

# Knowledge and associated factors towards palliative care among nurses in Ethiopia: A systematic review and meta-analysis

SAGE Open Medicine

Volume 10: 1–12

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DOI: 10.1177/20503121221092338

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## Abstract

Palliative care is a holistic care that emphasises on relieving pain and other symptoms of a critical illness, irrespective of age, diagnosis, or stage of illness. It improves the quality of life of the individual. Since nurses spend the longest time with patients, they are the heart of the palliative care team who deliver high standards of care. This study was intended to assess the pooled prevalence of knowledge and associated factors towards palliative care among nurses in Ethiopia. During this study, a comprehensive search was performed by using different databases. A funnel plot and Egger's test were used to evaluate a publication bias.  $I^2$  statistic was used to check the heterogeneity between the studies. The subgroup analysis was also conducted for this study. A total of 11 studies with 3330 study participants were included in this systematic review and meta-analysis. The systematic review and meta-analysis showed that the pooled prevalence of knowledge towards palliative care among nurses in Ethiopia was 42.31% (95% confidence interval = [32.41, 52.21]). Educational status (adjusted odds ratio = 2.69, 95% confidence interval = [1.11, 4.25]), experience of caring for a dying patient (adjusted odds ratio = 3.15, 95% confidence interval = [1.17, 5.13]), and training on palliative care (adjusted odds ratio = 2.53, 95% confidence interval = [1.42, 3.64]) were factors significantly associated with the knowledge of nurses towards palliative care. This study indicated that the pooled prevalence of knowledge towards palliative care among nurses in Ethiopia was low. Educational status, experience of caring for a dying patient, and training on palliative care were factors significantly associated with the knowledge of nurses towards palliative care. Thus, training on palliative care and education is suggested for nurses to improve their knowledge towards palliative care.

**Systematic review registration:** PROSPERO CRD42021247590

## Keywords

Knowledge, palliative care, associated factors, systematic review, meta-analysis, Ethiopia

Date received: 27 July 2021; accepted: 10 March 2022

## Introduction

European Association for Palliative Care (EAPC) defines palliative care as the active, total care of patients whose disease is not responsive to curative treatment. It takes a holistic approach, addressing physical, psychosocial, and spiritual care, comprising the treatment of pain and other symptoms. It is interdisciplinary in its approach and encompasses the care of the patient and their family and should be available in any location including hospitals, hospice, and communities.<sup>1</sup>

Palliative care refers to a holistic interdisciplinary method that emphasises on assisting a quality of the end of life for patients with a progressive, life-threatening disease with no

probability of gaining remission or stabilisation or modifying the course of the illness.<sup>2</sup> It is holistic care that emphasises on relieving pain and other symptoms. It is often given together with other treatments.<sup>3</sup> It is a vital part of combined and individual-centred health services. Relieving a critical

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health-associated misery, whether it is physical, psychological, social, or spiritual, is a worldwide ethical responsibility. Therefore, palliative care may be required for patients and has to be presented at all levels of care.<sup>4</sup> It is offered to enhance the quality of life for the patient and families.<sup>3-5</sup> It is given by a group of physicians, nurses, and other health care providers.<sup>5</sup> Getting palliative care does not certainly mean you are dying.<sup>3</sup>

Greater than 56.8 million individuals are projected to need palliative care every year worldwide, while 31.1 million prior and 25.7 million near the end of life. In all, 67.1% are adults beyond 50 years old and about 7% are children. Also, 54.2% are non-decedents who want palliative care prior to their last year of life. The impact of severe illness and health-associated suffering and the respective requirements for palliative care are enormous. Yet, palliative care is still not accessible by most people in need, especially in low and middle-income countries (LMICs).<sup>6</sup> Moreover, globally, only about 14% of patients who require palliative care obtain it. About 40 million people require palliative care each year. From this, approximately 78% of adults who want palliative care live in LMICs.<sup>4</sup> By 2040, if the current mortality trend continues, more than 160,000 individuals in England and Wales will require palliative care.<sup>7</sup>

A study done in Ethiopia revealed that in oncology, 95.5% of the population declared moderate or severe pain. This study also reported that there are substantial unmet palliative care requirements in Ethiopia.<sup>8</sup> Another study conducted in Ethiopia on ‘palliative care needs and preferences of female patients and their caregivers’ reported that the existing services did not cover the requirements of female patients and caregivers towards palliative care.<sup>9</sup> Moreover, another study done in Ethiopia showed that a significant figure of participants stated that there were problems regarding the accessibility of palliative care services for cancer patients.<sup>10</sup> Another study conducted in Ethiopia on ‘The evolution of hospice and palliative care’ stated that palliative care in Ethiopia lacks the integration of psychological, social, and spiritual support.<sup>11</sup>

The study revealed that declined length of stay is found to be a major means of cost saving for patients with advanced cancer. The discussion between patients and family on the goals of care and transition planning introduced by palliative care consultation teams may be significant in cost savings, lessening of needless tests and pharmaceuticals.<sup>12</sup> The quality of life of at least 100 million individuals would have enhanced if today’s knowledge of palliative care was accessible to everyone. A public health strategy provides a method for translating new knowledge and skills into evidence-based, cost-effective interventions that can reach everyone in the population.<sup>13</sup> The evidence showed that palliative care has improved the outcomes of cancer, congestive heart failure, chronic obstructive pulmonary disease, and dementia. The effective models comprise nurses, social workers, and home-based components and focus on communication, psychosocial support, and patient or caregiver experience.<sup>14</sup>

The nurses make up the major team of health care professionals. The role of the nurse includes being a coordinator and linking different levels of professions, health care, and patients and family, while this contributes in warranting the quality of care to a patient.<sup>15</sup> Knowing knowledge in nursing practice is significant for the enhancement of educational preparation and quality in health care.<sup>16</sup> Nurses are a crucial part of the palliative care team in offering high standards of care because they spend the longest duration with patients. However, lack of satisfactory knowledge concerning palliative care is considered as among the major barriers to palliative care development and practice.<sup>17</sup> The quality of care given to dying long-term care people is insufficient. This may be because of a lack of formal training that long-term care staff obtain in palliative care.<sup>18</sup> It is the nurse’s poor knowledge of palliative care that is one of the core obstacles in offering an ideal palliative care. Thus, rising the quality of palliative care services by enhancing their knowledge through education and retraining is important.<sup>19</sup>

As mentioned above, low palliative care availability remains a critical problem for the population globally. The knowledge of the nurses could be a barrier for this problem. Thus, this study would be essential in providing important evidences. This is because receiving information towards knowledge and associated factors towards palliative care among nurses would encourage any concerned bodies and institutions.

## Methods

### Review questions

1. What is the level of good knowledge towards palliative care among nurses in Ethiopia?
2. What are the factors associated with knowledge of nurses towards palliative care in Ethiopia?

### Study setting

This study was conducted in Ethiopia, a country located in the Horn of Africa; Addis Ababa is its national capital city.<sup>20</sup> In Ethiopia, a hospice was established in 2003, the national pain guideline was prepared in 2007, a palliative care online course by Mayo was introduced in 2013, a pain training module was started in 2015, and the palliative care guideline was prepared in 2016.<sup>21</sup>

### Search strategies

The electronic databases such as African Journals OnLine, PubMed, Google Scholar, HINARI, EMBASE, Scopus, Web of Science, and Google were used for the search strategies. Moreover, university repositories were also used. During this, the following keywords were used: ‘knowledge’, ‘palliative care’, ‘end of life care’, ‘caring terminally ill’,

‘factors’, ‘associated factors’, ‘nurses’, and ‘Ethiopia’. ‘AND’ and ‘OR’ Boolean operators were used to integrate them.

### Eligibility criteria

The inclusion criteria for this study were (1) *study setting*: all studies conducted in Ethiopia, (2) *study subjects*: nurses, (3) *publication status*: all published and unpublished articles were considered, (4) *language*: English, (5) *study design*: observational studies (cross-sectional studies) were employed, and (6) *publication date*: articles published until 29 May 2021 were included. Whereas, articles in which the outcome variable was not clearly defined and measured were excluded from this study.

### Outcome of interest

The prevalence of knowledge regarding palliative care in nurses in Ethiopia was the primary outcome of this study. Whereas, factors associated with knowledge towards palliative care was the secondary outcome for this study.

### Data extraction

All articles were exported to Microsoft Excel spreadsheet. The titles and abstracts of the studies were retrieved. Moreover, the Preferred Reporting Item for Systematic Review and Meta-Analyses (PRISMA) flowchart was used for stepwise inclusion and exclusion of the articles.

### Quality assessment

To assess the quality of the included articles in this study, the modified Newcastle–Ottawa Scale for cross-sectional studies was used.<sup>22</sup>

### Statistical analysis

STATA version 11 statistical software was used for analysis. During this, a random-effects model was used to estimate the pooled prevalence of knowledge towards end-of-life care among nurses in Ethiopia. Cochrane Q-test and  $I^2$  statistics were used to determine a heterogeneity among the included studies, while publication bias was measured by using Egger’s test. For the subgroup analysis, publication year category, region, and sample size category were used. Finally, the pooled prevalence with 95% confidence intervals (CI) was displayed by using the forest plot format.

### Reporting the results

The PRISMA 2009 checklist was used to report the results of this study.<sup>23</sup>

## Results

Using different search strategies, a total of 946 studies were found. From 946, 481 studies were omitted because of duplication. From 465 studies, 414 were accepted after reading of the titles and abstracts. Then, 51 studies were selected for full text and 7 were omitted due to lack of full text. Then, 44 articles were assessed for eligibility and 33 were excluded for a reason. Finally, 11 articles met the eligibility criteria and were included into this systematic review and meta-analysis (Figure 1).

### Features of the included studies

A total of 11 articles were included into this study. The largest sample size was 392, while the smallest sample size was 197. The largest prevalence of knowledge towards palliative care among nurses in Ethiopia was 62.82%, while the smallest was 14.86%. Moreover, 3330 study subjects were included to assess the pooled prevalence of knowledge palliative in nurses in Ethiopia (Table 1).

### Heterogeneity and publication bias

For this meta-analysis, the heterogeneity and publication bias of the included studies were evaluated. The results showed that there was a significant heterogeneity among the studies ( $I^2=97.5%$ ,  $p=0.000$ ). Egger’s test was used to check for publication bias and the p value was 0.073. Since Egger’s test was statistically insignificant, this suggests that there was no publication bias. Moreover, there is no evidence for publication bias because the funnel plot shows the symmetrical distribution (Figure 2).

### Sensitivity analysis

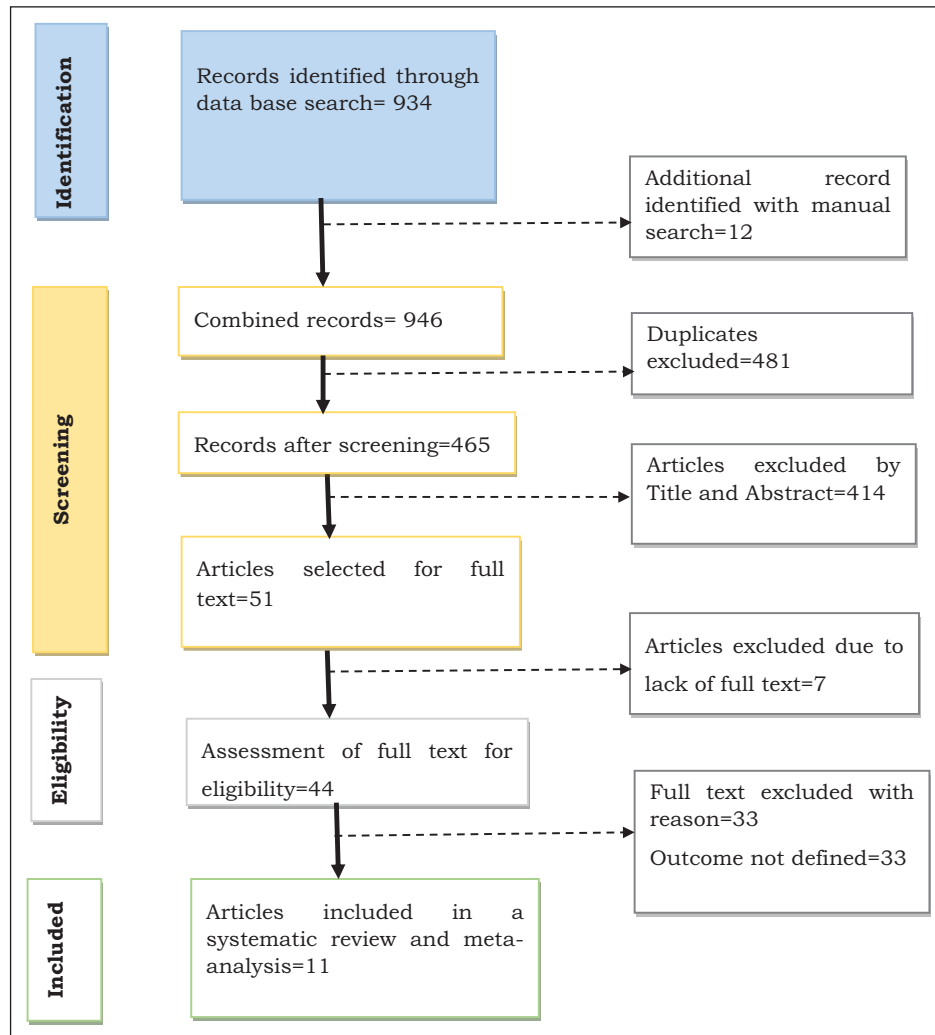
The results of a sensitivity analysis by using the random-effects model showed that no single study influenced the overall prevalence of knowledge (Figure 3).

### Knowledge of nurses towards palliative care

The random-effect model was used to determine a pooled prevalence of knowledge towards palliative care in nurses in Ethiopia, which was 42.31% (95% CI=[32.41, 52.21]). The level of heterogeneity was  $I^2=97.5%$  ( $p=0.000$ ) (Figure 4).

### Subgroup analysis

The subgroup analysis was needed to be done because the level of heterogeneity was significant. To identify the sources of heterogeneity, subgroup analysis was conducted by using region, publication year, and sample size to determine the pooled prevalence of knowledge towards palliative care among nurses in Ethiopia.



**Figure 1.** PRISMA flowchart diagram of the study selection for systematic review and meta-analysis on the prevalence of knowledge and associated factors towards palliative care among nurses in Ethiopia.

**Subgroup analysis by region.** The pooled prevalence of knowledge towards palliative care among nurses was 50.52% (95% CI=[38.62, 62.41],  $I^2=92.6\%$ ,  $p=0.000$ ) in Amhara region, 44.00% (95% CI=[7.12, 80.89],  $I^2=99.1\%$ ,  $p=0.000$ ) in Tigray region, 49.46% (95% CI=[44.22, 54.69],  $I^2=40.8\%$ ,  $p=0.194$ ) in Oromia region, and 23.93% (95% CI=[14.74, 33.11],  $I^2=91.8\%$ ,  $p=0.000$ ) in Addis Ababa region (Figure 5).

**Subgroup analysis by year of publication.** The pooled prevalence of knowledge towards palliative care among nurses was 40.15% (95% CI=[24.02, 56.28],  $I^2=97.7\%$ ,  $p=0.000$ ) for the studies published on or before 2018 and 44.12% (95% CI=[30.83, 57.41],  $I^2=97.5\%$ ,  $p=0.000$ ) for the studies published after 2018 (Figure 6).

**Subgroup analysis by sample size.** The pooled prevalence of knowledge towards palliative care among nurses was 40.39% (95% CI=[22.39, 58.40],  $I^2=98.0\%$ ,  $p=0.000$ ) for sample

size  $\leq 278$  and 43.93% (95% CI=[32.22, 55.64],  $I^2=97.0\%$ ,  $p=0.000$ ) for sample size  $> 278$  (Figure 7).

### Associated factors

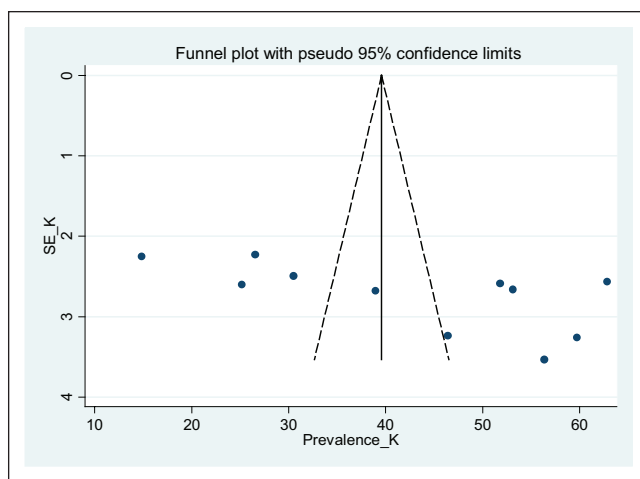
According to this meta-analysis, educational status, experience of caring for a dying patient, and training on end-of-life care/palliative care were factors significantly associated with knowledge towards palliative care.

### Educational status

Nurses who had the educational status of BSc and above were 2.69 times more likely to have knowledge towards palliative care (adjusted odds ratio (AOR)=2.69, 95% CI=[1.11, 4.25],  $I^2=0.0\%$ ,  $p=0.585$ ) than nurses who had a diploma education level, which is based on the pooled effects of three cross-sectional studies (Figure 8).

**Table 1.** Characteristics of the studies included in the systematic review and meta-analysis on the prevalence of knowledge and associated factors towards end-of-life care among nurses in Ethiopia.

S. no	Authors	Year	Region	Study design	Sample size	Prevalence
1	Abate et al. <sup>24</sup>	2019	Amhara	Cross-sectional	331	38.97%
2	Zeru et al. <sup>25</sup>	2020	Tigray	Cross-sectional	355	62.82%
3	Getie et al. <sup>26</sup>	2021	Amhara	Cross-sectional	226	59.73%
4	Etafa et al. <sup>27</sup>	2020	Oromia	Cross-sectional	372	51.8%
5	Gedamu et al. <sup>28</sup>	2019	Addis Ababa	Cross-sectional	392	26.53%
6	Anteneh et al. <sup>29</sup>	2016	Amhara	Cross-sectional	352	53.13%
7	Kassa et al. <sup>30</sup>	2014	Addis Ababa	Cross-sectional	341	30.50%
8	Zeru et al. <sup>31</sup>	2020	Tigray	Cross-sectional	278	25.18%
9	Mandesh <sup>32</sup>	2014	Addis Ababa	Cross-sectional	249	14.86%
10	Meaza and Worku <sup>33</sup>	2015	Harari	Cross-sectional	197	56.34%
11	Tesfaye et al. <sup>34</sup>	2018	Oromia	Cross-sectional	237	46.41%

**Figure 2.** Funnel plot with 95% confidence limits of the pooled prevalence of knowledge towards palliative care among nurses in Ethiopia.

### Experience of caring for a dying patient

Nurses who had an experience of caring for a dying patient were 3.15 times more likely to have knowledge towards palliative care (AOR=3.15, 95% CI=[1.17, 5.13],  $I^2=50\%$ ,  $p=0.135$ ) than their contraries, which is based on the pooled effects of three cross-sectional studies (Figure 9).

### Training on palliative care

Nurses who had training on palliative care were 2.53 times more likely to have knowledge towards palliative care (AOR=2.53, 95% CI=[1.42, 3.64],  $I^2=56.4\%$ ,  $p=0.032$ ) than nurses who had no training on palliative care, which is based on the pooled effects of seven cross-sectional studies (Figure 10).

## Discussion

Globally, individuals needing palliative care are increasing alarmingly every year. However, only a few of them are

receiving palliative care. Nurses are a crucial part of the palliative care team in offering high standards of care. However, lack of satisfactory knowledge concerning palliative care is considered as among the major barriers to palliative care development and practice. Whereas, insufficient palliative care availability remains among the population with critical difficulty. Understanding the knowledge towards palliative care is significant for the improvement of educational preparation and quality in health care. Thus, this systematic review and meta-analysis was intended to assess the pooled prevalence of knowledge towards palliative care and associated factors among nurses in Ethiopia. Finally, this systematic review and meta-analysis showed that the pooled prevalence of knowledge towards palliative care among nurses in Ethiopia was 42.31% (95% CI=[32.41, 52.21]).

This finding was lower than the studies conducted in Saudi Arabia (63.1%),<sup>35</sup> Spain (54%),<sup>36</sup> Nigeria (94.6%),<sup>37</sup> and Malaysia (75%).<sup>38</sup> This finding was consistent with the studies conducted in Sudan (50.9%),<sup>39</sup> India (38%),<sup>40</sup> Mongolia (39.5%),<sup>41</sup> South Korea (48.3%),<sup>42</sup> India (46%),<sup>43</sup> Spain (34.41%),<sup>44</sup> and Saudi Arabia (38%).<sup>45</sup> However, this finding was higher than the studies done in India (20.5%),<sup>46</sup> Palestine (20.5%),<sup>47</sup> India (6.06%),<sup>48</sup> Vietnam (25.80%),<sup>49</sup> and Greece (26%).<sup>50</sup> The possible justification might be because of the difference in the sociodemographic characteristics, study population, and tools used. Furthermore, it might be due to the differences in the curriculum of education, the level of attitude for its significance, and the burden of the population who require palliative care.

The subgroup analysis of this study showed that there was a difference of pooled prevalence of knowledge towards palliative care among nurses with sample size, region, and publication year. Concerning a region, the pooled prevalence of knowledge towards palliative care among nurses was 50.52% (95% CI=[38.62, 62.41]) in Amhara region, 44.00% (95% CI=[7.12, 80.89]) in Tigray region, 49.46% (95% CI=[44.22, 54.69]) in Oromia region, and 23.93% (95% CI=[14.74, 33.11]) in Addis Ababa region. The

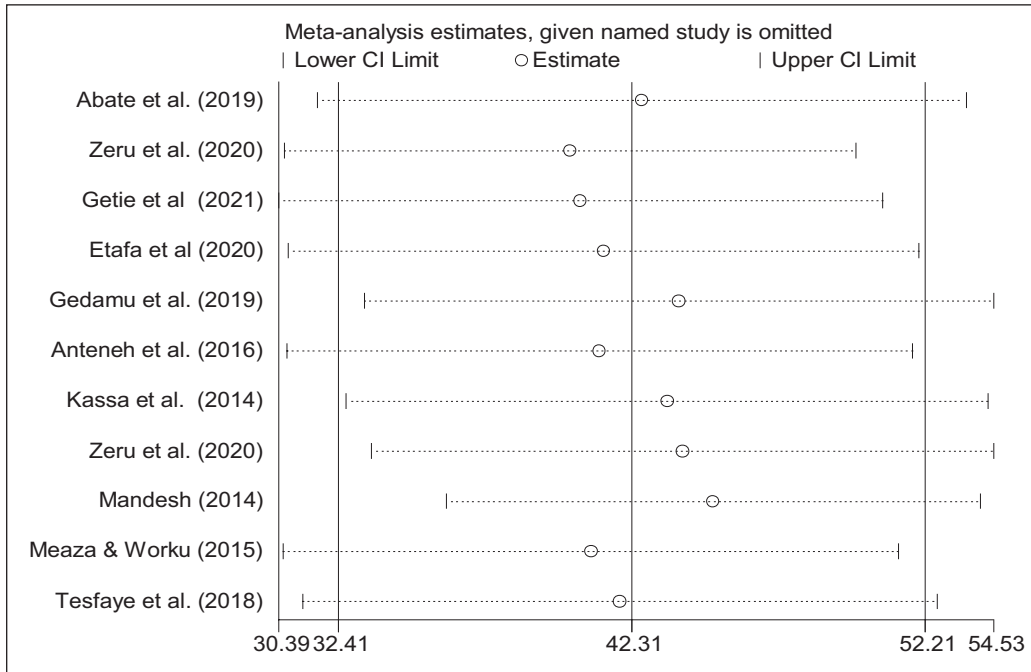


Figure 3. The results of sensitivity analysis of 11 studies conducted on knowledge towards palliative care among nurses in Ethiopia.

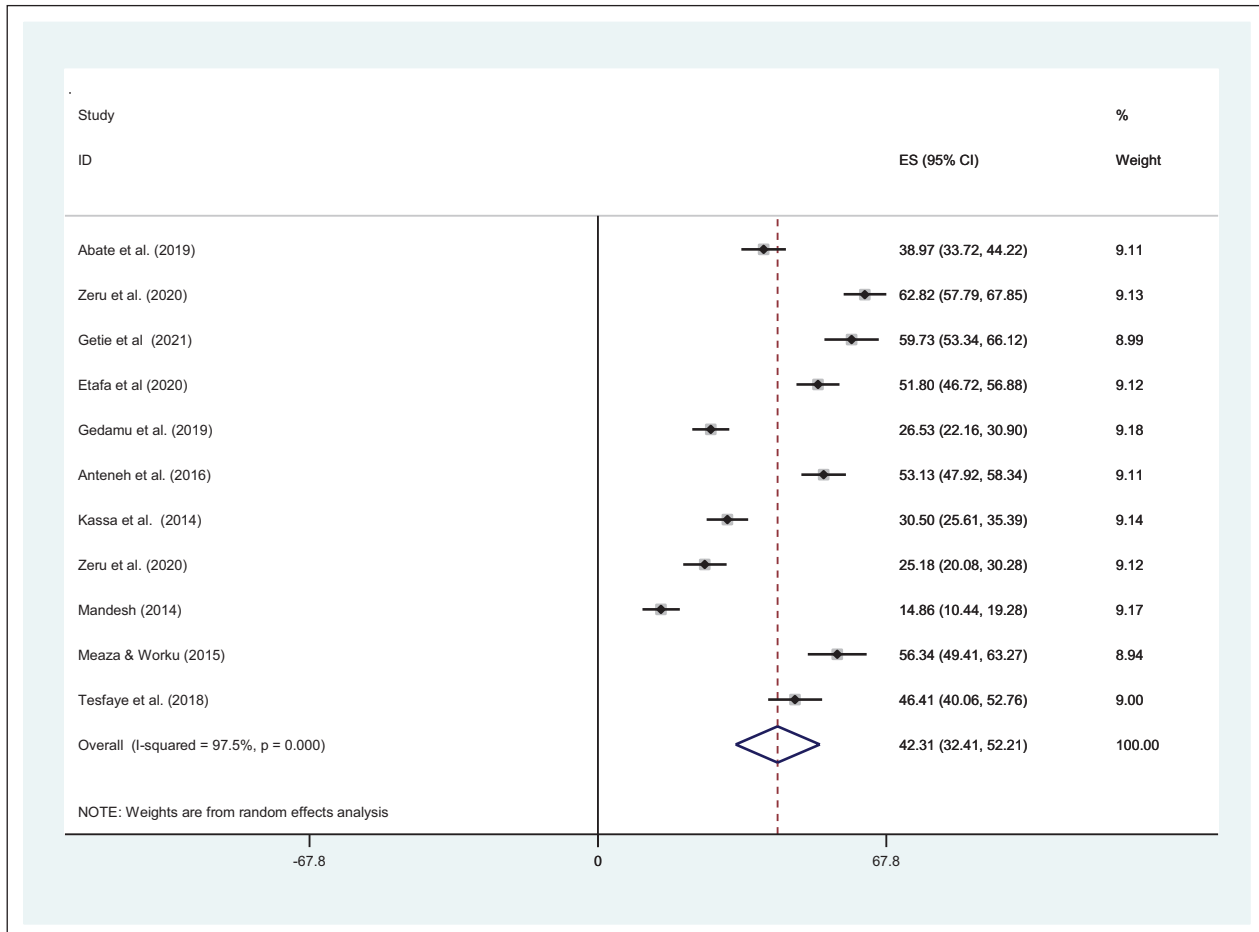
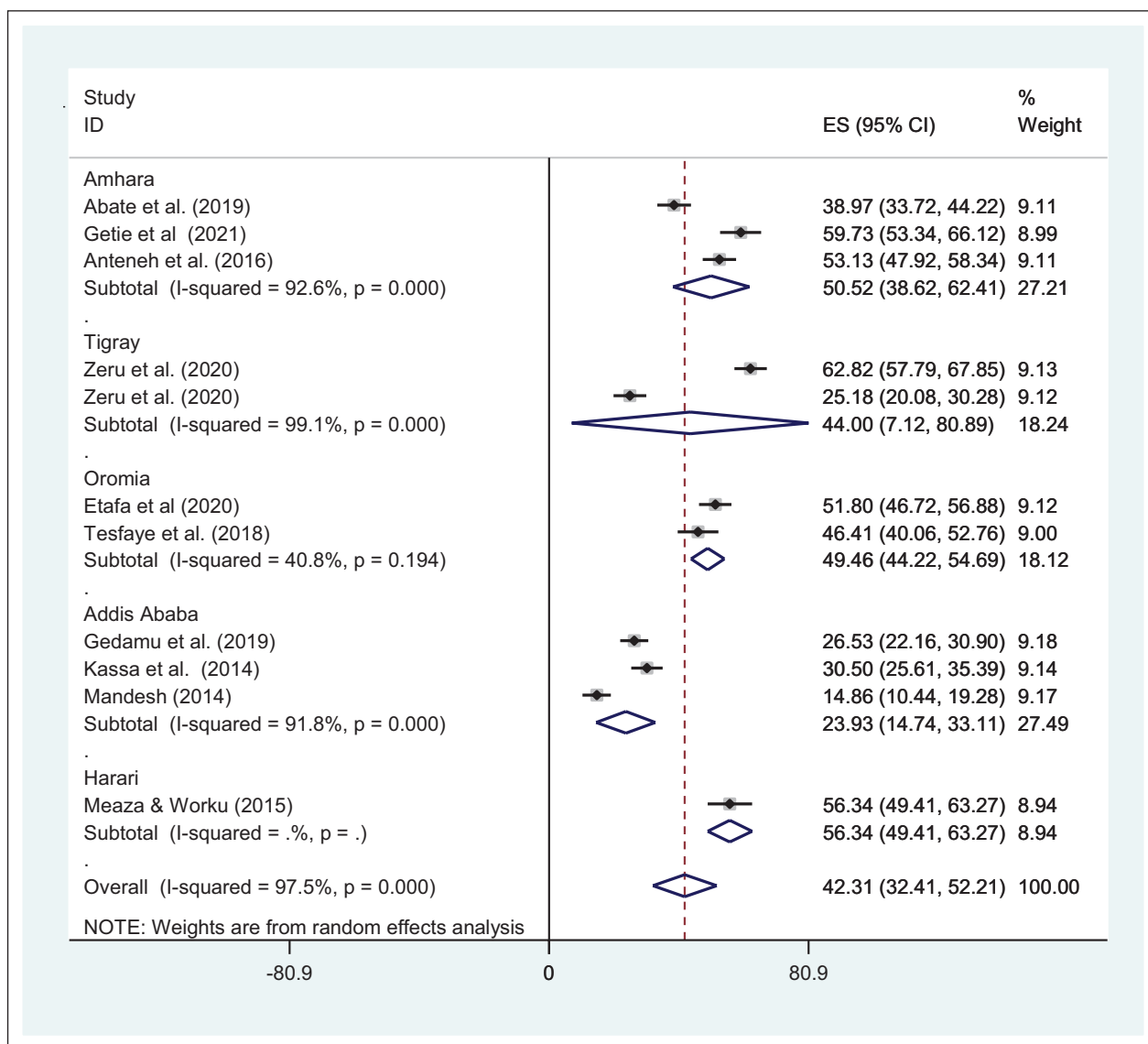


Figure 4. Forest plot of pooled prevalence of knowledge towards palliative care among nurses in Ethiopia.



**Figure 5.** Subgroup analysis by region on the pooled prevalence of knowledge towards palliative care among nurses in Ethiopia.

pooled prevalence of knowledge towards palliative care among nurses was 40.15% (95% CI=[24.02, 56.28]) for studies published on or before 2018 and 44.12% (95% CI=[30.83, 57.41]) for studies published after 2018. Likewise, the pooled prevalence of knowledge towards palliative care among nurses was 40.39% (95% CI=[22.39, 58.40]) for sample size  $\leq 278$  and 43.93% (95% CI=[32.22, 55.64]) for sample size  $> 278$ .

This study showed that nurses who had the educational status of BSc and above were 2.69 times more likely to have knowledge towards palliative care (AOR=2.69, 95% CI=[1.11, 4.25]) than nurses who had diploma education level. This was supported by the study done in Palestine.<sup>47</sup> This might be because education has a strong effect on individuals. It is a fact that as the level of qualification increases, the contents of the curriculum would get more

advanced. This would support the nurses to improve their knowledge. Similarly, this study also showed that nurses who had an experience of caring for a dying patient were 3.15 times more likely to have knowledge towards palliative care (AOR=3.15, 95% CI=[1.17, 5.13]) than their contrary. This might be because the experience could improve the knowledge of the individuals. This study also showed that nurses who had training on palliative care were 2.53 times more likely to have knowledge towards palliative care (AOR=2.53, 95% CI=[1.42, 3.64]) than nurses who had no training on palliative care. This was supported by researches done in Spain, Palestine, and six European countries.<sup>44,47,51</sup> This could be because the training would fill the gap of the knowledge of the nurses. Training on palliative care would improve the knowledge of the nurses concerning this issue.

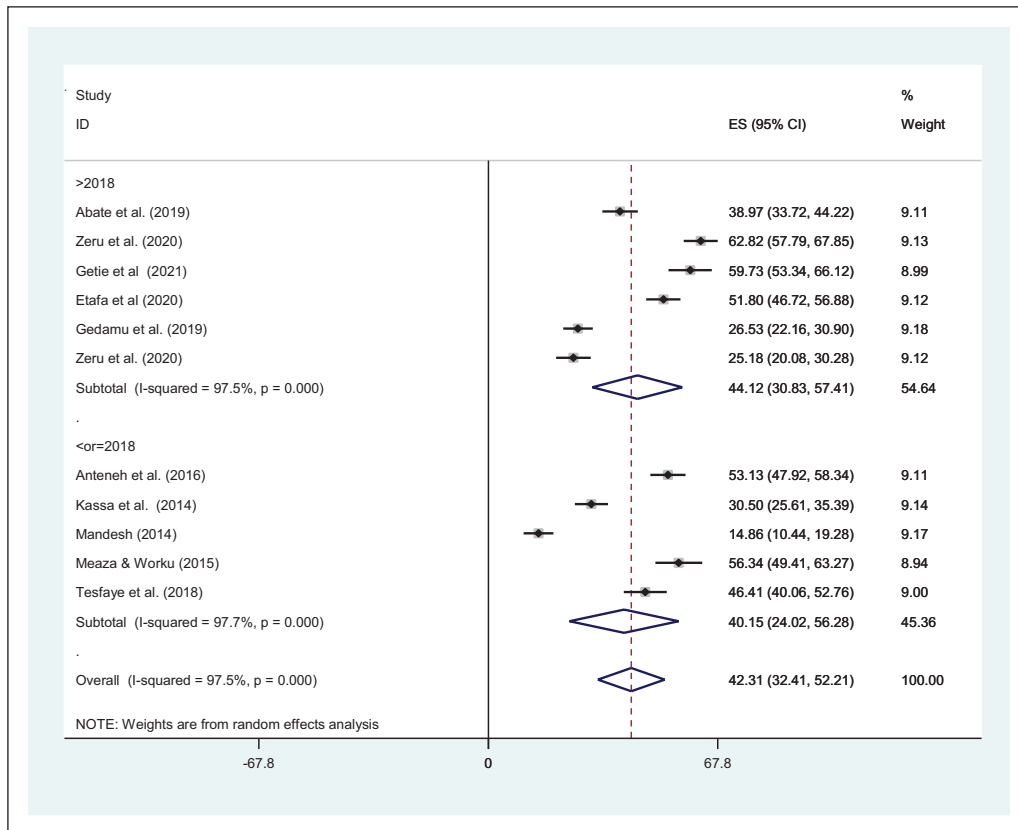


Figure 6. Subgroup analysis by year of publication on the pooled prevalence of knowledge towards palliative care among nurses in Ethiopia.

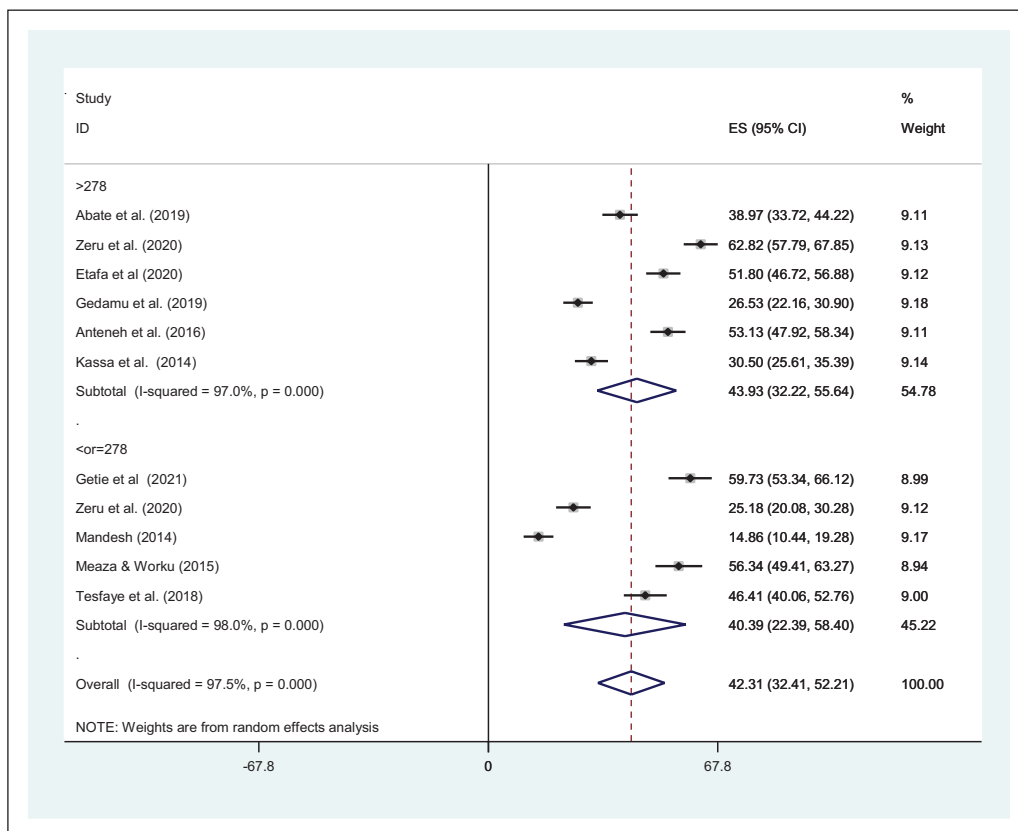
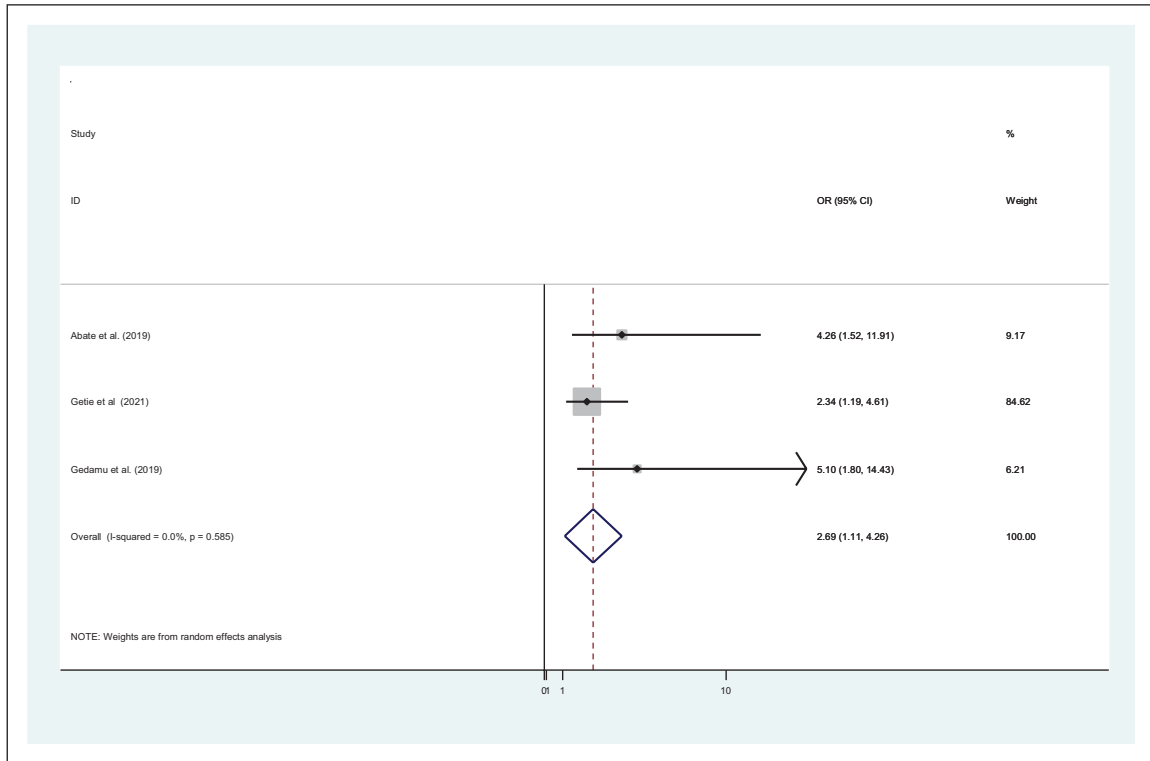
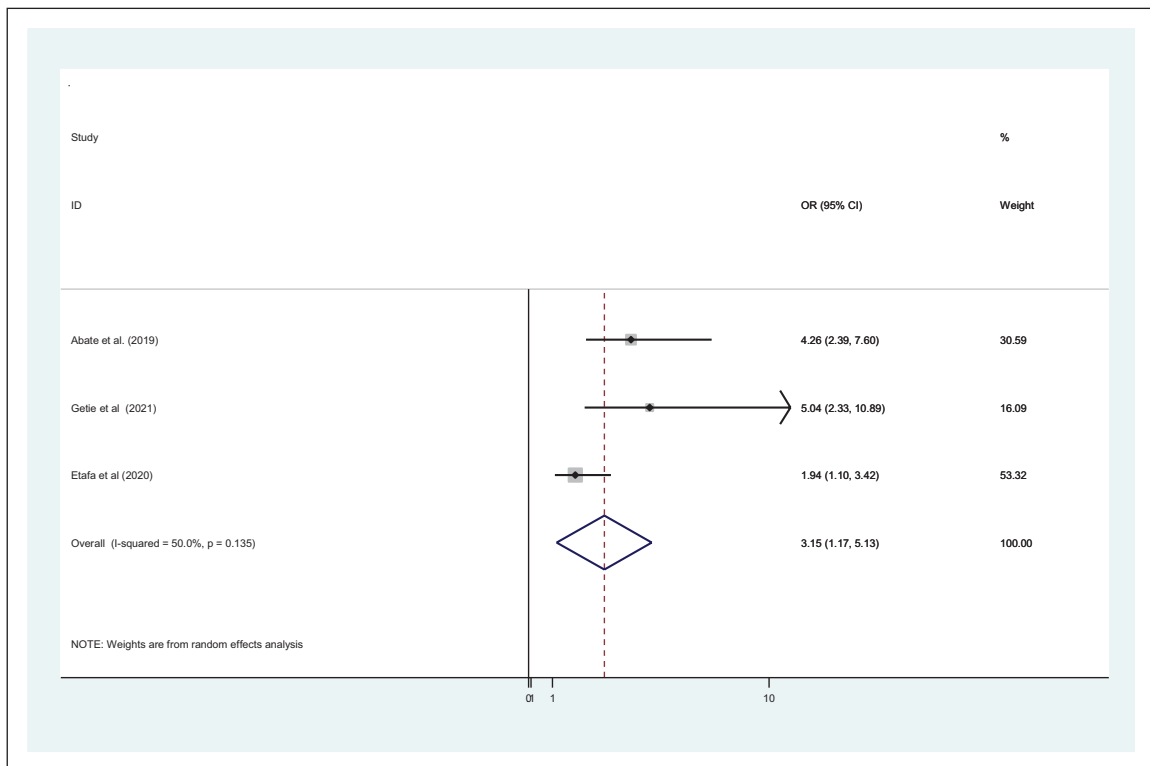


Figure 7. Subgroup analysis by sample size on the pooled prevalence of knowledge towards palliative care among nurses in Ethiopia.

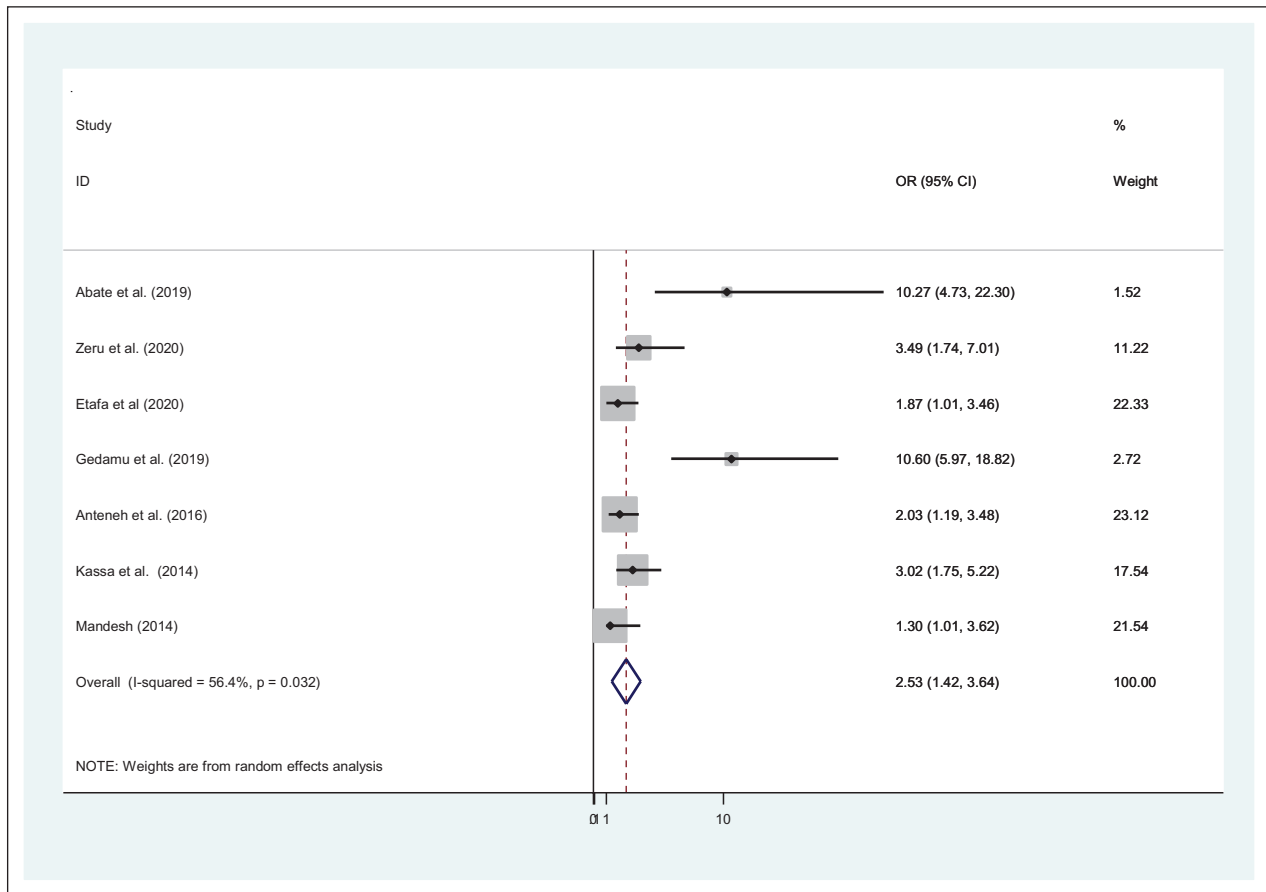




**Figure 8.** The overall pooled odds ratio of the association between educational status and knowledge among nurses in Ethiopia.



**Figure 9.** The overall pooled odds ratio of the association between experience of caring for a dying patient and knowledge among nurses in Ethiopia.



**Figure 10.** The overall pooled odds ratio of the association between training on palliative care and knowledge among nurses in Ethiopia.

### Limitations of the study

It was challenging to include some of the factors associated with knowledge of nurses because they were not consistently measured. Furthermore, researches are required to be done to identify factors associated with the knowledge of nurses towards palliative care.

### Conclusion

This study showed that the pooled prevalence of knowledge towards palliative care among nurses in Ethiopia was low. According to this meta-analysis, educational status, experience of caring for a dying patient, and training on end-of-life care/palliative care were factors significantly associated with knowledge towards palliative care among nurses in Ethiopia.

These findings could inspire nurses, stakeholders, hospitals, policy makers, government, and policy implementers to focus on palliative care. Moreover, these findings would support them to develop essential strategies which will improve the knowledge of nurses, availability of palliative care, and quality of palliative care. Finally, the author recommends that hospitals should promote nurses to learn.

Furthermore, suitable national policies, programmes, and training on palliative care among nurses are urgently desirable to improve the knowledge of nurses.

### Author contributions

The author made a significant contribution to the conception and design, analysis, interpretation of data, drafting, and revising the article; gave final approval of the version to be published; and agrees to be accountable for all aspects of the work.

### Availability of data and materials

All data generated during this study are included in this article.

### Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Ethical approval and consent to participate

Ethical approval is not applicable. This is because the study is a systematic review and meta-analysis. There was no data collected from the people in this study. The study was performed by reviewing the recently published articles.

## Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

## Informed consent

Informed consent is not applicable. This was because this study did not collect data from the people. Furthermore, there was no clinical trial or blood sample collection, and no other experimental activities were involved that could harm the participants in any form. The study was performed by reviewing the recently published articles. The study type is a systematic review and meta-analysis.

## Trial registration

Trial registration is not applicable. However, the systematic review registration was PROSPERO CRD42021247590.

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