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Health extension workers job satisfaction and associated factors in Ethiopia: a systematic review and meta-analysis

Amlaku Nigusie Yirsaw[2*], Gebeyehu Lakew[2], Eyob Getachew[2], Mulugeta Desalegn Kasaye[3], Ermias Bekele Enyew[3], Demis Getachew[4] and Abiyu Abadi Tareke[1]

Abstract

Background Ethiopian healthcare relies heavily on Health Extension Workers (HEWs), who deliver essential services to communities nationwide. By analyzing existing research, the authors explore how prevalent job satisfaction is and what factors affect it. This comprehensive analysis aims to improve HEW satisfaction through targeted interventions, ultimately leading to a more effective healthcare workforce and better health outcomes in Ethiopia. Specifically, this study estimates the pooled level of job satisfaction and associated factors among HEWs in Ethiopia using a systematic review and meta-analysis.

Method Studies were searched through the search engine of Cochrane Library, PubMed, Web of Science, Google Scholar. Data from included studies was extracted, organized in Excel, and then analyzed using STATA 17. The overall effect across all studies was calculated using a random-effect model. Potential publication bias and heterogeneity in the results between studies were assessed using Egger's test, forest plot, and I^2 statistic, respectively.

Results The pooled level of job satisfaction among health extension workers in Ethiopia was 46% (95%CI: 32%–60%). Supportive supervision (AOR = 4.42; 95% CI: 2.23, 8.23), training opportunities (AOR = 4.69; 95% CI: 2.72, 6.61), and support from management (AOR = 4.90; 95% CI: 3.03, 6.77) were statistically associated with the level of job satisfaction among HEW in Ethiopia.

Conclusion The pooled level of job satisfaction was low. Getting supportive supervision from higher health experts, having favorable training opportunities, and having managerial support from kebele were found to be the statistically significant variables associated with job satisfaction among health extension workers in Ethiopia.

Keywords Health Extension Workers, Job Satisfaction, Determinants of Job Satisfaction, Ethiopia, Systematic Review, Meta-Analysis

*Correspondence:
Amlaku Nigusie Yirsaw
amlakunigusie1616@gmail.com
Full list of author information is available at the end of the article

Introduction

Ethiopia's healthcare system relies heavily on Health Extension Workers (HEWs), who play a vital role in delivering essential health services to communities across the country [1, 2]. These frontline workers perform duties spanning preventive care, health education, and disease management [3], serving as a critical link between the formal healthcare system and the communities they serve. The effectiveness of Ethiopia's healthcare system hinges not only on the availability of HEWs but also on their motivation and job satisfaction, which directly influence the quality of care they provide and the health outcomes achieved [3].

When HEWs are satisfied with their jobs, they are more likely to be motivated [4, 5], engaged, and provide high-quality care resulting in improved health outcomes for individuals and communities [6] Conversely, low job satisfaction can result in burnout [7, 8], reduced productivity, and attrition, which compromise the quality and accessibility of healthcare services and ultimately undermine the country's healthcare goals [9]. Therefore, understanding the factors influencing HEW job satisfaction is critical for improving their well-being, fostering a resilient healthcare workforce, and enhancing the overall effectiveness and sustainability of Ethiopia's healthcare system.

This systematic review and meta-analysis aim to address this critical issue by synthesizing existing research to determine the prevalence of job satisfaction among HEWs in Ethiopia. Furthermore, it explores the factors associated with their satisfaction, offering valuable insights into the aspects that contribute to a positive work experience for these essential healthcare providers.

By focusing exclusively on HEWs, this review provides a concentrated and thorough investigation into their unique challenges and opportunities. HEWs occupy a distinctive role within the healthcare system, delivering community-level services with specialized responsibilities and training. This focus is justified by the limited research available on HEWs, which necessitates a narrowed scope to comprehensively analyze the factors influencing their job satisfaction.

Ultimately, understanding and addressing the factors that impact HEW job satisfaction can lead to targeted interventions and policies aimed at improving their work environment. Enhancing HEW job satisfaction not only benefits the workers themselves but also contributes to better health outcomes for the Ethiopian population by fostering a motivated and effective healthcare workforce.

Methods

Study design and search strategy

The study was designed as a systematic review and meta-analysis to examine job satisfaction and related factors among Health Extension Workers (HEWs) in Ethiopia from 2004 to 2024. We conducted a comprehensive search strategy without imposing any restrictions based on the year of publication. Extensive searches were performed across major databases, including Cochrane Library, PubMed, Web of Science, and Google Scholar. Supplementary sources, such as contacting experts and researchers for recent articles, were also utilized. Additionally, manual searches were conducted to identify unpublished studies.

The search strategy employed specific keywords related to job satisfaction, health extension workers, community health workers, and Ethiopia, along with relevant MeSH terms. Throughout the review process, strict adherence to the guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was meticulously maintained.

Study selection and eligibility criteria

The selection of studies adhered to the guidelines set by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [10]. First, search results from multiple databases were exported into EndNote software, where duplicates were automatically removed. A subsequent manual check was conducted to identify and remove any remaining duplicates.

Titles and abstracts of the retrieved studies were then screened independently by two reviewers to exclude irrelevant studies. In cases where disagreements arose, the studies were discussed until a consensus was reached. Studies deemed potentially relevant were retrieved in full text for further evaluation. Full-text articles were reviewed based on the predefined inclusion and exclusion criteria, and reasons for exclusion were documented(Table 1).

If discrepancies between reviewers persisted and could not be resolved through discussion, a third author was consulted to make a final decision. Additionally, the reference lists of included studies were manually searched to identify any relevant studies not captured in the initial database search. This systematic review and meta-analysis have been submitted to PROSPERO, and we are currently awaiting their response.

Data extraction process

To extract information from the selected studies, a standardized data extraction format was created in Microsoft Excel. This format encompassed various column

Table 1 Study selection and eligibility criteria

Inclusion Criteria	Exclusion Criteria
Studies conducted from2004 up to 2024	Studies conducted after the search period
Studies focusing on job satisfaction and related factors among Health Extension Workers (HEWs) in Ethiopia	Studies not related to job satisfaction among HEWs or conducted in other countries
Peer-reviewed articles and grey literature (e.g., reports, dissertations)	Opinion pieces, editorials, and non-research articles
Articles published in English	Articles not published in English
Quantitative or mixed-method studies	Reviews, commentaries, or non-primary research studies
Studies with complete information, sound methodology, or full-text availability	Studies with incomplete information, methodological issues, or lack of full-text availability

attributes, including author details (name and publication year), study year, setting, design, sample size, study population, sampling procedures, data collection methods, and findings. Two authors independently performed the data extraction process, and the extracted data were compared to ensure consistency. In cases where discrepancies emerged, the articles were re-evaluated, and any disagreements were resolved through thorough verification and subsequent discussion.

Dependent variable

The dependent variable chosen for this systematic review and meta-analysis is the level of job satisfaction.

Study quality and validity

The quality of the included studies was evaluated using the Joanna Briggs Institute (JBI) critical appraisal checklist. As the JBI checklists have different numbers of items based on the study design (cross-sectional surveys have 8 items, quasi-experimental studies have 9 items, and randomized controlled trials have 13 items), the reviewers (ANY & AAT) assessed the quality of each study based on the relevant checklist for its design. The reviewers followed the protocol of the checklist and conducted a blinded review to assess the quality of the original articles.

To account for the different number of items in each checklist, a proportional score was used. Studies that scored at least 62.5% of the total possible score for their design (5 out of 8 for cross-sectional studies, 6 out of 9 for quasi-experimental studies, and 8 out of 13 for RCTs) were considered to be of good quality and included in the review. In cases where there were discrepancies in the quality assessment, consultation with the first author was sought to resolve any disagreements.

Statistical analysis and synthesis

The extracted data were imported and analyzed using STATA version 17 statistical software. To determine the factors associated with job satisfaction among HEWs in Ethiopia, the pooled odds ratio (OR) and a 95% confidence interval (CI) were calculated using the random-effects model.

Two statistical measures, the Cochran Q test, and the I^2 statistic, were used to evaluate the presence of heterogeneity among the included studies [11]. The Cochran Q test examines whether there is a significant difference in effect sizes among the individual studies, with a significance level of $P < 0.10$ indicating significant heterogeneity. The I^2 statistic quantifies the proportion of total variation across studies due to heterogeneity, with higher values indicating greater heterogeneity [12]. A threshold of 50% or more is often used to identify substantial heterogeneity. Employing both tests allows researchers to assess the presence and magnitude of heterogeneity, which is crucial for interpreting the meta-analysis results and determining the appropriate statistical approach.

Given the substantial discrepancies observed in the study findings, we employed a random-effects model with a 95% confidence interval (CI) to estimate the effects. This model is renowned for its cautious approach, which effectively addresses the inherent heterogeneity in meta-analyses and ensures the reliability of synthesizing diverse study outcomes. To gain further insights into potential variations in results based on sampling methodologies, subgroup analyses were performed by stratifying the studies according to the mean sample size. Various techniques, such as funnel plot analysis, Egger weighted regression, and Begg rank correlation tests, were employed to examine the presence of publication bias, with a significance level set at $P < 0.05$. The results of the meta-analysis were visually presented using forest plots and comprehensive tables, facilitating a clear and concise understanding of the findings.

Result

Characteristics of the studies

Of the initial 1391 studies identified from various databases, 759 were removed because of duplication. After reviewing titles and abstracts against inclusion and

exclusion criteria, 589 studies were excluded because they did not align with the study's aim. The remaining 43 full articles underwent eligibility assessment. eight cross-sectional studies met the criteria and were included in the systematic review and meta-analysis (Fig. 1).

Eight cross-sectional studies were included in the systematic review and meta-analysis. These studies were conducted between 2020 and 2024, with sample sizes ranging from 194 to 584. Simple random sampling was the primary sampling technique employed across all studies. The prevalence of job satisfaction among Health Extension Workers (HEWs) in Ethiopia varied across the studies, with reported prevalence ranging from 17 to 72% (Table 2).

Pooled level of satisfaction

Eight studies were included in this systematic review and Meta-analysis to reveal the job satisfaction rate among HEWs in Ethiopia. The pooled prevalence of job satisfaction among HEWs in Ethiopia was 46% (95% CI: 32%-60%) ranging from 17 to 72% (Fig. 2).

Publication bias

The Begg rank correlation statistics, with a p-value of 0.1078, and the Egger weighted regression, yielding a p-value of 0.0129, seemingly present conflicting signals regarding publication bias. While the Begg test suggests a lack of significant evidence for bias, the Egger regression indicates otherwise, indicating potential publication bias. This discrepancy becomes more pronounced upon visual inspection of the funnel plot, which reveals asymmetry (Fig. 3), to treat publication bias we ran

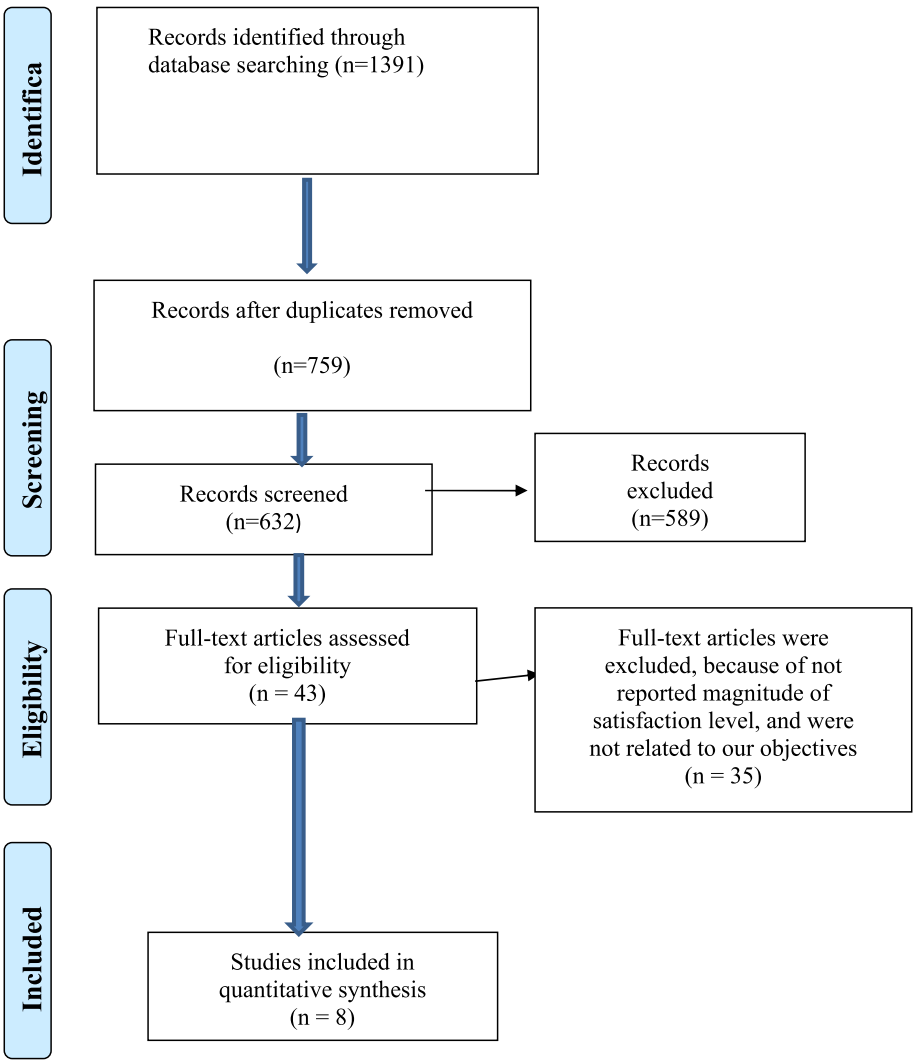

Fig. 1 PRISMA flow diagram selection procedure for systematic reviews and meta-analyses

Table 2 Characteristics of the included studies and the level of job satisfaction among HEW in Ethiopia

ID	Authors	Year of publication	Sample size	Sampling technique	Study design	prevalence	Reference
1	Tamene et al	2023	262	S.R.S	C.Sectional	53%	[13]
2	Kare et al	2021	341	S.R.S	C.Sectional	37%	[14]
3	Salgedo et al	2020	260	S.R.S	C.Sectional	17%	[15]
4	Ejigu et al	2023	584	S.R.S	C.Sectional	49%	[16]
5	Aman et al	2024	416	S.R.S	C.Sectional	52%	[17]
6	Yitayal et al	2017	282	S.R.S	C.Sectional	67%	[18]
7	Admassu et al	2022	354	S.R.S	C.Sectional	19%	[19]
8	Mekonnen et al	2020	194	S.R.S	C.Sectional	72%	[20]

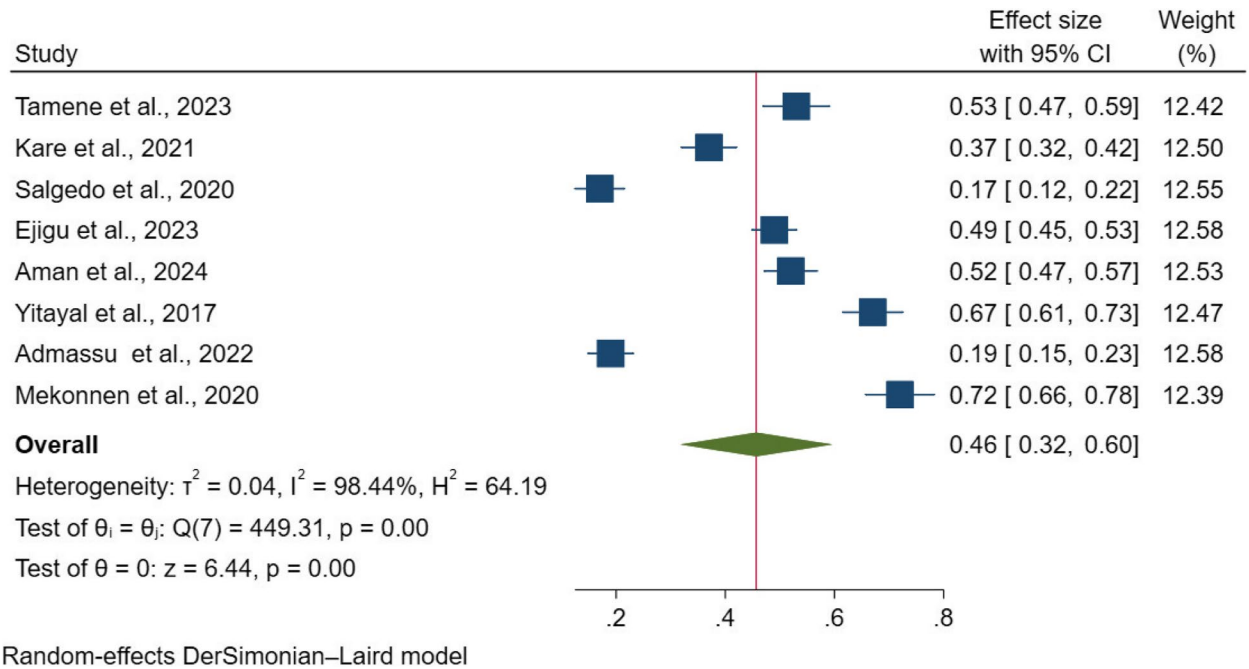

Fig. 2 Forest plots of the job satisfaction rate of the HEW in Ethiopia

the nonparametric trim-and-fill analysis, however, no imputed studies were observed.

The subgroup analysis based on the mean sample size revealed a significant difference in job satisfaction levels among Health Extension Workers (HEWs). Specifically, studies with a mean sample size of ≥ 336 reported a significantly higher job satisfaction level of 49% compared with studies with a mean sample size below this threshold (Fig. 4).

Meta-regression and sensitivity analysis

Meta-regression

In the meta-regression, the effect of "Mean sample size" on study heterogeneity was explored. The coefficient (β) for the mean sample size was 0.457 (95% CI: 0.318–0.596), with a non-significant p-value of 0.544, indicating that the mean sample size does not notably contribute to study heterogeneity. Thus, while sample sizes vary across studies, they do not significantly affect the overall heterogeneity in job satisfaction levels among HEWs in Ethiopia (Table 3).

Sensitivity analysis

Sensitivity analysis was conducted using the leave-one-out method to assess the effect of any individual study on the overall pooled breast job satisfaction among HEW. The results showed that the point estimated prevalence obtained when each study was excluded from the analysis was within the confidence interval of

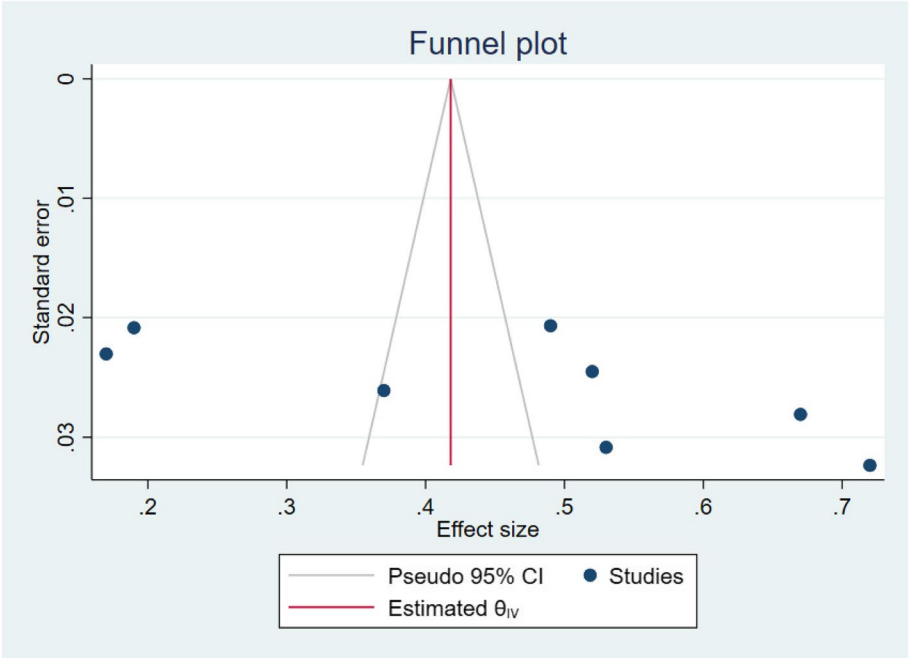

Fig. 3 Funnel plot Job satisfaction rate of HEWs in Ethiopia

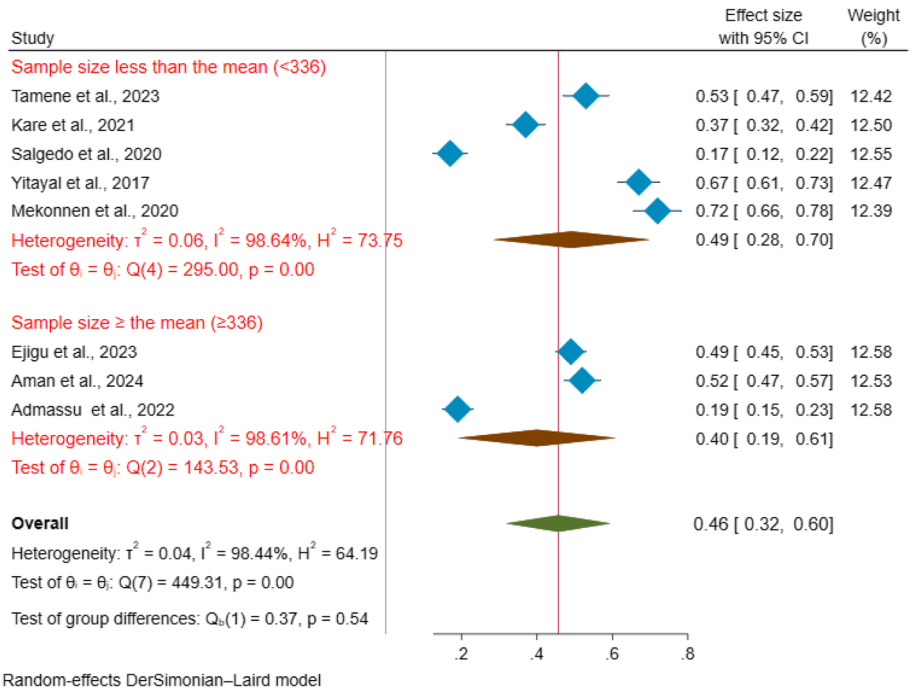

Fig. 4 Subgroup analysis based on the mean sample size on job satisfaction level among HEW in Ethiopia

the pooled prevalence. Therefore, none of the included studies affected the overall pooled estimate as shown below (Fig. 5).

Factors associated with job satisfaction

A meta-analysis and systematic review identified supportive supervision, management support, and

Table 3 Meta-regressions of job satisfaction and its associated factors among HEW in Ethiopia

Covariate	β (95% CI)	*p*-value
Mean sample size	**0.457 [0.318–0.596]**	**0.544**

Table 4 Pooled odds ratios of factors associated with Job satisfaction of HEW in Ethiopia

Variables	Odds Ratio [95% CI]	I 2(%)	P-value
Supervision	4.42 [2.23- 8.23]	99.04	0.022*
Training	4.69 [2.72–6.61]	91.29	0.0000*
Management support	4.90 [3.03–6.77]	0.00	0.000*

training opportunities as significant factors associated with job satisfaction among HEWs in Ethiopia.

Specifically, the analysis revealed that the adjusted odds ratio (AOR) for supportive supervision was 4.42, with a 95% confidence interval ranging from 2.23 to 8.23. This suggests that HEWs who receive supportive supervision are approximately 4.42 times more likely to report satisfaction with their job than those who do not receive supportive supervision from higher health expertise.

The pooled adjusted odds ratio (OR) for management support was 4.69, with a 95% confidence interval (CI) ranging from 2.72 to 6.61. This indicates that HEWs who reported receiving support from management were approximately 4.69 times more likely to experience job satisfaction than those who did not receive such support.

Through meta-analysis and systematic review, it has been established that training opportunities significantly contribute to job satisfaction among Health Extension Workers (HEWs) in Ethiopia. Specifically, the pooled adjusted odds ratio for the opportunity to receive training is 4.90 (95% CI: 3.03–6.77). This suggests that HEWs who have access to training opportunities are nearly five times more likely to report job satisfaction than those who do not (Table 4).

Discussion

This study highlights the pooled job satisfaction level among Health Extension Workers (HEWs) in Ethiopia using systematic review and meta-analysis techniques. The pooled job satisfaction level among HEWs in Ethiopia was found to be 46% [95% CI: 32%−60%).

This figure aligns with earlier research conducted in South Africa (52%) [21], India (50%), Pakistan (41%) [8], Turkey (45.5%) [22] and Ghana(47%) [23]. However, this contrasts with studies conducted in Tanzania (82.6%) [21], and Malawi (71%) [21], where higher levels of job satisfaction were reported and lower than studies done in Sri Lanka [24].

The findings indicate that multiple factors, including supportive supervision, management support, and training opportunities, significantly influence job satisfaction among HEWs.

The observed variations in job satisfaction levels across different regions could be attributed to differences in healthcare system hierarchy, resource allocation, workload, autonomy, workplace environment, salary disparities, and job responsibilities. Additionally, socioeconomic factors such as political stability and access to training and resources may also play a crucial role in shaping job satisfaction levels among HEWs in diverse settings. These disparities highlight

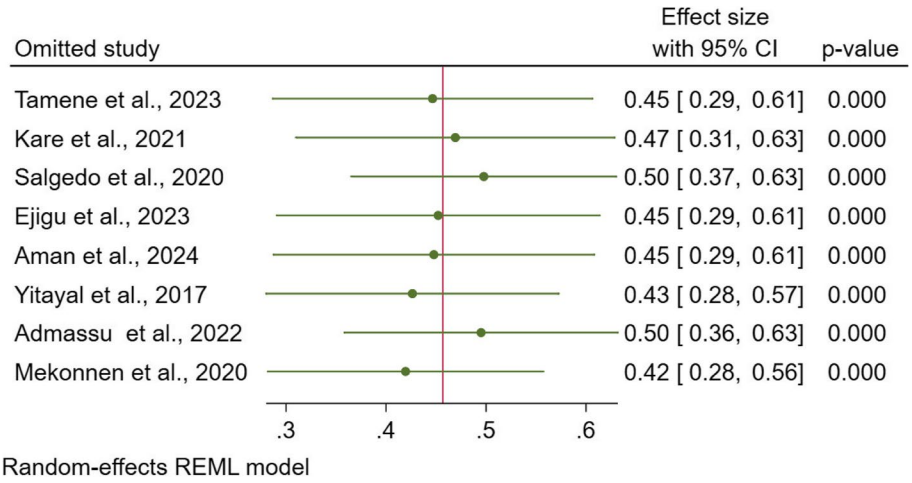

Fig. 5 sensitivity analysis of the job satisfaction rate of HEWs in Ethiopia

the importance of context-specific strategies to address job satisfaction issues effectively.

This study emphasizes the critical role of supportive supervision in enhancing job satisfaction among HEWs in Ethiopia. The analysis revealed that HEWs who receive supportive supervision are almost 4.4 times more likely to report job satisfaction than those who do not receive such supervision. This finding is consistent with studies conducted in four African countries [25], as well as research in Malawi, which reported dissatisfaction among healthcare providers lacking supervision from higher-ranking or peer colleagues [26]. These consistent findings underscore the necessity of effective supervision structures and mechanisms to ensure healthcare professionals receive the required support and guidance. Supportive supervision not only enhances job satisfaction but also contributes to the overall well-being of healthcare workers.

This analysis demonstrated a significant impact of management support on job satisfaction among HEWs in Ethiopia. HEWs who perceived receiving support from their management were almost 5 times more likely to report job satisfaction compared to those who did not perceive such support. This finding aligns with prior research showing a positive association between management support and job satisfaction among healthcare professionals in various contexts [27–29]. Supportive management structures foster a positive work environment by providing guidance, resources, and recognition. When HEWs feel valued and empowered by their managers, their job satisfaction increases [30]. Therefore, strengthening management practices and promoting supportive workplace environments should be prioritized by policymakers and healthcare leaders in Ethiopia's healthcare system.

The findings of this study underscore the substantial impact of training opportunities on job satisfaction among HEWs in Ethiopia. The pooled adjusted odds ratio for the opportunity to receive training is 4.90 (95% CI: 3.03–6.77), indicating that HEWs with access to training opportunities are nearly five times more likely to report job satisfaction compared to those without training. This finding is consistent with previous studies [31–33]. further emphasizing the importance of providing training opportunities to enhance HEWs' job satisfaction. Providing training not only equips HEWs with the necessary skills but also fosters a sense of professional development and recognition, contributing to higher job satisfaction. Strengthening training programs should be a key focus area for improving the working conditions and retention of HEWs.

Implications of the study

This study underscores the urgent need for targeted strategies to improve job satisfaction among Health Extension Workers (HEWs) in Ethiopia, given the pooled satisfaction level of 46%. Strengthening supportive supervision, enhancing management support, and increasing access to training opportunities are critical interventions that can create a more conducive work environment. Policymakers should prioritize investments in robust supervision frameworks that provide consistent guidance and constructive feedback to HEWs, fostering their professional growth and emotional well-being. Similarly, empowering managers to offer resources, recognition, and clear communication can significantly enhance workplace morale.

Training programs must be scaled up and tailored to the needs of HEWs, equipping them with essential skills while boosting their confidence and sense of value in the healthcare system. Addressing systemic challenges, such as resource shortages, workload imbalances, and salary disparities, is equally important to ensure equitable job satisfaction across different regions. By focusing on these areas, policymakers can improve the retention and performance of HEWs, ultimately strengthening Ethiopia's healthcare system and enhancing service delivery to underserved communities.

Strengths and limitations of the study

The study employed a comprehensive search strategy across multiple major databases and supplementary sources, minimizing publication bias. It followed clear inclusion and exclusion criteria, ensuring high-quality research, and adhered to PRISMA guidelines for transparency. Quality assessment was performed using the JBI checklist, ensuring the inclusion of studies with good quality. Statistical rigor was demonstrated through appropriate methods, accounting for heterogeneity. The study provided a detailed analysis of job satisfaction factors and assessed potential bias through sensitivity tests, increasing credibility.

However, this study also has several limitations. Excluding non-English articles may have introduced language bias, limiting generalizability. Reliance on expert contacts for grey literature could have led to missing data. High study heterogeneity, despite using a random-effects model, may affect result generalization. Potential publication bias and varying study designs may affect the reliability of findings.

Conclusion

This study provides a springboard for improving the work environment and job satisfaction of HEWs in Ethiopia. By implementing the suggested actions, policymakers and healthcare leaders can create a more supportive

system, leading to a more motivated workforce and ultimately, better health outcomes for Ethiopians.

The pooled job satisfaction among HEWs in Ethiopia was found to be 46%, ranging from 17 to 72%. Factors associated with job satisfaction included supportive supervision, management support, and training opportunities, with significant adjusted odds ratios. The findings highlight the importance of addressing factors influencing job satisfaction to improve retention rates and service delivery, emphasizing the need for supportive work environments, effective supervision, and access to training opportunities tailored to the needs of Health Extension Workers across different regions of Ethiopia.

Abbreviations

AIC	Akaike information criteria
AOR	Adjusted Odds Ratio
BIC	Bayesian information criteria
SPA	Service Provision Assessment
LLR	Log- Likelihood Ratio
CI	Confidence interval
LLR	Log-Likelihood Ratio
SNNP	South Nation and Nationalities People
KM	Kilometer
FP	Family planning
HWs	Health workers
PTB	Pulmonary tuberculosis
PPH	Postpartum hemorrhage
OLS	Ordinary least squares
VIF	Variance inflation factor
GWR	Geographically Weighted Regression
MGWR	Multiscale geographically weighted regression

Authors' contributions

ANY, EG, MDK, EBE, DG and GL, AAT, were involved in the design and conception of the study; the analysis, and interpretation of the findings. All the authors read and approved the manuscript starting from the first step.

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Data availability

All data used for this analysis are within the manuscript.

Declarations

Ethics approval and consent to participate

This section is not applicable because this study is a systematic review and Meta-analysis.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

[1]Amref Health Africa in Ethiopia, EPI Technical Assistant at West Gondar Zonal Health Department, SLL Project, COVID-19 Vaccine, Gondar, Ethiopia. [2]Department Health Promotion and Health Behavior, Institute of Public Health, College of Medicine and Health Sciences, University of Gondar, Po.Box 196, Gondar, Ethiopia. [3]Department of Health Informatics, School of Public Health College of Medicine and Health Sciences, Wollo University, Dessie, Ethiopia. [4]Department of Pharmacology, School of Pharmacy, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia.

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