca OR 'Vietnam':ab,ti,ca OR 'Middle East':ab,ti,ca OR 'west bank':ab,ti,ca OR 'Gaza':ab,ti,ca OR 'Yemen':ab,ti,ca OR 'Zambia':ab,ti,ca OR 'Angola':ab,ti,ca OR 'Albania':ab,ti,ca OR 'Algeria':ab,ti,ca OR 'Argentina':ab,ti,ca OR 'Samoa':ab,ti,ca OR 'Azerbaijan':ab,ti,ca OR 'Republic of Belarus':ab,ti,ca OR 'Belize':ab,ti,ca OR Bosnia:ab,ti,ca OR Herzegovina:ab,ti,ca OR 'Botswana':ab,ti,ca OR 'Brazil':ab,ti,ca OR 'Bulgaria':ab,ti,ca OR 'China':ab,ti,ca OR 'Colombia':ab,ti,ca OR 'Costa Rica':ab,ti,ca OR 'Cuba':ab,ti,ca OR 'Dominica':ab,ti,ca OR 'Dominican Republic':ab,ti,ca OR 'Ecuador':ab,ti,ca OR 'Equatorial Guinea':ab,ti,ca OR 'Fiji':ab,ti,ca OR 'Gabon':ab,ti,ca OR 'Grenada':ab,ti,ca OR 'Iran':ab,ti,ca OR 'Iraq':ab,ti,ca OR 'Jamaica':ab,ti,ca OR 'Jordan':ab,ti,ca OR 'Kazakhstan':ab,ti,ca OR 'Lebanon':ab,ti,ca OR 'Libya':ab,ti,ca OR 'Macedonia':ab,ti,ca OR 'Malaysia':ab,ti,ca OR 'Indian Ocean Islands':ab,ti,ca OR 'Maldives':ab,ti,ca OR 'Marshall Islands':ab,ti,ca OR 'Mauritius':ab,ti,ca OR 'Mexico':ab,ti,ca OR 'Montenegro':ab,ti,ca OR 'Namibia':ab,ti,ca OR 'Palau':ab,ti,ca OR 'Panama':ab,ti,ca OR 'Peru':ab,ti,ca OR 'Romania':ab,ti,ca OR 'Russia':ab,ti,ca OR 'Russian Federation':ab,ti,ca OR 'Serbia':ab,ti,ca OR 'Seychelles':ab,ti,ca OR 'South Africa':ab,ti,ca OR 'Saint Lucia':ab,ti,ca OR 'Saint Vincent and the Grenadines':ab,ti,ca OR 'Suriname':ab,ti,ca OR 'Thailand':ab,ti,ca OR 'Tonga':ab,ti,ca OR 'Tunisia':ab,ti,ca OR 'Turkey':ab,ti,ca OR 'Turkmenistan':ab,ti,ca OR 'Tuvalu':ab,ti,ca OR 'Venezuela':ab,ti,ca OR 'low resource':ab,ti OR 'under resourced':ab,ti OR 'resource poor':ab,ti OR 'under developed':ab,ti OR 'underdeveloped':ab,ti OR 'developing country':ab,ti OR 'developing countries':ab,ti OR 'developing world':ab,ti OR 'third world':ab,ti OR lmic:ab,ti OR (low:ab,ti AND middle:ab,ti AND income:ab,ti)	6,589,776
2	'child'/de OR 'child':ab,ti OR 'infant'/de OR 'infant':ab,ti OR 'baby':ab,ti OR 'youth':ab,ti OR 'newborn'/de OR 'newborn':ab,ti OR 'neonatal':ab,ti OR 'perinatal':ab,ti OR 'pediatric'/de OR 'pediatric':ab,ti	3,621,719
3	1 AND 2 AND 3	3,827

https://dx.doi.org/10.21037/apm-24-87

CINAHL (Ebsco)

Set #	Date of Search: 8/18/22	Results
1	(TI palliation OR AB palliation) OR (TI palliative OR AB palliative) OR (MH "palliative care"+) OR (MH "terminal care"+) OR (TI "terminal care" OR AB "terminal care") OR (MH bereavement+) OR (TI bereavement OR AB bereavement) OR (MH "Advance Care Planning"+) OR (TI "advance care planning" OR AB "advance care planning") OR (MH "Hospice Care"+) OR (TI hospice* OR AB hospice*) OR (MH Hospices+) OR (TI "end of life care" OR AB "end of life care") OR (MH Grief+) OR (TI grief OR AB grief)	76,575
2	(MH "Developing Countries") OR (MH "Low and Middle Income Countries") OR TI ('Afghanistan' OR 'Bangladesh' OR 'Benin' OR 'Burkina Faso' OR 'Burundi' OR 'Cambodia' OR 'cabo verde' OR 'Central African Republic' OR 'Chad' OR 'Comoros' OR 'Congo' OR 'Eritrea' OR 'Ethiopia' OR 'Gambia' OR 'Guinea' OR 'Haiti' OR 'Kenya' OR 'Korea' OR 'Liberia' OR 'Madagascar' OR 'Malawi' OR 'Mali' OR 'Mozambique' OR 'Myanmar' OR 'Nepal' OR 'Niger' OR 'Rwanda' OR 'Sierra Leone' OR 'Somalia' OR 'Tajikistan' OR 'Tanzania' OR 'Togo' OR 'Uganda' OR 'Zimbabwe' OR 'Armenia' OR 'Bhutan' OR 'Bolivia' OR 'Cameroon' OR 'Cape Verde' OR 'Congo' OR 'Cote dIvoire' OR 'ivory coast' OR 'Djibouti' OR 'Egypt' OR 'El Salvador' OR 'Georgia' OR 'Ghana' OR 'Guatemala' OR 'Guyana' OR 'Honduras' OR 'Indonesia' OR 'India' OR 'Kiribati' OR 'Kosovo' OR 'Kyrgyzstan' OR 'Kyrgyz' OR 'Laos' OR 'lao' OR 'Lesotho' OR 'Mauritania' OR 'Micronesia' OR 'Moldova' OR 'Mongolia' OR 'Morocco' OR 'Nicaragua' OR 'Nigeria' OR 'Pakistan' OR 'Papua New Guinea' OR 'Paraguay' OR 'Philippines' OR 'Samoa' OR 'Atlantic Islands' OR 'Sao Tome' OR Principe OR 'Senegal' OR 'Melanesia' OR 'Solomon islands' OR 'Sri Lanka' OR 'Sudan' OR 'Swaziland' OR 'Syria' OR 'East Timor' OR 'Timor leste' OR 'Ukraine' OR 'Uzbekistan' OR 'Vanuatu' OR 'Vietnam' OR 'Middle East' OR 'west bank' OR 'Gaza' OR 'Yemen' OR 'Zambia' OR 'Angola' OR 'Albania' OR 'Algeria' OR 'Argentina' OR 'Samoa' OR 'Azerbaijan' OR 'Republic of Belarus' OR 'Belize' OR Bosnia OR Herzegovina OR 'Botswana' OR 'Brazil' OR 'Bulgaria' OR 'China' OR 'Colombia' OR 'Costa Rica' OR 'Cuba' OR 'Dominica' OR 'Dominican Republic' OR 'Ecuador' OR 'Equatorial Guinea' OR 'Fiji' OR 'Gabon' OR 'Grenada' OR 'Iran' OR 'Iraq' OR 'Jamaica' OR 'Jordan' OR 'Kazakhstan' OR 'Lebanon' OR 'Libya' OR 'Macedonia' OR 'Malaysia' OR 'Indian Ocean Islands' OR 'Maldives' OR 'Marshall Islands' OR 'Mauritius' OR 'Mexico' OR 'Montenegro' OR 'Namibia' OR 'Palau' OR 'Panama' OR 'Peru' OR 'Romania' OR 'Russia' OR 'Russian Federation' OR 'Serbia' OR 'Seychelles' OR 'South Africa' OR 'Saint Lucia' OR 'Saint Vincent and the Grenadines' OR 'Suriname' OR 'Thailand' OR 'Tonga' OR 'Tunisia' OR 'Turkey' OR 'Turkmenistan' OR 'Tuvalu' OR 'Venezuela' OR 'low resource' OR 'under resourced' OR 'resource poor' OR 'under developed' OR 'underdeveloped' OR 'developing country' OR 'developing countries' OR 'developing world' OR 'third world' OR lmic OR (low AND middle AND income)) OR AB ('Afghanistan' OR 'Bangladesh' OR 'Benin' OR 'Burkina Faso' OR 'Burundi' OR 'Cambodia' OR 'cabo verde' OR 'Central African Republic' OR 'Chad' OR 'Comoros' OR 'Congo' OR 'Eritrea' OR 'Ethiopia' OR 'Gambia' OR 'Guinea' OR 'Haiti' OR 'Kenya' OR 'Korea' OR 'Liberia' OR 'Madagascar' OR 'Malawi' OR 'Mali' OR 'Mozambique' OR 'Myanmar' OR 'Nepal' OR 'Niger' OR 'Rwanda' OR 'Sierra Leone' OR 'Somalia' OR 'Tajikistan' OR 'Tanzania' OR 'Togo' OR 'Uganda' OR 'Zimbabwe' OR 'Armenia' OR 'Bhutan' OR 'Bolivia' OR 'Cameroon' OR 'Cape Verde' OR 'Congo' OR 'Cote dIvoire' OR 'ivory coast' OR 'Djibouti' OR 'Egypt' OR 'El Salvador' OR 'Georgia' OR 'Ghana' OR 'Guatemala' OR 'Guyana' OR 'Honduras' OR 'Indonesia' OR 'India' OR 'Kiribati' OR 'Kosovo' OR 'Kyrgyzstan' OR 'Kyrgyz' OR 'Laos' OR 'lao' OR 'Lesotho' OR 'Mauritania' OR 'Micronesia' OR 'Moldova' OR 'Mongolia' OR 'Morocco' OR 'Nicaragua' OR 'Nigeria' OR 'Pakistan' OR 'Papua New Guinea' OR 'Paraguay' OR 'Philippines' OR 'Samoa' OR 'Atlantic Islands' OR 'Sao Tome' OR Principe OR 'Senegal' OR 'Melanesia' OR 'Solomon islands' OR 'Sri Lanka' OR 'Sudan' OR 'Swaziland' OR 'Syria' OR 'East Timor' OR 'Timor leste' OR 'Ukraine' OR 'Uzbekistan' OR 'Vanuatu' OR 'Vietnam' OR 'Middle East' OR 'west bank' OR 'Gaza' OR 'Yemen' OR 'Zambia' OR 'Angola' OR 'Albania' OR 'Algeria' OR 'Argentina' OR 'Samoa' OR 'Azerbaijan' OR 'Republic of Belarus' OR 'Belize' OR Bosnia OR Herzegovina OR 'Botswana' OR 'Brazil' OR 'Bulgaria' OR 'China' OR 'Colombia' OR 'Costa Rica' OR 'Cuba' OR 'Dominica' OR 'Dominican Republic' OR 'Ecuador' OR 'Equatorial Guinea' OR 'Fiji' OR 'Gabon' OR 'Grenada' OR 'Iran' OR 'Iraq' OR 'Jamaica' OR 'Jordan' OR 'Kazakhstan' OR 'Lebanon' OR 'Libya' OR 'Macedonia' OR 'Malaysia' OR 'Indian Ocean Islands' OR 'Maldives' OR 'Marshall Islands' OR 'Mauritius' OR 'Mexico' OR 'Montenegro' OR 'Namibia' OR 'Palau' OR 'Panama' OR 'Peru' OR 'Romania' OR 'Russia' OR 'Russian Federation' OR 'Serbia' OR 'Seychelles' OR 'South Africa' OR 'Saint Lucia' OR 'Saint Vincent and the Grenadines' OR 'Suriname' OR 'Thailand' OR 'Tonga' OR 'Tunisia' OR 'Turkey' OR 'Turkmenistan' OR 'Tuvalu' OR 'Venezuela' OR 'low resource' OR 'under resourced' OR 'resource poor' OR 'under developed' OR 'underdeveloped' OR 'developing country' OR 'developing countries' OR 'developing world' OR 'third world' OR lmic OR (low AND middle AND income))	377,385
3	(TI child* OR AB child*) OR (MH Child+) OR (TI infant* OR AB infant*) OR (MH Infant+) OR (TI baby OR AB baby) OR (MH "Infant, Newborn"+) OR (TI youth OR AB youth) OR (TI neonat* OR AB neonat*) OR (TI perinatal OR AB perinatal) OR (TI pediatric* OR AB pediatric*)	1,047,728
4	1 AND 2 AND 3	781

https://dx.doi.org/10.21037/apm-24-87

Cochrane Library

Set #	Date of Search: 8/18/22	Results
1	"palliation" OR "palliative" OR "palliative care" OR "terminal care" OR "terminal care" OR "bereavement" OR "advance care planning" OR "Hospice Care" OR "hospice*" OR "end of life care" OR "Grief"	12,417
2	Afghanistan OR Bangladesh OR Benin OR "Burkina Faso" OR Burundi OR Cambodia OR "cabo verde" OR "Central African Republic" OR Chad OR Comoros OR "Democratic Republic of the Congo" OR Eritrea OR Ethiopia OR Gambia OR Guinea OR Guinea-Bissau OR Haiti OR Kenya OR "Democratic People's Republic of Korea" OR Liberia OR Madagascar OR Malawi OR Mali OR Mozambique OR Myanmar OR Nepal OR Niger OR Rwanda OR "Sierra Leone" OR Somalia OR Tajikistan OR Tanzania OR Togo OR Uganda OR Zimbabwe OR Armenia OR Bhutan OR Bolivia OR Cameroon OR "Cape Verde" OR Congo OR "Cote d'Ivoire" OR Djibouti OR Egypt OR "El Salvador" OR "Georgia (Republic)" OR Ghana OR Guatemala OR Guyana OR Honduras OR Indonesia OR India OR Kiribati OR Kosovo OR Kyrgyzstan OR Kyrgyz OR Laos OR lao OR Lesotho OR Mauritania OR Micronesia OR Moldova OR Mongolia OR Morocco OR Nicaragua OR Nigeria OR Pakistan OR "Papua New Guinea" OR Paraguay OR Philippines OR "Independent State of Samoa" OR "Atlantic Islands" OR "Sao Tome" OR Principe OR Senegal OR Melanesia OR "Solomon islands" OR "Sri Lanka" OR Sudan OR Swaziland OR Eswatini OR Syria OR "East Timor" OR "Timor leste" OR Ukraine OR Uzbekistan OR Vanuatu OR Vietnam OR "Middle East" OR "west bank" OR Gaza OR Yemen OR Zambia OR Angola OR Albania OR Algeria OR Argentina OR Samoa OR Azerbaijan OR "Republic of Belarus" OR Belize OR Bosnia-Herzegovina OR Botswana OR Brazil OR Bulgaria OR China OR Colombia OR "Costa Rica" OR Cuba OR Dominica OR "Dominican Republic" OR Ecuador OR "Equatorial Guinea" OR Fiji OR Gabon OR Grenada OR Iran OR Iraq OR Jamaica OR Jordan OR Kazakhstan OR Lebanon OR Libya OR Macedonia OR Malaysia OR "Indian Ocean Islands" OR Maldives OR "Marshall Islands" OR Mauritius OR Mexico OR Montenegro OR Namibia OR Palau OR Panama OR Peru OR Romania OR Russia OR "Russian Federation" OR Serbia OR Seychelles OR "South Africa" OR "Saint Lucia" OR "Saint Vincent and the Grenadines" OR Suriname OR Thailand OR Tonga OR Tunisia OR Turkey OR Turkmenistan OR Tuvalu OR Venezuela OR "low resource" OR under-resourced OR "resource poor" OR under-developed OR underdeveloped OR "developing country" OR "developing countries" OR "developing world" OR "third world" OR lmic OR (low AND middle AND income)	222,574
3	child or children OR infant OR baby OR newborn OR youth OR neonate or neonatal OR perinatal or pediatric	230,730
4	1 AND 2 AND 3	35 Reviews 84 Trials 1 Editorial

https://dx.doi.org/10.21037/apm-24-87

Global Health (Ebsco)

Set #	Date of Search: 8/18/22	Results
1	(TI palliation OR AB palliation) OR (TI palliative OR AB palliative) OR (MH "palliative care"+) OR (MH "terminal care"+) OR (TI "terminal care" OR AB "terminal care") OR (MH bereavement+) OR (TI bereavement OR AB bereavement) OR (MH "Advance Care Planning"+) OR (TI "advance care planning" OR AB "advance care planning") OR (MH "Hospice Care"+) OR (TI hospice* OR AB hospice*) OR (MH Hospices+) OR (TI "end of life care" OR AB "end of life care") OR (MH Grief+) OR (TI grief OR AB grief)	4,882
2	(MH "Developing Countries") OR (MH "Low and Middle Income Countries") OR TI ('Afghanistan' OR 'Bangladesh' OR 'Benin' OR 'Burkina Faso' OR 'Burundi' OR 'Cambodia' OR 'cabo verde' OR 'Central African Republic' OR 'Chad' OR 'Comoros' OR 'Congo' OR 'Eritrea' OR 'Ethiopia' OR 'Gambia' OR 'Guinea' OR 'Haiti' OR 'Kenya' OR 'Korea' OR 'Liberia' OR 'Madagascar' OR 'Malawi' OR 'Mali' OR 'Mozambique' OR 'Myanmar' OR 'Nepal' OR 'Niger' OR 'Rwanda' OR 'Sierra Leone' OR 'Somalia' OR 'Tajikistan' OR 'Tanzania' OR 'Togo' OR 'Uganda' OR 'Zimbabwe' OR 'Armenia' OR 'Bhutan' OR 'Bolivia' OR 'Cameroon' OR 'Cape Verde' OR 'Congo' OR 'Cote dIvoire' OR 'ivory coast' OR 'Djibouti' OR 'Egypt' OR 'El Salvador' OR 'Georgia' OR 'Ghana' OR 'Guatemala' OR 'Guyana' OR 'Honduras' OR 'Indonesia' OR 'India' OR 'Kiribati' OR 'Kosovo' OR 'Kyrgyzstan' OR 'Kyrgyz' OR 'Laos' OR 'lao' OR 'Lesotho' OR 'Mauritania' OR 'Micronesia' OR 'Moldova' OR 'Mongolia' OR 'Morocco' OR 'Nicaragua' OR 'Nigeria' OR 'Pakistan' OR 'Papua New Guinea' OR 'Paraguay' OR 'Philippines' OR 'Samoa' OR 'Atlantic Islands' OR 'Sao Tome' OR Principe OR 'Senegal' OR 'Melanesia' OR 'Solomon islands' OR 'Sri Lanka' OR 'Sudan' OR 'Swaziland' OR 'Syria' OR 'East Timor' OR 'Timor leste' OR 'Ukraine' OR 'Uzbekistan' OR 'Vanuatu' OR 'Vietnam' OR 'Middle East' OR 'west bank' OR 'Gaza' OR 'Yemen' OR 'Zambia' OR 'Angola' OR 'Albania' OR 'Algeria' OR 'Argentina' OR 'Samoa' OR 'Azerbaijan' OR 'Republic of Belarus' OR 'Belize' OR Bosnia OR Herzegovina OR 'Botswana' OR 'Brazil' OR 'Bulgaria' OR 'China' OR 'Colombia' OR 'Costa Rica' OR 'Cuba' OR 'Dominica' OR 'Dominican Republic' OR 'Ecuador' OR 'Equatorial Guinea' OR 'Fiji' OR 'Gabon' OR 'Grenada' OR 'Iran' OR 'Iraq' OR 'Jamaica' OR 'Jordan' OR 'Kazakhstan' OR 'Lebanon' OR 'Libya' OR 'Macedonia' OR 'Malaysia' OR 'Indian Ocean Islands' OR 'Maldives' OR 'Marshall Islands' OR 'Mauritius' OR 'Mexico' OR 'Montenegro' OR 'Namibia' OR 'Palau' OR 'Panama' OR 'Peru' OR 'Romania' OR 'Russia' OR 'Russian Federation' OR 'Serbia' OR 'Seychelles' OR 'South Africa' OR 'Saint Lucia' OR 'Saint Vincent and the Grenadines' OR 'Suriname' OR 'Thailand' OR 'Tonga' OR 'Tunisia' OR 'Turkey' OR 'Turkmenistan' OR 'Tuvalu' OR 'Venezuela' OR 'low resource' OR 'under resourced' OR 'resource poor' OR 'under developed' OR 'underdeveloped' OR 'developing country' OR 'developing countries' OR 'developing world' OR 'third world' OR lmic OR (low AND middle AND income)) OR AB ('Afghanistan' OR 'Bangladesh' OR 'Benin' OR 'Burkina Faso' OR 'Burundi' OR 'Cambodia' OR 'cabo verde' OR 'Central African Republic' OR 'Chad' OR 'Comoros' OR 'Congo' OR 'Eritrea' OR 'Ethiopia' OR 'Gambia' OR 'Guinea' OR 'Haiti' OR 'Kenya' OR 'Korea' OR 'Liberia' OR 'Madagascar' OR 'Malawi' OR 'Mali' OR 'Mozambique' OR 'Myanmar' OR 'Nepal' OR 'Niger' OR 'Rwanda' OR 'Sierra Leone' OR 'Somalia' OR 'Tajikistan' OR 'Tanzania' OR 'Togo' OR 'Uganda' OR 'Zimbabwe' OR 'Armenia' OR 'Bhutan' OR 'Bolivia' OR 'Cameroon' OR 'Cape Verde' OR 'Congo' OR 'Cote dIvoire' OR 'ivory coast' OR 'Djibouti' OR 'Egypt' OR 'El Salvador' OR 'Georgia' OR 'Ghana' OR 'Guatemala' OR 'Guyana' OR 'Honduras' OR 'Indonesia' OR 'India' OR 'Kiribati' OR 'Kosovo' OR 'Kyrgyzstan' OR 'Kyrgyz' OR 'Laos' OR 'lao' OR 'Lesotho' OR 'Mauritania' OR 'Micronesia' OR 'Moldova' OR 'Mongolia' OR 'Morocco' OR 'Nicaragua' OR 'Nigeria' OR 'Pakistan' OR 'Papua New Guinea' OR 'Paraguay' OR 'Philippines' OR 'Samoa' OR 'Atlantic Islands' OR 'Sao Tome' OR Principe OR 'Senegal' OR 'Melanesia' OR 'Solomon islands' OR 'Sri Lanka' OR 'Sudan' OR 'Swaziland' OR 'Syria' OR 'East Timor' OR 'Timor leste' OR 'Ukraine' OR 'Uzbekistan' OR 'Vanuatu' OR 'Vietnam' OR 'Middle East' OR 'west bank' OR 'Gaza' OR 'Yemen' OR 'Zambia' OR 'Angola' OR 'Albania' OR 'Algeria' OR 'Argentina' OR 'Samoa' OR 'Azerbaijan' OR 'Republic of Belarus' OR 'Belize' OR Bosnia OR Herzegovina OR 'Botswana' OR 'Brazil' OR 'Bulgaria' OR 'China' OR 'Colombia' OR 'Costa Rica' OR 'Cuba' OR 'Dominica' OR 'Dominican Republic' OR 'Ecuador' OR 'Equatorial Guinea' OR 'Fiji' OR 'Gabon' OR 'Grenada' OR 'Iran' OR 'Iraq' OR 'Jamaica' OR 'Jordan' OR 'Kazakhstan' OR 'Lebanon' OR 'Libya' OR 'Macedonia' OR 'Malaysia' OR 'Indian Ocean Islands' OR 'Maldives' OR 'Marshall Islands' OR 'Mauritius' OR 'Mexico' OR 'Montenegro' OR 'Namibia' OR 'Palau' OR 'Panama' OR 'Peru' OR 'Romania' OR 'Russia' OR 'Russian Federation' OR 'Serbia' OR 'Seychelles' OR 'South Africa' OR 'Saint Lucia' OR 'Saint Vincent and the Grenadines' OR 'Suriname' OR 'Thailand' OR 'Tonga' OR 'Tunisia' OR 'Turkey' OR 'Turkmenistan' OR 'Tuvalu' OR 'Venezuela' OR 'low resource' OR 'under resourced' OR 'resource poor' OR 'under developed' OR 'underdeveloped' OR 'developing country' OR 'developing countries' OR 'developing world' OR 'third world' OR lmic OR (low AND middle AND income))	926,058
3	(TI child* OR AB child*) OR (MH Child+) OR (TI infant* OR AB infant*) OR (MH Infant+) OR (TI baby OR AB baby) OR (MH "Infant, Newborn"+) OR (TI youth OR AB youth) OR (TI neonat* OR AB neonat*) OR (TI perinatal OR AB perinatal) OR (TI pediatric* OR AB pediatric*)	575,859
4	1 AND 2 AND 3	211

https://dx.doi.org/10.21037/apm-24-87