Palliative care utilisation globally by cancer patients: systematic review and meta-analysis

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ABSTRACT

Introduction The rising global prevalence of cancer reveals significant regional disparities in palliative care adoption. While some countries have incorporated palliative care into their systems, over half of the world lacks such services, and oncology-specific palliative care integration is sparse. This study evaluates the global prevalence of palliative care use among cancer patients.

Methods A comprehensive search across multiple databases was conducted to identify relevant studies. Data extraction and organisation were managed using Microsoft Excel, and analysis was performed with STATA/MP 17.0. A weighted inverse variance random-effects model was applied, and heterogeneity was assessed with Cochrane I² statistics. Subgroup analyses, sensitivity analyses and Egger's test were used to explore heterogeneity, publication bias and influential studies.

Results The global prevalence of palliative care among cancer patients was 34.43% (95% CI: 26.60 to 42.25). Africa had the highest utilisation rate at 55.72% (95% CI: 35.45 to 75.99), while the USA had the lowest at 30.34% (95% CI: 19.83 to 40.86). Studies with sample sizes under 1000 showed a higher utilisation rate of 47.51% (95% CI: 36.69 to 58.32). Approximately 55% (95% CI: 35.26 to 74.80) of patients had a positive attitude towards palliative care, and 57.54% (95% CI: 46.09 to 69.00) were satisfied with the services. Positive attitudes were significantly associated with higher palliative care utilisation.

Conclusion Only about one-third of cancer patients globally receive palliative care, with the highest utilisation in Africa. Nearly half of patients have a favourable attitude towards palliative care, and a similar proportion are satisfied with the services.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ The utilisation of palliative care by cancer patients is often limited due to factors like late referrals, lack of awareness and healthcare system barriers, despite its proven benefits in improving quality of life and symptom management.

WHAT THIS STUDY ADDS

⇒ This study provides comprehensive evidence on the global patterns, barriers and factors influencing the utilisation of palliative care services among cancer patients, highlighting critical gaps in access and areas for improvement.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ This study could inform research, practice and policy by highlighting gaps in palliative care utilisation among cancer patients, potentially leading to improved access, targeted interventions and more effective policy development to ensure equitable care.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This study covers the global level and investigates different articles, making the review more generalisable and providing an accurate and high-quality result.
⇒ Subgroup and sensitivity analyses were carried out to investigate the heterogeneity of the included studies.
⇒ However, studies whose study design was cross-sectional cannot show the cause-and-effect relationship.

INTRODUCTION

Palliative care is a specialised approach to medical care focused on providing relief from the symptoms, pain and stress associated with serious or life-limiting illnesses. It aims to improve the quality of life for both patients and their families, regardless of the stage of the illness or whether the disease is curable.[1] It is an effective, multidisciplinary healthcare service designed to alleviate severe illness patients from physical, psychological, spiritual and social pain.[2] Palliative care improves patient-reported outcomes and patient and carer satisfaction and can be effective and cost-effective in low- and middle-income countries.[3] Its primary aim is to improve the quality of life of patients and their family carers, preventing and alleviating suffering through an individualised approach to needs (managing symptoms, addressing concerns, and the challenges faced).[4] Despite this benefit, palliative care providers consider it a complex approach.[5]

The impact and consequences of cancer on patients and their families are closely intertwined. Health professionals' burdens are increased due to cancer patients' unmet needs and unresolved problems, which hurts patients and their family's well-being and their health outcomes.[6] The burden and prevalence of cancer increase worldwide, with some variations across the globe, which may initiate the utilisation of palliative care. While palliative care is integrated in some countries, it is lacking in over half of the world, and specific integration into cancer care is virtually absent. Palliative care remains significantly underdeveloped globally, with 42% of countries lacking its availability, according to the World Hospice Palliative Care Alliance's WHO Global Atlas of Palliative Care at the End of Life. Additionally, as reported by Lynch, Connor and Clark in 2013, only 20 out of 234 countries have achieved high-level integration of palliative care into their mainstream health services. This underscores a critical gap in global healthcare provision and highlights the need for increased efforts to integrate and expand palliative care services.[7 8]

Oncology-focused palliative care education is lacking or is not well-reported in the literature. Essential to cancer-related palliative care is a tailored approach that addresses cultural and religious differences around the globe.[9] Cancer patients experience fatigue, which is one of the most distressing symptoms that might be alleviated by palliative care.[10] Cancer patients suffer from pain, which is reported by 76% of patients and reduced to 24% due to the integration of palliative care with cancer treatment.[11]

A study showed that a nurse-led palliative care intervention may improve the quality of life and psychological distress of cancer patients.[12] Palliative care was associated with reduced rates of emergency department visits, hospital admissions and admissions to the intensive care unit (ICU).[13] A significant trend of increase in receiving palliative care reduces the proportion of patients who die due to cancer. Palliative care was associated with a reduced risk of ICU admission (AOR) 0.361) and death in the ICU (AOR 0.208).[14]

There are various factors associated with the utilisation of palliative care. These are increased comorbidities, insurance status, higher education status, facility location, care at a comprehensive cancer programme or integrated network and treatment type.[15] A study showed that older patients (OR) = 1.45; <0.0001), Caucasian ethnicity (OR=4.17; 0.02), with a solid tumour (OR=1.87; <0.0001) and with a longer survival time (OR=2.09; <0.0001) were more likely to be enrolled in palliative care service, whereas patients who lived farther from a specialised palliative care facility (OR=0.13; <0.0001) were less likely to be enrolled in a palliative care service.[16]

Regarding the attitude of patients towards palliative care, the vast majority of patients with cancer (81.2%) had never heard about palliative care, and 75.3% had supportive attitudes.[17] In a single study, 45% of cancer patients believed that palliative care was only associated with end-of-life care. The majority believed that they could receive oncology care (86%) and anti-cancer treatment (81%) while receiving palliative care. In addition, those who had heard of palliative care and had better self-rated knowledge were more likely to believe that they could receive palliative care while they were on anti-cancer treatment.[18] Regarding the patient's satisfaction with palliative care services, 95% 'agreed' or 'strongly agreed' that their carer had been sensitive and compassionate, and over 90% felt that they received adequate explanations about their treatment.[19]

Despite the severe symptoms, comorbidities and distress experienced by cancer patients, palliative care is not consistently integrated into their treatment plans. Early access to palliative care services can significantly enhance the quality of life for both patients and their families, making it crucial to understand its global utilisation. Although there are many cancer patients worldwide, there is limited information on the frequency of their need for palliative care. To address this gap, it is important to evaluate the extent of palliative care utilisation on a global scale. Therefore, this study aimed to assess the utilisation of palliative care.

METHODS

Study protocol

The Preferred Reporting Items for Systematic Review and Meta-analysis checklist for reporting findings used to identify the utilisation of palliative care among cancer patients in the world (online supplemental table S1).

Databases and searching strategies

Different databases, such as Google Scholar, Web of Science, African Journals Online, HINARI, PubMed/MEDLINE, and EMBASE, were searched to retrieve articles on the utilisation of palliative care among cancer patients in the world. In addition, we searched for unpublished articles in the repositories of Ethiopian universities. The following search terms were used to find the available articles: 'utilisation', 'prevalence',

Table 1 Search of articles from different databases on the utilisation of palliative care among cancer patients in the world

Databases	Searching terms	Number of studies
MEDLINE/ PubMed	'utilisation' OR 'prevalence,' OR 'magnitude,' OR 'proportion,' OR 'accesses,' AND 'palliative care,' OR 'end-of-life care,' OR 'hospice care,' AND 'factors,' OR 'associated factors,' OR 'determinant factors.'	4248
Google Scholar	'utilisation' OR 'prevalence,' OR 'magnitude,' OR 'proportion,' OR 'accesses,' AND 'palliative care,' OR 'end-of-life care,' OR 'hospice care,' AND 'factors,' OR 'associated factors,' OR 'determinant factors.'	8300
Other databases	'utilisation' OR 'prevalence,' OR 'magnitude,' OR 'proportion,' OR 'accesses,' AND 'palliative care,' OR 'end-of-life care,' OR 'hospice care,' AND 'factors,' OR 'associated factors,' OR 'determinant factors.'	14
Total retrieved articles		12 560
Included studies		31

'magnitude', 'proportion', 'accesses', 'palliative care', 'end-of-life care', 'hospice care', 'factors', 'associated factors' and 'determinant factors'. The 'AND' and 'OR' Boolean operators' strings were used (table 1).

Screening and eligibility of the studies

All retrieved articles were imported into EndNote Reference software version 8 (Thomson Reuters, Stamford, CT, USA) for sorting, cleaning and duplicate removal. Each article was independently assessed by three reviewers (AG, TA and BTA) according to predetermined inclusion criteria, focusing on the title and abstract. Key details extracted from the articles included the researcher's name, publication year, country of the study, sample size, palliative care utilisation rates, patients' attitudes towards palliative care, patient satisfaction with palliative care and relevant factors. Studies published up to April 2024 that reported on palliative care utilisation among cancer patients globally were included. Articles that did not address the outcomes of interest, qualitative studies, interventional studies, trials, case reports, news articles and those lacking full text after contacting the corresponding author were excluded. Additionally, studies of poor quality were not included in the final analysis. Any disagreements between the authors during the extraction, evaluation and review process were resolved through discussion.

Outcome measurement of the study

The outcome of this study was the utilisation of palliative care among cancer patients, the attitude of cancer patients towards palliative care and the satisfaction of patients with palliative care services. Therefore, respondents who scored above the median level for outcome measuring variables (level of utilisation) were considered to have adequate utilisation of palliative care, while those who scored equal to or below the median level were considered to have inadequate utilisation of palliative care among cancer patients. Regarding the level of attitude, if a respondent answers above the median level, it is considered a favourable attitude, and if a respondent's answer equals or is below the median level, it is considered an unfavourable attitude. Levels of satisfaction for palliative care services were measured as follows: if patients' responses were above the median level, they were considered satisfied, and if patients' responses were equal to or below the median level, they were considered unsatisfied.

Quality assessment

All the authors extract the variables from the extraction sheet independently and cross-check for consistency. In addition, each author independently evaluated the qualities of the articles using the Newcastle Ottawa Scale for cross-sectional studies. The methodological quality, comparability, outcomes and statistical analysis of the studies were the assessment tools used to declare the quality of the studies. Studies scored on a scale of ≥7 out of 10 were considered to have high quality. Any disagreement between the authors was resolved by discussion. Then, all authors independently reached an agreement on the consideration and inclusion of articles for the final analysis.

Data processing and analysis

We used a Microsoft Excel spreadsheet to extract and clean the data. Then, the data were exported to STATA version 17 for analysis. The pooled prevalence of utilisation of palliative care among cancer patients, the level of attitude of patients towards palliative care and the level of satisfaction of patients for palliative care service were examined using a weighted inverse variance random-effects model at 95% CI.[20] The Cochrane Q-test and I^2 with the correspondence p value and Galbraith plot were used to evaluate the studies' heterogeneity. Subgroup analysis was carried out by the continent where the studies were done and the sample size to investigate the possible source of heterogeneity. In addition, sensitivity analysis was also performed to detect the presence or absence of influential studies. Furthermore, Egger's test was performed to look for publication bias, and a funnel plot was displayed to show the distributions of the articles. A log OR was employed to see the association between the level of attitude of patients towards palliative care and the level of utilisation of palliative care among cancer patients. Finally, a statistical test with a P value of <0.05 was considered statistically significant.

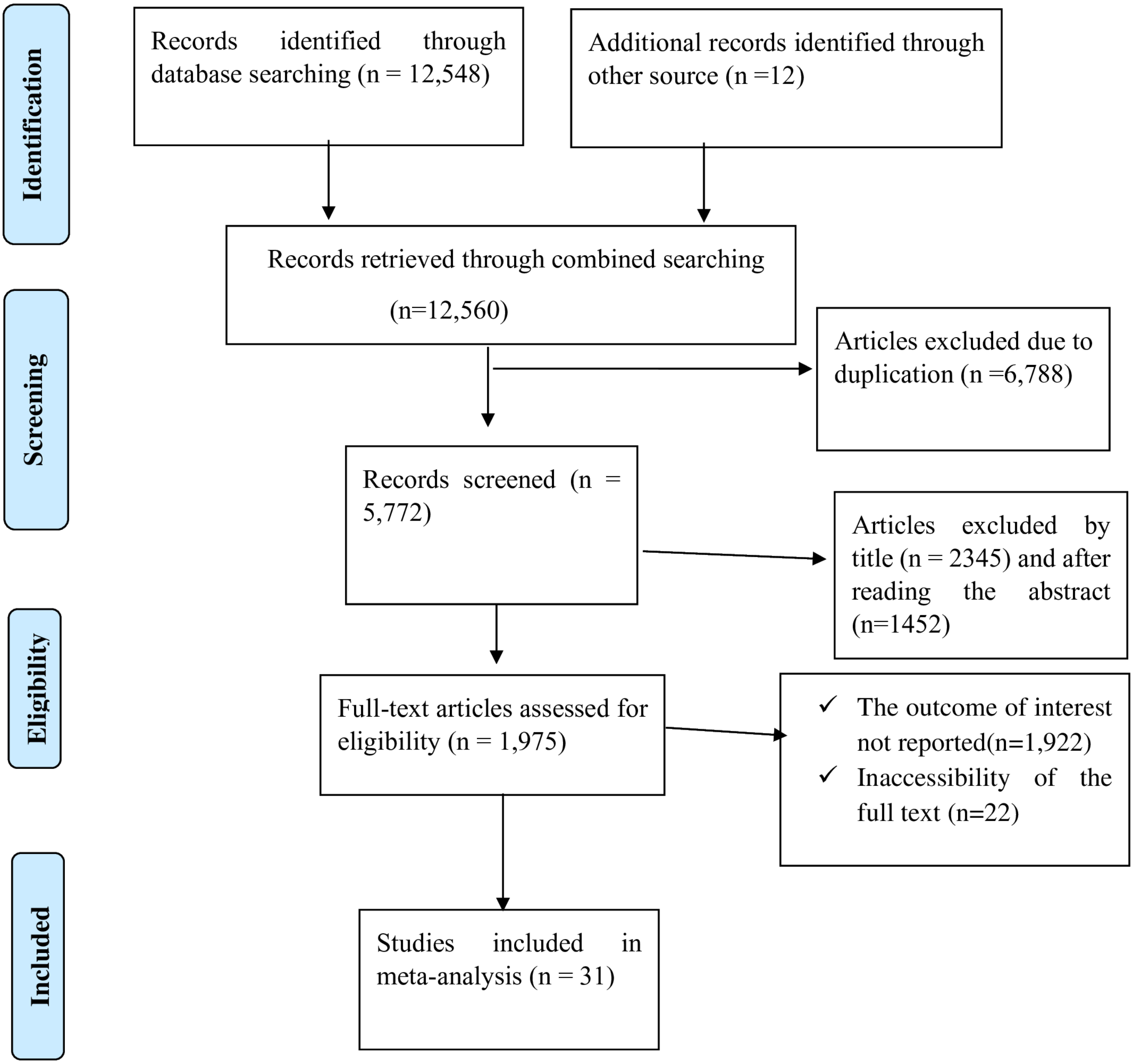

Figure 1 Preferred Reporting Items for Systematic Review and Meta-analysis flow chart diagram on the selection of articles done on the utilisation of palliative care among cancer patients in the world.

Patient and public involvement

It was not appropriate or possible to involve patients or the public in the design, conduct, reporting and dissemination plans of our research.

RESULTS

In this systematic review and meta-analysis, various databases were searched using specific keywords, resulting in the identification of 12 560 articles. A significant number of these articles were excluded from the analysis due to issues such as duplication, failure to report the relevant outcomes, poor quality or unavailability of the full text. Additionally, some articles were removed after a thorough review of their titles and abstracts. Ultimately, 31 articles that met the inclusion criteria were selected for analysis (figure 1).

Characteristics of the studies and study participants

A total of 31 articles, which were conducted until April 2024 around the world, were incorporated. It comprises 1 751 757 study participants. The studies were conducted on different continents of the world; 18 were from the USA, seven were from Asia, three were from Africa and three were from Europe. All the included articles were cross-sectional in design. The sample size of the included studies ranged from 94 to 313 059 online supplemental table S2).

META-ANALYSIS

Pooled prevalence of utilisation of palliative care

This systematic review and meta-analysis revealed that the overall prevalence of palliative care utilisation among cancer patients globally is 34.43% (95%

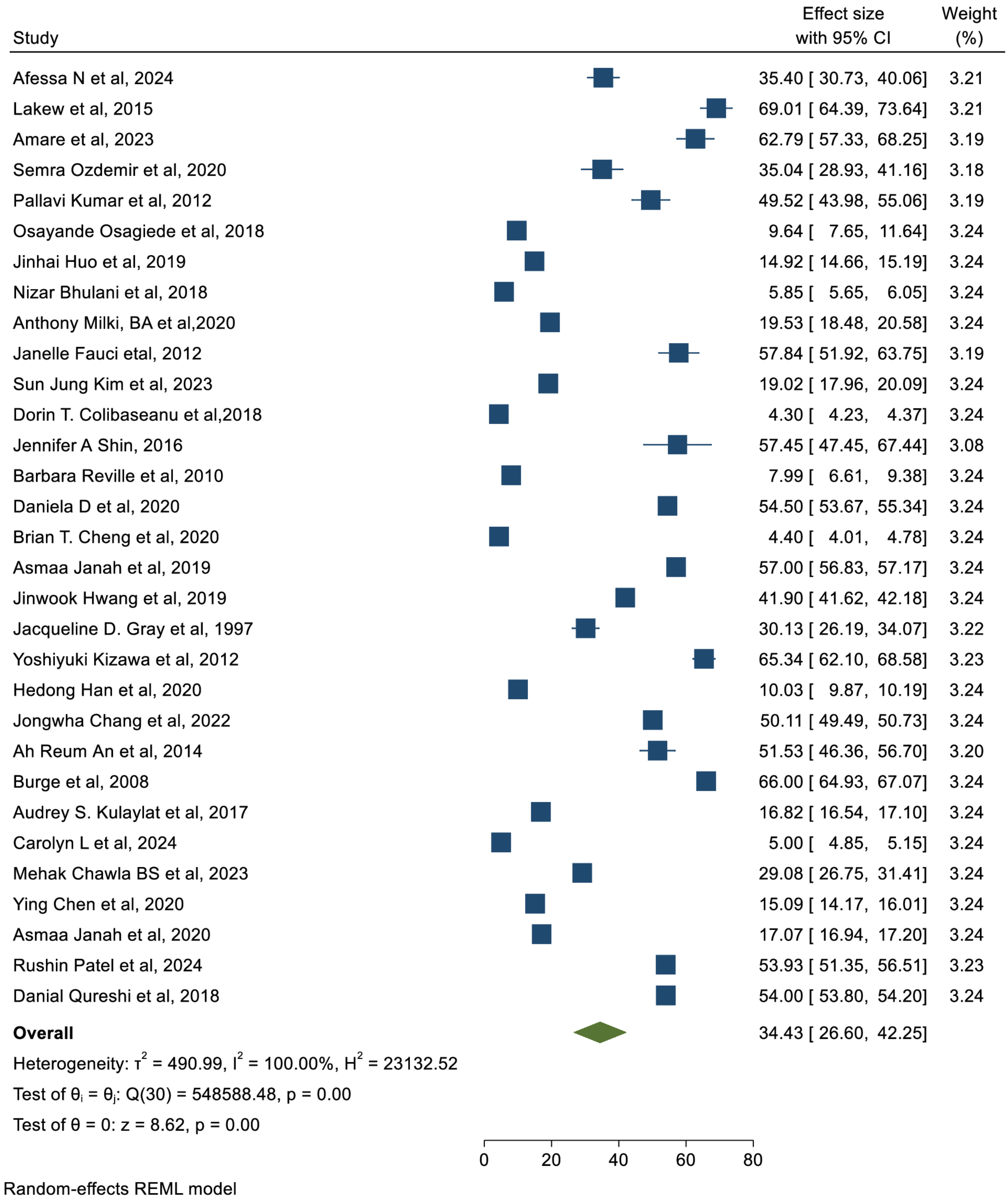

Figure 2 Frost plot on the pooled prevalence of utilisation of palliative care among cancer patients in the world.

CI: 26.60% to 42.25). This finding indicates that, on average, about one-third of cancer patients worldwide have access to palliative care services (figure 2).

Heterogeneity and publication bias

The funnel plot, which is used to assess publication bias, displayed an asymmetrical distribution of the included articles, suggesting the presence of publication bias (figure 3). This asymmetry indicates that some studies may not have been published or reported, potentially skewing the overall results. Additionally, the Galbraith plot, which helps identify heterogeneity among studies, visually confirmed significant heterogeneity ($I^2 = 100\%$, $p<0.001$) (online supplemental figure S1). This level of heterogeneity suggests substantial variability in the results across the studies included in the analysis, indicating that the studies may differ significantly in terms of their methodologies, populations or other factors.

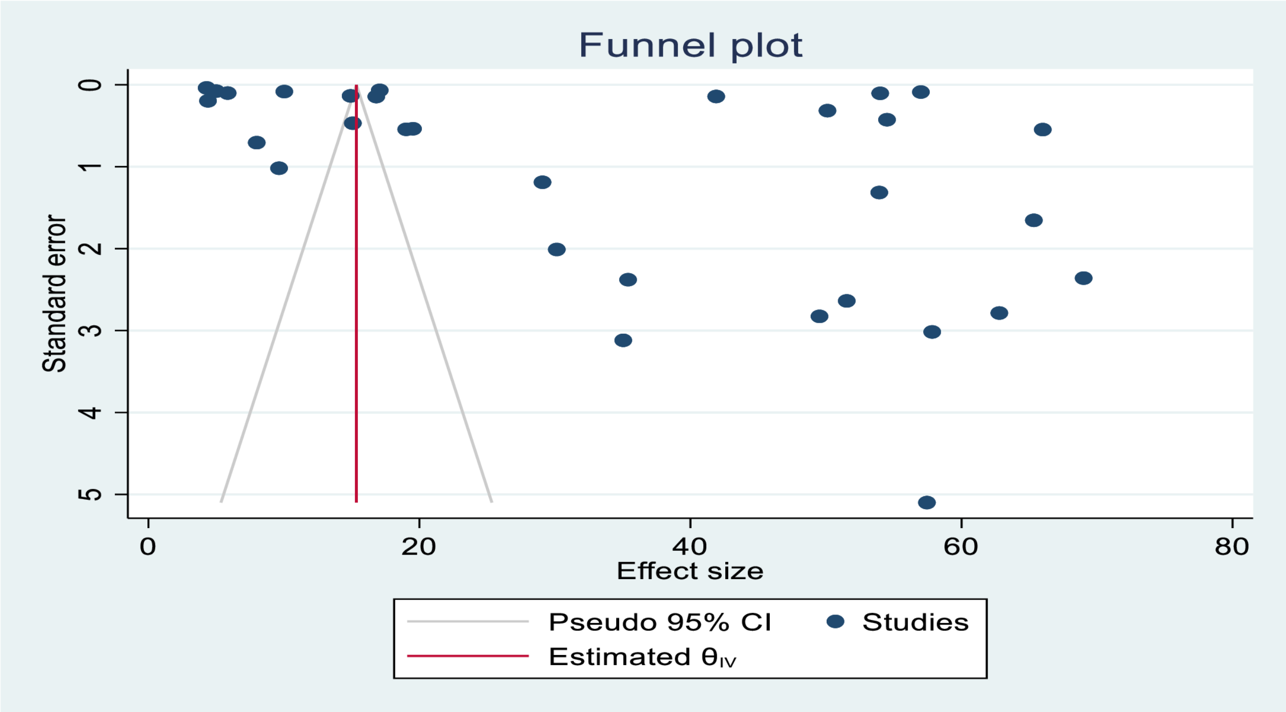

Figure 3 Funnel plot with 95% CIs on the pooled prevalence of utilisation of palliative care among cancer patients in the world.

Subgroup analysis

To investigate the cause of heterogeneity, a subgroup analysis was performed based on the continent where the studies were conducted. This analysis revealed that Africa had the highest reported percentage of palliative care utilisation among cancer patients, at 55.72% (95% CI: 35.45 to 75.99). In contrast, the USA had the lowest reported utilisation rate, at 30.34% (95% CI: 19.83 to 40.86) (online supplemental figure S2). Additionally, the analysis was stratified by sample size. Studies with a sample size of less than 1000 participants showed a higher percentage of palliative care utilisation at 47.51% (95% CI: 36.69 to 58.32) compared with studies with a sample size greater than 1000, which reported a lower utilisation rate of 27.32% (95% CI: 17.99 to 36.65) (online supplemental figure S3).

Sensitivity analysis

A leave-one-out sensitivity analysis was performed using the random-effects model to assess the impact of each study on the overall results. This analysis involved systematically excluding one study at a time and recalculating the overall estimate to determine if any single study had a disproportionate influence on the findings. The results showed that all individual estimates remained within the overall 95% CI of 26.60 to 42.25. This indicates that none of the studies had a significant impact on the overall pooled estimate, suggesting that the findings are robust and not unduly influenced by any single study. This reinforces the reliability of the results and confirms the absence of any influential outlier studies in the analysis

Attitude towards palliative care and level of satisfaction with palliative care service

In this study, the overall prevalence of a positive attitude among cancer patients towards palliative care was found to be 55% (95% CI: 35.26 to 74.80). Conversely, 45% (95% CI: 25.22 to 64.89) of cancer patients held a negative attitude towards palliative care. Among those who received palliative care, 57.54% (95% CI: 46.09 to 69.00) reported satisfaction with the services. However, 42.46% (95% CI: 31.00 to 53.91) expressed dissatisfaction with the palliative care they received.

Factors associated with the utilisation of palliative

There was a significant association between the level of attitude towards palliative care and the likelihood of utilising these services. Specifically, cancer patients who had a positive attitude towards palliative care were 2.86 times more likely to use palliative care compared with those with a negative attitude (AOR=2.86; 95% CI: 2.69 to 3.03) (figure 4). This suggests that a favourable attitude greatly increases the probability of engaging with palliative care services.

DISCUSSION

The growing prevalence of cancer has made palliative care an increasingly vital component of healthcare. It plays a crucial role in alleviating the distressing symptoms experienced by patients, especially those suffering from cancer, heart disease, renal failure and liver disease. Palliative care aims to improve the quality of life for these patients by addressing physical, emotional and psychological challenges associated

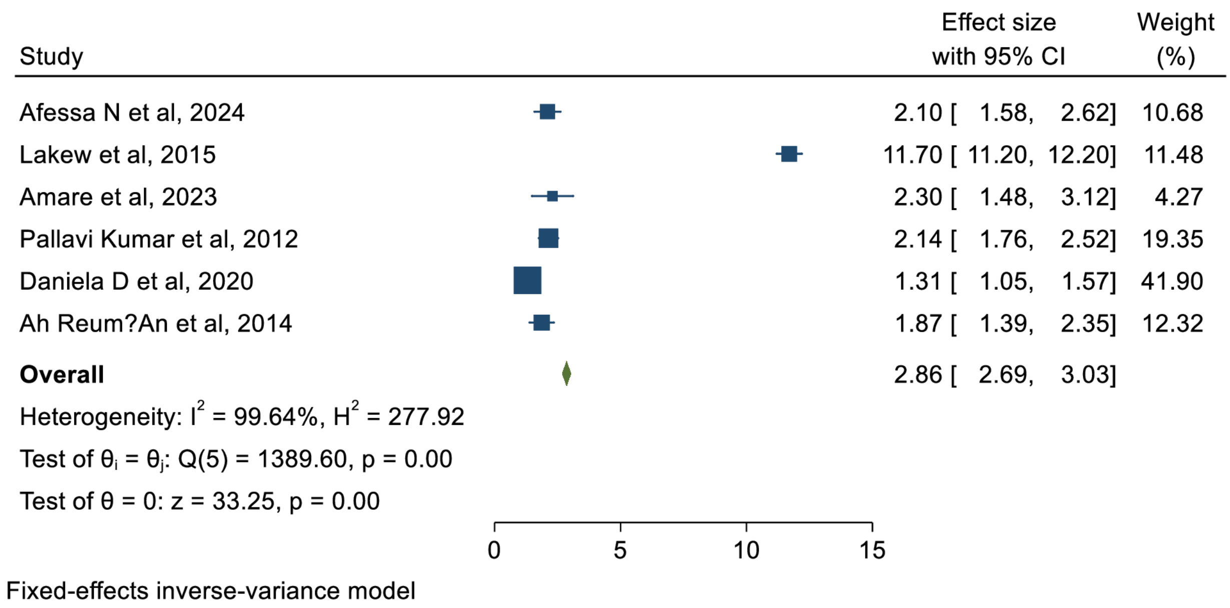

Figure 4 Overall pooled OR of the association between favorable attitudes towards palliative care and its utilisation among cancer patients in the world.

with their conditions. According to the result of this research, approximately 34.43% of cancer patients globally used palliative care services, with a CI of 95% (26.60 to 42.25%), highlighting a significant yet underused resource in managing the complexities of life-limiting illnesses. This finding is lower when compared with regions or populations with a higher incidence of cancer, where the demand for palliative care services is more pronounced. A potential explanation for this discrepancy is the insufficient awareness and understanding of the comprehensive benefits that palliative care can offer to cancer patients. In addition, many patients demonstrate a lack of awareness about palliative care, hold negative perceptions and have limited access to accurate information regarding these services. Several contributing factors, such as limited accessibility to palliative care services, a shortage of trained healthcare providers, suboptimal institutional infrastructure and other barriers may further hinder the effective utilisation of palliative care among cancer patients. These multifaceted challenges highlight the need for improved education, system-level reforms and increased access to palliative care to address the gap in care for this vulnerable patient group.

In this study, a subgroup analysis was conducted based on the continents where the individual studies took place. The findings revealed that Africa had the highest proportion of cancer patients accessing palliative care services, with 55.72% (95% CI: 35.45 to 75.99). In contrast, the USA reported the lowest percentage, at 30.34% (95% CI: 19.83 to 40.86). A potential reason for the higher utilisation rate in Africa may be linked to the overall lower number of cancer patients receiving treatment, possibly due to limited healthcare infrastructure or delayed diagnosis, which could lead to an increased need for palliative care. Conversely, in the USA, where access to a broader range of cancer treatments and interventions is available, fewer patients may require palliative care services at advanced stages of the disease.[21–23] As the number of cancer patients in need of palliative care rises, the overall utilisation of these services tends to decline. This can be attributed to the increased strain on healthcare workers, reduced availability of medications and other challenges that emerge from the growing patient demand.[24–27]

A subgroup analysis was also conducted based on sample size. Studies with a sample size of less than 1000 participants showed a higher rate of palliative care utilisation among cancer patients, reporting 47.51% (95% CI: 36.69 to 58.32). In contrast, studies with sample sizes exceeding 1000 participants indicated a lower utilisation rate of 27.32% (95% CI: 17.99 to 36.65). This discrepancy can be attributed to the fact that smaller studies often involve patients from more localised or concentrated groups of cancer patients, which increases their likelihood of accessing and benefiting from palliative care services. In larger studies, the wider and more diverse patient population may face greater logistical or systemic barriers to accessing these services, contributing to the lower reported rates of utilisation.[22 23 28 29]

The findings of this study indicated that 55% (95% CI: 35.26 to 74.80) of cancer patients exhibited a positive attitude towards palliative care. While this proportion reflects some level of awareness, it is relatively low considering the substantial benefits that palliative care offers to patients. This limited favourable perception could be attributed to the fact that palliative care remains a relatively new and underdeveloped concept, particularly in healthcare settings where it has not yet been fully integrated into medical and nursing education. Furthermore, many cancer patients may not have had sufficient exposure or access to information about palliative care, which could have negatively impacted their attitudes towards it. Expanding awareness and education on palliative care could help improve these perceptions and promote more widespread acceptance.[21–23] Among cancer patients who received palliative care, 42.46% (95% CI: 31.00 to 53.91) expressed dissatisfaction with the palliative care services provided. This dissatisfaction may stem from the fact that patients with greater knowledge and more positive attitudes towards palliative care often have higher expectations, potentially requiring more advanced or specialised care in addition to standard services. This notion is further supported by the observation that cancer patients who were familiar with palliative care and had higher levels of self-reported knowledge were more likely to expect concurrent anticancer treatments alongside palliative care.[18]

The attitude of cancer patients towards palliative care was found to have a significant impact on their likelihood of using such care. Specifically, cancer patients who held a positive attitude towards palliative care were 2.86 times more likely to use it compared with those with a negative attitude (AOR=2.86; 95% CI: 2.69 to 3.03). This strong association highlights that a more favourable perception of palliative care directly correlates with an increased likelihood of its utilisation. As patients' attitudes towards palliative care become more positive, the probability of them opting for and benefiting from this form of care also rises accordingly. This suggests that fostering positive attitudes towards palliative care may play a crucial role in improving its acceptance and utilisation among cancer patients.

CONCLUSION

Only about one-third of cancer patients globally have accessed palliative care services, with Africa showing the highest usage rates. Approximately half of cancer patients had a positive attitude towards palliative care, and a similar proportion expressed satisfaction with the services they received. The likelihood of using palliative care was closely linked to the patient's attitude towards it. This highlights the need for palliative care to be fully integrated into routine cancer treatment and management plans. Additionally, efforts to enhance both knowledge and attitudes towards palliative care among patients are crucial to boost satisfaction and improve overall care outcomes.

Subgroup analysis by sample size on the pooled prevalence of utilisation of palliative care among cancer patients in the world.

Contributors Author's Contributions AG designed the study, designed and run the literature search and methodology. All authors (AG, GY, TA and BTA) acquired data, screened records, extracted data, assessed the eligibility of the studies and assessed the risk of bias. AG did the statistical analyses and wrote the report. All authors provided critical conceptual input, edited the manuscript and critically revised the report. Finally, all authors read and approved the final manuscript. AG is the guarantor for the integrity of the work as a whole and accepts full responsibility for the research and its conclusions.

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Patient consent for publication Not applicable.

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