



The Effect Of Health Cadre Motivation on Performance in Efforts to Improve Toddler Growth: Meta Analysis

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Abstrak

Kader kesehatan merupakan ujung tombak dalam pelaksanaan program kesehatan di tingkat desa. Dalam konteks tumbuh kembang balita, tugas kader antara lain memantau tumbuh kembang anak dan deteksi dini gangguan kesehatan balita. Motivasi kader dipandang sebagai faktor yang mempengaruhi seberapa besar keterlibatan dan dedikasi kader dalam menjalankan tugasnya dengan baik. Artikel ini bertujuan untuk menganalisis pengaruh motivasi kader kesehatan terhadap kinerja dalam upaya meningkatkan tumbuh kembang balita. Penelitian ini merupakan penelitian meta-analisis dengan menggunakan flowchart PRISMA dan model PICO. Populasi: kader kesehatan balita. Intervensi: mempunyai motivasi yang baik. Perbandingan: motivasi buruk, Hasil: Kinerja kader. Proses pencarian artikel dengan cara mencari melalui database di Google Scholar, Scopus, ProQuest, PubMed, Elsevier, dan Science secara langsung. Kata kunci yang digunakan adalah "motivasi kader kesehatan" ATAU "kinerja kader kesehatan" ATAU "pertumbuhan balita" ATAU "upaya pertumbuhan balita" DAN "upaya kader kesehatan" DAN "Cross sectional" DAN "aOR". Artikel dipilih berdasarkan kriteria inklusi yaitu artikel dengan desain cross-sectional yang diterbitkan pada tahun 2015-2024 dianalisis menggunakan regresi logistik. Data dianalisis menggunakan Review Manager 5.3. Meta-analisis dilakukan terhadap 7 studi utama dari negara Ethiopia, Nigeria, dan Indonesia. Hasil penelitian menunjukkan bahwa motivasi kader kesehatan meningkatkan kinerja kader dalam pertumbuhan balita (aOR= 1.84; CI 95%= 1.45 hingga 2.33; p=0.02). Motivasi yang baik pada kader kesehatan akan meningkatkan kinerja kader dalam upaya tumbuh kembang balita.

Kata Kunci: kader, pertumbuhan, motivasi, kinerja

Abstract

Health cadres are the spearhead in implementing health programs at the village level. In the context of toddler growth, cadre duties include monitoring child growth and development and early detection of toddler health problems. Cadre motivation is seen as a factor that influences how much involvement and dedication cadres have in carrying out their duties well. This article aims to analyze the influence of health cadre motivation on performance in efforts to improve toddler growth. This study is a meta-analysis using the PRISMA flowchart and PICO model. Population: toddler health cadres. Intervention: have good motivation. Comparison: poor motivation, Outcome: Cadre performance. The process of searching for articles by searching through databases in Google scholar, Scopus, ProQuest, PubMed, Elsevier, and Science directly. The keywords used are "health cadre motivation" OR "health cadre performance" OR "toddler growth" OR "toddler growth efforts" AND "health cadre efforts" AND "Cross sectional" AND "aOR". Articles were selected based on inclusion criteria, namely articles with a cross-sectional design published in 2015-2024 analyzed using logistic regression. Data were analyzed using Review Manager 5.3. Meta-analysis was conducted on 7 primary studies from countries Ethiopia, Nigeria, and Indonesia. The results showed that health cadre motivation improved cadre performance in toddler growth (aOR= 1.84; 95% CI= 1.45 to 2.33; p=0.02). Good motivation of health cadres improves the performance of cadres in efforts to grow toddlers.

Keywords: cadres, growth, motivation, performance

INTRODUCTION

The role of health workers in promoting public health, particularly in maternal and child health, has become increasingly significant in recent years (Ebenso *et al.*, 2020). Health workers, who are community-based workers, play a vital role in bridging the gap between healthcare services and underserved populations (Haryanti, Madyaningrum and Sitaresmi, 2021). Their responsibilities often include providing health education, administering basic health services, and promoting preventive health measures (Fatimah *et al.*, 2024). In the context of improving toddler growth, health workers are central to delivering interventions that support nutrition, immunization, and developmental monitoring, all of which contribute to healthier growth patterns in young children (Ariyani and Setiyadi, 2024).

However, the success of health candidates in these efforts is largely influenced by their motivation. Motivation is a key factor that affects the quality and effectiveness of their work (Ti Ripan, Titin Dunggio and Novian S. Hadi, 2021). Motivated health cadres are more likely to engage in tasks that have a direct impact on improving the health of children, especially in rural and marginalized communities where access to healthcare services may be limited (Mbachu *et al.*, 2022). On the other hand, low motivation can lead to decreased performance, lack of enthusiasm, and an overall reduction in the impact of health interventions (Kristiantari, 2021).

Despite the critical importance of health cadre motivation, the relationship

between motivation and performance in improving toddler growth remains under-explored (Aduo-Adjei, Emmanuel and Forster, 2016). Several studies have addressed this topic independently, but there has been no comprehensive analysis that synthesizes the available evidence (Buabeng and Adomah-Afari, 2023). To address this gap, a meta-analysis was conducted to examine the effect of health cadre motivation on their performance in efforts to improve toddler growth. This study aims to provide a clearer understanding of how motivation influences health cadre performance and, in turn, toddler health outcomes, with the goal of informing policies and strategies that can enhance the effectiveness of community-based health interventions.

This meta-analysis will draw from a variety of studies to assess the strength and consistency of the effect of motivation on health cadre performance, providing evidence that can guide the development of targeted interventions to improve toddler growth outcomes through enhanced health cadre involvement.

METHOD

1. Study design

The research design used is meta-analytic. Meta-analytic research design is a systematic study accompanied by calculations of research results that meet the inclusion criteria. This review was analyzed systematically using meta guidelines, namely the Preferred Reporting Items for Systematic Review and Meta Analysis (PRISMA) and using a critical appraisal

checklist. The journals used are research results in the period 2014-2024. Article searches were carried out for a maximum of 2 months. The article search process was carried out through databases in Google scholar, Scopus, ProQuest, PubMed, Elsevier, and Science direct. Population: toddler health cadres. Intervention: have good motivation. Comparison: poor motivation, Outcome: Cadre performance. The process of searching for articles by searching through databases in Google scholar, Scopus, ProQuest, PubMed, Elsevier, and Science direct. The keywords used are "health cadre motivation" OR "health cadre performance" OR "toddler growth" OR "toddler growth efforts" AND "health cadre efforts" AND "Cross sectional" AND "aOR".

The variables used in this study are cadre motivation and cadre performance.

2. Meta-Analysis Steps

The stages carried out are:

- a. Formulate research questions in PICO format (Population, Intervention, Comparison, and Outcome),
- b. Searching for primary study articles from online databases
- c. Conduct screening by determining inclusion and exclusion criteria and conducting critical assessments.
- d. Perform data extraction and analysis using RevMan 5.3 Software, and
- e. Interpret the results and draw conclusions.

3. Inclusion Criteria

The inclusion criteria in this study were full text articles using English with a cross-

sectional research design, the measure of relationship used was the aOR value.

4. Exclusion criteria

The exclusion criteria were articles published before 2014 and the research relationship measures were incomplete or did not describe clear results.

5. Operational Definition of Variables

Article searches were conducted by considering the eligibility criteria determined using the PICO model.

Cadre motivation: factors that drive and influence their enthusiasm, commitment, and effectiveness in carrying out health-related tasks, particularly those aimed at improving toddler growth.

Cadre performance: effectiveness and quality of the tasks and responsibilities that health cadres carry out in their role within the community, particularly in promoting and improving toddler growth

6. Instrument

The research stages follow the PRISMA flow chart and the assessment of the quality of the research articles uses the Critical Appraisal Checklist for cross-sectional studies.

7. Data analysis

The data in this study were analyzed using the Review Manager application (RevMan 5.3). Forest plots and funnel plots were used to determine the effect size and heterogeneity of the data. Data processing was carried out based on variations between studies with a fixed effect model.

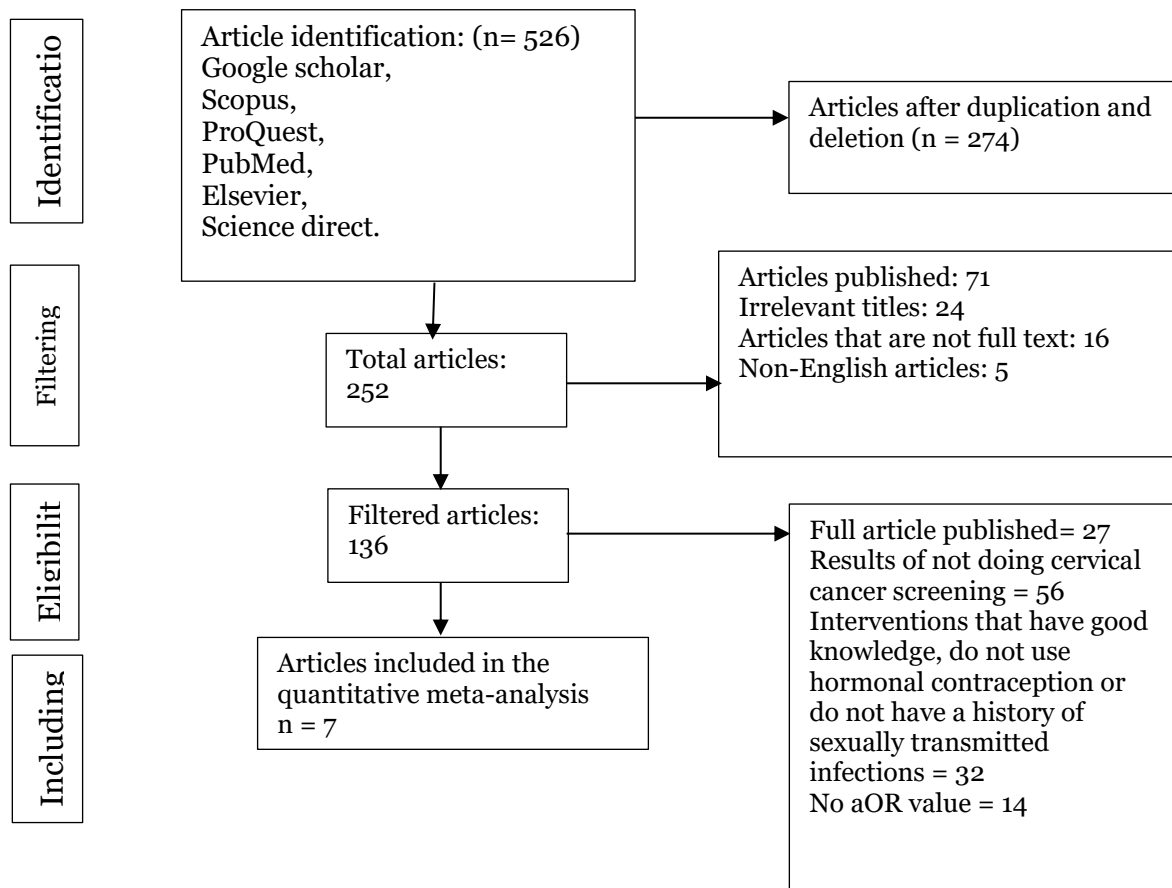


Figure 1. PRISMA meta-analysis flowchart

RESULT AND DISCUSSION

The article search process is by searching through online journal databases, namely Google scholar, Scopus, ProQuest, PubMed, Elsevier, and Science direct. The process of filtering articles based on

research criteria can be seen in the PRISMA flowchart. The initial search process obtained 526 articles, then after going through the filtering process, 136 articles were obtained which were considered primary articles of this study and 7 articles were included in the meta-analysis.



Figure 2. Primary study areas in meta-analysis

Table 1. Research quality assessment (critical appraisal)

Author (Year)	Critical Appraisal													Total
	1a	1b	1c	1d	2a	2b	3a	3b	4	5	6a	6b	7	
Abate M, et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Ahmad H, et al (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Kibwana S, et al. (2018)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Kurniavie LE, et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Mbachu C, et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Saputri CS et al. (2024)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Yasni H et al. (2023)	2	2	2	2	2	2	2	2	2	2	2	2	2	26

Description of question criteria:

1. Formulation of research questions in the acronym PICO

- a. Is the population in the primary study the same as the population in the PICO meta-analysis?
- b. Are the operational/intervention definitions in the primary studies the same as those in the meta-analysis?
- c. Are the comparisons used in the primary study the same as the comparisons planned for the meta-analysis?
- d. Are the outcome variables studied in the primary study the same as those planned in the meta-analysis?

2. Method of selecting research subjects

- a. Descriptive cross-sectional study: was the sample randomly selected?
- b. Cross-sectional analytical study: was the sample selected randomly or purposefully?

3. Methods for measuring comparison (intervention) and outcomes

- a. In a cross-sectional analytical study, did the researcher select a

sample from the population randomly (random sampling)?

- b. Alternatively, if in a cross-sectional analytical study the sample is not selected randomly, does the researcher select the sample based on outcome status or on intervention status?

4. Design related bias

If the sample is not randomly selected, has the researcher made efforts to prevent bias in the selection of research subjects? For example, the selection of subjects based on outcome status is not influenced by exposure status (intervention) or the selection of subjects based on exposure status (intervention) is not influenced by outcome status.

5. Methods for controlling confounders

Has the principal investigator made any effort to control for confounding influences?

6. Statistical analysis methods

- a. In cross-sectional studies, is multivariate analysis performed?
- b. Does the primary study report influence the size or relationship in the multivariate analysis?

(e.g. aOR, adjusted regression coefficient)?

7. Conflict of interest

Is there a conflict of interest with the research sponsor?

Assessment instructions: number of questions = 13 questions. The answer “Yes” for each question is given a score of “2”, the answer “doubt” is given a score of “1” and the answer “No” is given a score of “0. Maximum total score = 13 questions x 2 = 26. Minimum total score = 13 questions x 0 = 0. If the total score of a primary study is ≥ 22 , then the study can be included in the meta-analysis, but if the total score of the primary study is <22 then the study is removed from the meta-analysis.

Based on Table 2 in the main PICO study "the effect of knowledge on cervical cancer screening" conducted on 7 articles with research locations in Ethiopia, Cambodia, and Uganda. The similarity with this study is the research design using cross-sectional and the magnitude of the AoR (Adjusted Odds Ratio) relationship, the study population is women of childbearing age, the intervention given is less knowledge with a comparison of good knowledge.

Table 3. Shows a summary of aOR values and 95% CI in articles related to the effect of knowledge on cervical cancer screening.

Table 2. PICO summary table of articles on the influence of knowledge on cervical cancer screening.

Author (Year)	Country	Study Design	Sample	P	I	C	O
Abate M et al. (2022)	Euthyopia	Cross Sectional	410	Health cadres	High motivation	Low motivation	Cadre performance
Ahmad H et al. (2022)	Indonesia	Cross Sectional	200	Health cadres	High motivation	Low motivation	Cadre performance
Kibwana S et al. (2018)	Ethiopia	Cross Sectional	200	Health cadres	High motivation	Low motivation	Cadre performance
Kurniavie LE et al. (2022)	Indonesia	Cross Sectional	200	Health cadres	High motivation	Low motivation	Cadre performance
Mbachu C et al. (2022)	Nigeria	Cross Sectional	429	Health cadres	High motivation	Low motivation	Cadre performance
Saputri CS et al. (2024)	Indonesia	Cross Sectional	210	Health cadres	High motivation	Low motivation	Cadre performance
Yasni H et al. (2023)	Indonesia	Cross Sectional	39	Health cadres	High motivation	Low motivation	Cadre performance

Table 3. aOR data and confidence intervals from articles on the influence of knowledge on cervical cancer screening

Writer	aOR	CI 95%	
		Lower Bound	Upper Bound
Abate M et al. (2022)	1.80	0.60	5.30
Ahmad H et al. (2022)	2.18	1.07	4.47
Kibwana S et al. (2018)	1.78	1.31	2.42
Kurniavie LE et al. (2022)	3.31	1.31	8.38
Mbachu C et al. (2022)	2.43	1.05	5.64
Saputri CS et al. (2024)	0.18	0.05	0.32
Yasni H et al. (2023)	2.49	1.04	5.96

The aOR data on the influence of cadre motivation on cadre performance were taken from 7 articles. The forest plot in Figure 3 illustrates that there is an influence of cadre motivation on cadre performance. Individuals who have high motivation will increase cadre performance by 1.84 times compared to individuals who have

low motivation and this result is statistically significant (aOR = 1.84; 95% CI = 1.45 to 2.33; $p < 0.001$). The forest also shows high heterogeneity of effect estimates between primary studies $I^2 = 61%$; $p < 0.001$. The calculation of the average effect estimate is carried out using the random effect model approach.

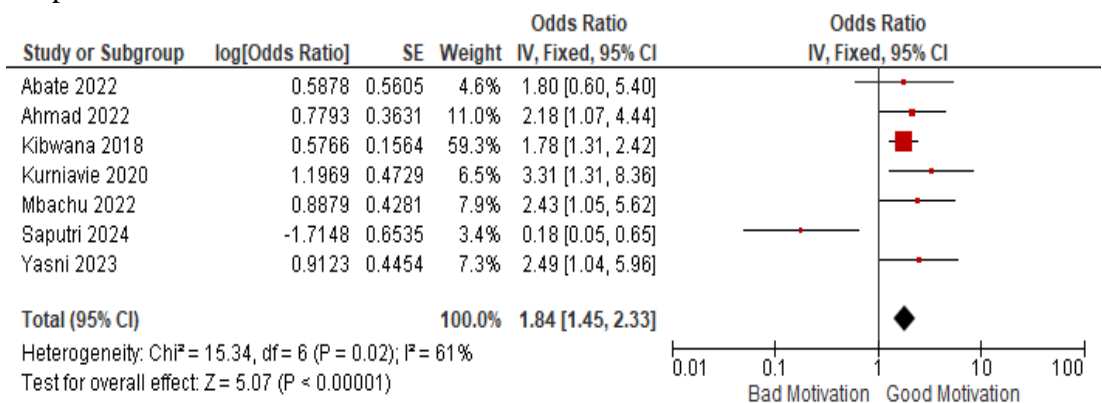


Figure 3. Forest plot of the influence of motivation on cadre performance

The funnel plot results in Figure 4 show that the distribution of effect estimates is uneven. The distribution of effect estimates shows that the distribution of effect estimates tends to be more located to the right of the average vertical line of effect estimates than to the left. Thus, this funnel plot image shows the presence of publication bias. Because the distribution of effect estimates is located to the right of the average vertical line in the same direction as the diamond in the forest plot, publication bias tends to overestimate the true effect.

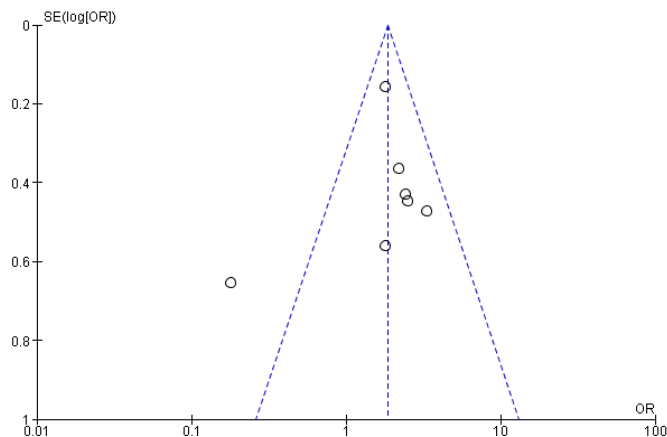


Figure 4. Funnel plot of the influence of motivation on cadre performanc

CONCLUSION

Based on a literature review of eight journals, this study concludes that high motivation will increase cadre performance.

REFERENCES

- Aduo-Adjei, K., Emmanuel, O. and Forster, O. M. (2016) ‘The Impact of Motivation on the Work Performance of Health Workers (Korle Bu Teaching Hospital): Evidence from Ghana’, *Hospital Practices and Research*, 1(2), pp. 45–50. doi: 10.20286/hpr-010245.
- Ariyani, E. D. and Setiyadi, N. A. (2024) ‘The Relationship between Motivation and the Performance of Toddler Integrated Service Post Cadres in the

Selogiri Community Health Center Work Area’, *Contagion: Scientific Periodical Journal of Public Health and Coastal Health*, 6(1), p. 222. doi: 10.30829/contagion.v6i1.19141.

- Buabeng, A. A. and Adomah-Afari, A. (2023) ‘Effect of Motivation on Health Workers’ Job Performance at a Teaching Hospital, Ghana’, *Asian Journal of Research in Nursing and Health*, 6(1), pp. 389–405. Available at: <https://www.sdiarticle5.com/review-history/107240>.
- Ebenso, B. *et al.* (2020) ‘Which mechanisms explain motivation the of primary health workers? Insights from the realist evaluation of a maternal and child health programme in Nigeria’, *BMJ Global Health*, 5(8), pp. 1–13. doi: 10.1136/bmjgh-2020-002408.

- Fatimah, N. H. *et al.* (2024) 'Analysis Of The Motivation Of Health Workers On The Implementation Of Early Detection Of Growth And Development Of Toddlers', 5(2), pp. 112–120. doi: 10.23887/ijee.v5i4.41143.
- Haryanti, F., Madyaningrum, E. and Sitaresmi, M. N. (2021) 'Effect of Care for Child Development Training on Cadres Knowledge, Attitude, and Efficacy in Yogyakarta, Indonesia', *Belitung Nursing Journal*, 7(18), pp. 311–319.
- Kristiantari, R. (2021) 'Efforts to Improve Learning Motivation and Understanding in Early Children Through Serial Picture And Hand Puppet', *International Journal of Elementary Education*, 5(4), p. 537. doi: 10.1177/13558196211055323.
- Mbachu, C. *et al.* (2022) 'Village health worker motivation for better performance in a maternal and child health programme in Nigeria: A realist evaluation', *Journal of Health Services Research and Policy*, 27(3), pp. 222–231. doi: 10.1177/13558196211055323.
- Ti Ripan, R. A., Titin Dunggio and Novian S. Hadi (2021) 'The Role of Posyandu Cadres in Efforts To Improve the Nutritional Status of Toddlers in Suka Makmur Village, Patilanggio District', *Journal of Health, Technology and Science (JHTS)*, 2(1), pp. 37–43. doi: 10.47918/jhts.v2i1.151.