Labour conditions in dual-cadre community health worker programmes: a systematic review

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Summary

Background Health care delivered by community health workers reduces morbidity and mortality while providing a considerable return on investment. Despite growing consensus that community health workers, a predominantly female workforce, should receive a salary, many community health worker programmes take the form of dual-cadre systems, where a salaried cadre of community health workers works alongside a cadre of unsalaried community health workers. We aimed to determine the presence, prevalence, and magnitude of exploitation in national dual-cadre programmes.

Methods We did a systematic review of available evidence from peer-reviewed databases and grey literature from database inception to Aug 2, 2021, for studies on unsalaried community health worker cadres in dual-cadre systems. Editorials, protocols, guidelines, or conference reports were excluded in addition to studies about single-tier community health worker programmes and those reporting on only salaried cadres of community health workers in a dual-cadre system. We extracted data on remuneration, workload, task complexity, and self-reported experiences of community health workers. Three models were created: a minimum model with the shortest time and frequency per task documented in the literature, a maximum model with the longest time, and a median model. Labour exploitation was defined as being engaged in work below the country's minimum wage together with excessive work hours or complex tasks. The study was registered with PROSPERO, CRD42021271500.

Findings We included 117 reports from 112 studies describing community health workers in dual-cadre programmes across 19 countries. The majority of community health workers were female. 13 (59%) of 22 unsalaried community health worker cadres and one (10%) of ten salaried cadres experienced labour exploitation. Three (17%) of 18 unsalaried community health workers would need to work more than 40 h per week to fulfil their assigned responsibilities. Unsalaried community health worker cadres frequently reported non-payment, inadequate or inconsistent payment of incentives, and an overburdensome workload.

Interpretation Unsalaried community health workers in dual-cadre programmes often face labour exploitation, potentially leading to inadequate health-care provision. Labour laws must be upheld and the creation of professional community health worker cadres with fair contracts prioritised, international funding allocated to programmes that rely on unsalaried workers should be transparently reported, the workloads of community health workers should be modelled a priori and actual time use routinely assessed, community health workers should have input in policies that affect them, and volunteers should not be responsible for the delivery of essential health services.

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Introduction

Health care delivered by community health workers, a majority female labour force, improves health outcomes[1] and equity, while providing a return on investment (calculated as the value [in terms of lives saved, productivity, and jobs created] of an investment relative to its initial cost) of up to 10:1.[2] However, more than 80% of community health workers in the WHO Africa region are unpaid.[3] There is a growing consensus that community health workers should be paid:[4] consistent with the international agenda on decent work and Sustainable Development Goal 8,[5] the 2018 WHO Guideline strongly recommends remunerating practising community health workers for their work with a financial package commensurate with the job demands and complexity, number of hours, training, and roles that they undertake, and "not paying community health workers exclusively or predominantly according to performance-based incentives".[6]

Two-tiered or dual-cadre systems,[7,8] where a salaried cadre of community health workers works alongside an unsalaried cadre, are common in low-income and middle-income countries (LMICs).[9] Dual-cadre systems emerged in response to health worker shortages to provide additional coverage of health services.[10,11] Although volunteering can be a powerful force for

Research in context

Evidence before this study

In a growing number of low-income and middle-income countries, community health worker programmes take the form of two-tiered or dual-cadre programmes, in which a salaried cadre of community health workers works alongside an unsalaried cadre of community health workers. Qualitative evidence from Ethiopia, where such a programme has been in place for more than 15 years, has shown that unsalaried cadres of community health workers face higher levels of psychosocial distress and financial hardship than other female community members. We did an initial search of the PubMed database from inception to Aug 2, 2021 using the MeSH terms "community health worker" and "dual cadre". No language restrictions were applied. No systematic reviews investigating the presence, prevalence, and magnitude of exploitation in national dual-cadre programmes were identified. This limited search was then repeated on PubMed, updated to June 7, 2023. No additional relevant studies were found.

Added value of this study

This systematic review is the first to model work hours of salaried and unsalaried community health workers in 19 countries with dual-cadre programmes and provide a global estimate of the presence, prevalence, and magnitude of labour exploitation. These conditions include payment less than minimum wage paired with excessive work hours or high task complexity.

Implications of all the available evidence

This study suggests that unsalaried community health workers in dual-cadre programmes are routinely assigned an excessive, complex workload without commensurate remuneration. Such exploitation not only affects the wellbeing of these health workers, but risks inadequate health-care provision for their patients and communities. Governments, health providers, and international funders must comply with labour laws and prioritise the creation of professional community health worker cadres through non-exploitative contracts. Community health workers should be involved in policy discussions that affect them, and where possible, the provision of essential health services should not rely on volunteers.

community organising and community betterment,[12] without adequate safeguards, dual-cadre systems risk replicating the exploitative labour conditions of all-volunteer programmes.

See Online for appendix

Unpaid work, if complex and time consuming, risks burdening community health worker volunteers and exacerbating poverty, while social comparisons with salaried colleagues in the same programme might cause additional psychological distress.[13,14] For example, time-use analysis of an unsalaried cadre of community health workers in Rwanda found that workers required more than double the total number of work hours assigned to them to carry out their tasks.[15] Qualitative evidence from the Ethiopian dual-cadre system shows that unsalaried cadres of community health workers have higher levels of psychosocial distress and are often financially worse off than other female community members.[16]

The prevalence of dual-cadre community health worker programmes raises urgent questions about their appropriateness as a permanent means to deliver health care; whether they are a transitional state on the way to a single, salaried cadre; or a form of labour exploitation to be discouraged.

In this systematic review, we aimed to determine the presence, prevalence, and magnitude of exploitation in national dual-cadre programmes in LMICs.

Methods

Search strategy and selection criteria

We searched PubMed, Global Health via Ovid, Scopus, Web of Science, and Embase from database inception to Aug 5, 2021, for peer-reviewed articles and grey literature using the search terms "community health worker" and "dual cadre", done in countries with dual-cadre programmes. No study-type terms were used. Full details of the searches are in the appendix (p 9).

Studies were eligible if they included community health workers in dual-cadre programmes, or included data on only unsalaried community health workers in a dual-cadre programme. Community health workers were defined as health workers who: 1) are primarily based in the community (as opposed to a primary health facility), 2) perform tasks related to health-care delivery, and 3) have received organised training, but have no tertiary-level degree such as nursing or midwifery.[17] Articles about single-tier community health worker programmes, those only reporting on salaried cadres of community health workers cadre, and editorials, protocols, guidelines, or conference reports were excluded.

Due to the nature of the study, the requirement for ethical approval and informed consent was waived. The systematic review was prospectively registered with PROSPERO, CRD42021271500 (appendix p 2). The review was done in accordance with the PRISMA guidelines (appendix p 3).

Data extraction

Twelve authors (MB, AO, MMI, AR, AT, JC, ZA, MF, HEO, JH, DL, and CCW) managed and extracted data using a template (appendix p 14). A full list of extracted studies and country characteristics is included in the appendix (p 14). Each title, abstract, and full-text article

was screened by at least two authors using different Google Sheets, and any disagreements were resolved through discussion. We extracted data on article metadata; characteristics of community health worker programmes, including nomenclature for salaried and unsalaried cadres; characteristics of community health workers, such as sex disaggregation and level of education; workload of community health workers, including work hours and assigned population; remuneration, including type and value of financial compensation; and self-reported experiences of unsalaried community health workers.

Studies with qualitative descriptions of community health workers' experiences were assessed using the GRADE Confidence in the Evidence from Reviews of Qualitative Research approach.[18] No quality assessment was conducted for studies with quantitative data since these data were noted only as a feature of community health worker programmes rather than being computed from primary research and, thus, assessing risk of bias for these values is impossible.

Quantitative data relating to the workload and renumeration of community health workers were synthesised using descriptive statistics. Qualitative data on community health worker task complexity and self-reported experiences were synthesised thematically.

Remuneration data were converted to international dollars (I$) as of 2020 (appendix p 50) to facilitate cross-country and longitudinal comparisons. Remuneration of community health workers was then compared with minimum wages of their respective countries and the international extreme poverty line (<I$2 per day).[19] The association between the sex of community health workers and remuneration was analysed using inferential statistics.

To understand community health worker workload, assigned work hours were recorded and used to model actual work hours based on community health workers' assigned population (ie, catchment area) and tasks.

We developed three models: 1) a minimum model in which community health workers spend the shortest time documented in the literature per task and deliver tasks at the most infrequent rate documented in the literature to assigned populations; 2) a maximum model where community health workers spend the longest time documented in the literature per task and deliver tasks at the most frequent rate documented in the literature; and 3) a median model where community health workers spend the median time documented in the literature per task and deliver tasks at the median rate documented in the literature. The literature suggests that travel time (ie, from home to home) contributes to a considerable proportion of a community health workers' time allocation (>10%);[20] however, in the absence of information on local household density, topography, and other contextual factors, we chose to omit travel time from the models. Thus, all modelled workloads are likely to be underestimates. Assumptions that informed the models and all data referenced are in the appendix (pp 51, 53, 58).

Work hours of 10 h or more per week for unsalaried community health workers and 48 h or more per week for salaried community health worker cadres met the threshold for exploitation as defined in this review. This review draws on the International Labour Organization's emphasis on a national minimum wage, indicators of exploitation (low or no salary and excessive working days or hours), and need for comparable wages for similar work to define exploitation.[21,22] Here, we defined excessive work hours for volunteers in line with expert opinion of at least 10 h per week of unsalaried work.[23,24]

Exploitation was therefore defined as engaging community health workers at a renumeration below the country's minimum wage while subjecting them to excessive work hours or highly complex tasks. For the purposes of this review, excessive work hours were defined as 10 h per week or more for unsalaried community health workers and 48 h per week or more for salaried community health workers.[25] The threshold used for highly complex tasks was 50% of the tasks assigned to community health workers being routinely conducted by doctors or nurses. It is via these three inter-related dimensions of community health workers' labour conditions—remuneration, workload, and task complexity—that the study explores exploitation across national dual-cadre programmes.

Data were independently coded by all authors using Dedoose qualitative research software (version 9.0.17). Based on the WHO international classification of health interventions and a limited literature review, community health worker tasks were classified as preventive, promotive, diagnostic, or therapeutic.[26] Tasks were then further categorised as highly complex (performed largely by doctors and nurse-midwives—eg, management of postpartum haemorrhage); moderately complex (performed largely by nurse or midwives but rarely doctors—eg, clinical counselling); and least complex tasks (performed by non-clinical health workers—eg, community mobilisation).[27] Health experts applied these categories independently, and consensus was reached through regular discussions.

Self-reported experiences of community health workers were coded using Dedoose (version 9.0.17) and a preliminary thematic map was developed using the three dimensions of exploitation as a framework.[26,28,29] Analysis was guided by this map, but allowed further insights. Constructs within the data that explain the impact of the work on psychosocial wellbeing informed the inductive generation of initial codes, which were later examined for alignment with a-priori themes. These qualitative data were explored until saturation for the emergence of additional sub-themes was achieved.[30] A summary of data collection and analytical methods is provided in table 1.

	Variables and themes	Analytical method
Community health workers cadre characteristics	Sex distribution, years of education, duration of pre-service training	Descriptive statistics (quantitative; median [IQR]) and self-reported experiences (qualitative)
Remuneration	Value of monthly remuneration	Descriptive statistics (quantitative; median [IQR]) and self-reported experiences (qualitative)
Workload	Work hours per week	Descriptive statistics (quantitative; median [IQR]) and self-reported experiences (qualitative)
Task complexity	Similarity to the roles of doctors and nurses	Thematic analysis: categorisation and comparison

Table 1: **Summary of data collection and analysis**

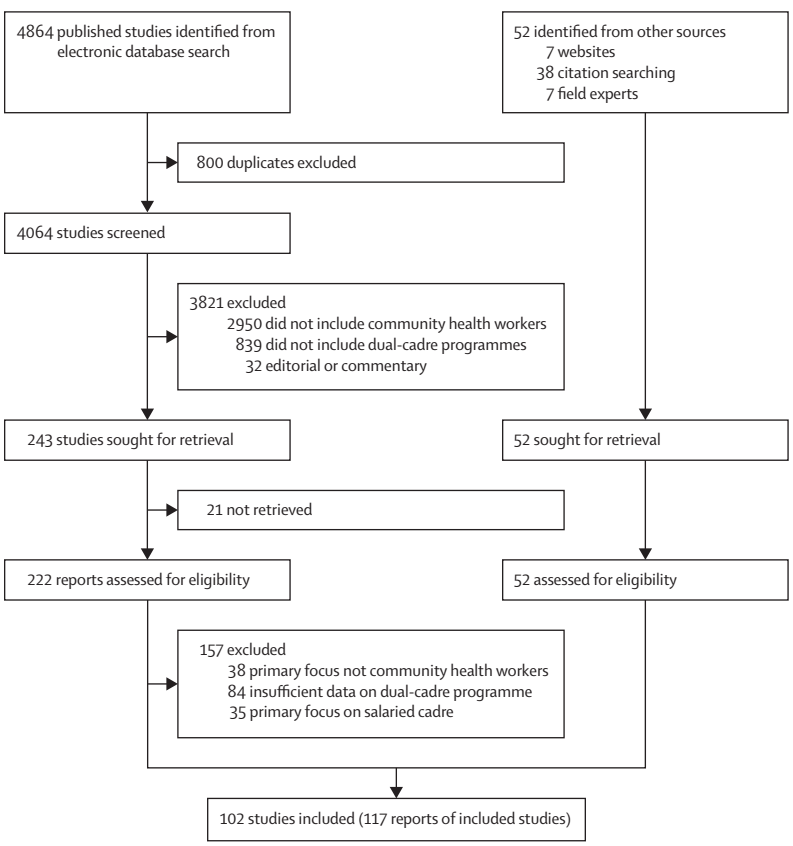

Figure: **Study selection**

All authors participated in regular video calls to achieve depth of analysis and consistency across approaches.

Role of the funding source

There was no funding source for this study.

Results

4864 records were identified, of which 222 underwent full-text screening, and 117 reports of 102 studies were included in this review (figure; appendix p 14).[4,16,31–97]

Reports were published between 1988 and 2021, with 54 (46%) of 117 published in the previous 5 years. All reports were from LMICs, including 65 from sub-Saharan Africa, 42 from south Asia, two from the east Asian and Pacific region, and three reports that document findings across nations. Of these reports, 64 used qualitative methods, 36 quantitative methods, 17 mixed methods, with one literature review.

Included articles described 19 countries, including four from southeast Asia and 15 from sub-Saharan Africa. Reports covered 28 salaried cadres of community health workers and 37 unsalaried cadres of community health workers; half of cadres had sufficient data to be included in the analysis.

The majority of salaried cadres (eight [73%] of 11) and unsalaried cadres (13 [81%] of 16 cadres) were female (table 2).

Salaried cadres earned a median of I$454 (IQR 270–587; n=12) per month; unsalaried cadres typically earned nothing (I$0, 0-40; n=31; table 3). 25 of 31 unsalaried cadres with available data earned below the poverty line. No salaried cadres earned below the poverty line or minimum wage. The median modelled work hours for salaried cadres were similar to assigned hours (46 h, 18–90 [n=10] *vs* 45 h, 40–48 [n=18]), whereas the median modelled work hours for unsalaried cadres were nearly double the number of assigned hours (7 h, 5–29 [n=18] *vs* 4 h, 3–5 [n=8]).

A third of unsalaried community health workers (six of 18) worked more than 20 h per week and half of salaried cadres (five of ten) worked more than 48 h per week, which were defined as excessive work hours.

18 (69%) of 26 of salaried cadres and 16 (55%) of 29 unsalaried cadres did similar tasks to those performed by doctors and nurses (table 4). Of the 29 unsalaried cadres with available data, only one reported tasks limited to those typically performed by community health workers.

Three themes were identified as highly relevant to the description of community health workers labour conditions and the impact on their psychosocial wellbeing (table 5). Overall, data quality was characterised as moderate (ie, we had a moderate level of confidence in data used). Key concerns about data were related to poor descriptions of methodology and data inadequacy, which prevented objective comparison of the experiences of unsalaried community health workers.

Unsalaried workers frequently believed the volunteer role would lead to a paid role or provide a platform for finding one,[118] and some relied on altruistic values to remain motivated, as illustrated in a quote from an unsalaried community health worker in Nepal: "Serving mother and child is a big dharma [righteousness with merit]."[97–101] This motivation was often reinforced by social pressure that emphasised the importance of volunteering to help the community.[101]

Although the earnings of unsalaried community health workers are low, they serve as a key motivator.[31,98,102,103] For example, a community health

	Salaried community health worker cadre (n=28)	Unsalaried community health worker cadre (n=37)
Sex distribution (>50%)		
Cadres with available data, n	11	16
All or majority female cadre	8 (73%)	13 (81%)
All or majority male cadre	3 (27%)	3 (19%)
Education		
Cadres with available data, n	9	11
Primary	..	6 (55%)
Secondary	9 (100%)	4 (36%)
None	..	1 (9%)
Training duration		
Cadres with available data, n	11	12
Median (IQR)	6 months (2·5–12·0)	6·5 days (4·6–15·8)

Table 2: **Key characteristics of community health worker dual-cadre programmes**

	Salaried community health worker cadres (n=28)	Unsalaried community health worker cadres (n=37)
Remuneration		
Type	Salary (28 [100%] of 28)	No incentives (n=14 [38%]); allowances and stipends (n=18 [49%]); non-financial incentives (n=3 [8%]); performance-based incentives (n=2 [5%])
Median value (IQR)	I$454 (270–587; n=12)	I$ 0 (0-40; n=31)
Workload (work hours per week, excluding travel time)		
Median assigned (IQR)	45 h (40–48; n=18)	4 h (3–5; n=8)
Maximum modelled (IQR)	80 h (41–226; n=10)	17 h (12–49; n=18)
Median modelled (IQR)	46 h (18–90; n=10)	7 h (5–29; n=18)
Minimum modelled (IQR)	29 h (9–55; n=10)	4 h (2–13; n=18)

I$=international dollars. *Calculations supporting the models are in the appendix (pp 50–53).

Table 3: **Remuneration and workload in dual-cadre community health worker programmes**

	Salaried community health workers (n=26)	Unsalaried community health workers (n=29)
Performing tasks similar to those performed by doctors and nurses	18 (69%))	16 (55%)
Performing tasks similar to those performed by nurses, but not doctors	17 (65%)	26 (90%)
Performing tasks similar to those performed by community health workers only	24 (92%)	27 (93%)

Percentages are not mutually exclusive (ie, one cadre could have multiple types of tasks).

Table 4: **A comparison of task done by community health worker tasks and by doctors and nurses**

worker in Bangladesh stated, "The earnings as community health volunteer have helped me to become economically independent. From this I meet the expenditures for my children's education. Once I ran my whole family with this income when my husband was bedridden due to an accident."[104] A community health worker receiving non-financial incentives (ie, certificates) in Ethiopia shared, "[Voluntary] work is demanding. Even though we have to neglect our own work to do it, we are happy to make house visits frequently because of the incentives."[103]

Unsalaried community health workers often expressed dissatisfaction with their remuneration structure, noting that it did not match the tasks they performed or the out-of-pocket expenses they incurred.[101,105]

Community health workers complained of inconsistency in payment and reduction in performance-based incentives for assigned tasks.[32] Some community health workers were also unhappy about tasks for which they did not receive any financial compensation. Workers who were the primary earners in their families were particularly dissatisfied with the level of remuneration:[106,107] "If we call a hired labourer for digging our land even for a small kid, we have to pay three hundred and fifty rupees and we get only 200 as allowance."[98] One unsalaried community health worker explained, "We have to work a lot without any benefits... We have children; we need to feed them."[105]

Unsalaried cadres face pressure to work more than their agreed hours from community members and salaried colleagues who task-shift responsibilities (ie, delegate health-care tasks from one cadre to a less specialised cadre).[108] An unsalaried community health worker explained, "They are now workers who get paid per month and we don't get paid [not on monthly salary] so we think they want to offload some of their duties to volunteers." Some unsalaried community health workers considered some of the tasks beyond their competency and were embarrassed or felt guilty when they could not answer questions[33] and anxious when they could not comprehend training content.[106]

Although some unsalaried community health workers mentioned being valued by community members,[99] others face social rejection from family and community members who disapprove of their work.[34,99] At the family level, this was partly explained by community health workers not performing expected roles at home. At the community level, social recognition and acceptance of unsalaried community health workers was influenced by the perceived ability of community health workers to help in a time of health or social need;[35,98,109] otherwise, their services were perceived as inferior because of having inadequate or little training:[31,34,103] "The young men teased us. They thought our drugs were spurious. Sometimes they challenged our treatment practice. Some people ask me to show my 'licence' and to them I show my bag."[33,103] Social acceptance of unsalaried community health worker cadres was further threatened by the community perception that community health workers were being paid to provide services, inability to help community members during a crisis, poor outcome of

	Domain of quality				References
	Methodology	Relevance	Coherence	Adequacy of data	
Remuneration	Serious concerns relating to the methodology of two reports (involvement of project implementers in the evaluation might have introduced a bias in which participants provided socially desirable answers); moderate concerns with four reports that had insufficient descriptions of some sub-sections of the methods; minor concerns with five reports; and no or very minor concerns with three reports	Moderate concerns with two reports due to insufficient description of the self-reported experience of unsalaried community health workers; minor concerns with two reports; and very minor or no concerns with ten reports	Serious concerns relating to the coherence of one report (difficult to compare the self-reported experiences of unsalaried community health workers since data on labour conditions was often inadequate); minor concerns about four reports; and no or very minor concerns about nine reports	Serious concerns about the adequacy of data of four reports (small sample size, no attempt at data saturation); minor concerns regarding two reports; and very minor concerns with eight reports	32,33,35–37,97–111
Workload and task complexity	Serious concerns relating to the methodology of one report (involvement of project implementers in the evaluation might have introduced a bias in which participants provided socially desirable answers; moderate concerns with two reports that had scant descriptions of selection criteria of study participants; and minor concerns with two reports	Minor concerns regarding one report and very minor concerns regarding four reports	Minor concerns regarding two reports and no or very minor comments regarding three reports	Serious concerns about data adequacy of one report (small sample size, no attempt at data saturation); moderate concerns with two reports; no or very minor concerns relating to adequacy of data of two reports	31,33–35,99,104,107,112,113
Social relations with family, community, and facility	Serious concerns relating to the methodology of one report (involvement of project implementers in the evaluation might have introduced a bias in which participants provided socially desirable answers); selection criteria not clear in three reports; moderate concerns with three reports due to insufficient description of method subsections; minor concerns with five reports and no or very minor comments with three report	Minor concerns regarding five reports and very minor concerns regarding seven reports	Moderate concerns due to insufficient description of the population in two reports; minor concerns regarding four reports; and no or very minor concerns about six reports	Serious concerns about the adequacy of data of one report (no attempt at data saturation); moderate concerns with three reports as the exploration of sub-themes lacked depth; minor concerns with four reports; and no or very minor concerns relating to adequacy of data of five reports	13,31–38,99,100,104,105,107,109–111,113–117

Table 5: **An assessment of the quality of the evidence for core qualitative themes**

health condition managed by community health workers, and social stigma relating to the diseases being managed by community health workers.[33,35,110]

At the facility level, some workers described a positive experience while others experienced a lack of recognition and an unwelcoming attitude from staff.[105,111]

Discussion

This systematic review investigated exploitation in dual-cadre community health workers programmes across three areas: remuneration, workload, and task complexity, and included community health workers' self-reported experiences. More than half (59%) of unsalaried cadres of community health workers were experiencing exploitative labour conditions, while 10% of salaried community health workers cadres were working in exploitative conditions.

One (10%) of ten salaried cadres had a wage below the minimum wage compared with 17 (77%) of 22 unsalaried community health workers. Our median model indicated 40% of salaried cadres and 25% of unsalaried cadres worked more than expected hours. 90% of salaried cadres and 63% of unsalaried cadres of community health workers were assigned tasks commonly performed by doctors and nurses.

Self-reports on labour conditions suggested that unsalaried work is often perceived negatively. Complaints included non-payment, inadequacy, and inconsistency in payment of incentives, and a workload that impairs work–life balance. Qualitative data also showed that for unsalaried cadres, the low and inconsistent remuneration sometimes serves as the sole source of family income.[104] This finding is consistent with empirical evidence that people tend to accept unfair labour conditions to earn enough for their subsistence, especially in areas with high unemployment rates.[114]

The commitment of community health workers to volunteering is sensitive to the amount of time spent volunteering.[113] Some unsalaried community health workers only achieve around 50% of the expected service coverage.[38] Our modelling showed that three (19%) of 16 unsalaried community health workers would need to work more than 40 h per week to fulfil their responsibilities. This suggests that unsalaried community health workers in dual-cadre programmes are either experiencing labour exploitation through excessive hours and task complexity or their patients are not receiving adequate health services. This finding has serious implications for both labour rights and the goal of universal health coverage by 2030.

Qualitative data also indicated that concerns are potentially worse than reported: unsalaried community health workers report being spontaneously task-shifted responsibilities from the salaried cadre of community health workers. The numbers in this review reflect only formally assigned tasks, and formal assignments underestimate workload since travel time was not included. The guarantee of decent work for one cadre will require altering the responsibilities of both.[116]

Relying on unsalaried community health workers in low-income settings reflects a moral and technical inability of state actors to take financial responsibility for health-care delivery, relying on financially disempowered

individuals who might lack the capability for collective negotiations.[115] Poverty and little access to decent work opportunities, especially for women, means that unsalaried volunteer work is not a free choice, but wage slavery.[116] These unsalaried roles are often accepted by individuals who have an implicit or explicit desire for paid employment and hope that volunteering will aid transition to a paid role.[102,114] Rhetoric around women's empowerment is used to provide moral cover for community health worker programmes utilising female workers as volunteers,[117] but this downplays the reality that female labour is often cheap in settings with low female literacy, high unemployment, and gender norms that disadvantage women.[119]

This research indicates dual-cadre programmes are likely to replicate the exploitative dynamics of the all-volunteer programmes they often replace. Moreover, such programmes can cause additional psychosocial stress, since unsalaried community health workers might compare themselves with salaried community health workers and experience disappointment from unmet implicit needs to transition to paid roles.[99,102,120] Social comparison in dual-cadre programmes might also impact motivation and job satisfaction.[16,121,122] Furthermore, unsalaried community health workers in dual-cadre programmes might experience additional task shifting burdens from their overworked salaried community health worker supervisors when compared with those in all-volunteer programmes. Considering the growing importance of community health worker programmes because of their cost-effectiveness,[123] measures must be put in place to ensure that community health workers are guaranteed decent work, including remuneration.[124]

Building on previous time-use studies,[15] this systematic review is the first to model work hours of salaried and unsalaried community health workers in 19 countries with dual-cadre programmes, comparing differential treatment and perceptions of fairness. Nonetheless, our review had limitations. First, the threshold of more than 10 working hours per week for unsalaried community health workers might not reflect certain contexts where longer volunteer hours are encouraged. The threshold was based on the opinion of experts.[24,25] Second, our findings on working hours and consequently wages are based on modelled assumptions that do not include travel time. Evidence suggests[20] that travel between houses is an integral part of community health workers' working week and time-use studies have estimated such travel accounts for 10–27% of a community health workers' time. Based on the model of median values, we expect salaried community health workers would need to work between 51 h and 58 h per week to accomplish their assigned tasks, while their unsalaried colleagues would need to work between 8 h and 9 h. The findings for Liberia in this study showed that the monthly payment of community workers reflects a drawback of purchasing power parity calculations and was only included following extensive discussions with two economists. Third, included qualitative data were assessed as moderate quality using the GRADE Confidence in the Evidence from Reviews of Qualitative Research approach[18] due, in large part, to inadequacy of data. Future research might focus on programmes and geographical regions that were not profiled in this study.

It is important to note that, similar to all workers, the overall job satisfaction of community health workers and motivation to work as a community health workers is influenced by factors in addition to remuneration. These include the degree to which community health workers feel valued by the community and feel that they are valued members of the health system, have a clear role and set of responsibilities, and have opportunities for personal growth and professional development.

To address labour exploitation of unsalaried community health workers in dual-cadre programmes: 1) governments and international funders must respect domestic and international labour law, 2) international funding for programmes using unsalaried workers should be reported, 3) health providers should assess community health workers' workloads a priori and measure actual time use, 4) community health workers should be included in discussions about their labour conditions, and 5) volunteers should not be responsible for delivering essential health services.

Global regulations to prevent exploitation exist, and the majority of countries that fund and implement dual-cadre programmes have agreed to follow these regulations.[125] Our research suggests, however, that these regulations are not routinely followed in dual-cadre programmes. Countries need to work toward finding solutions using existing legislative tools.

This study shows that non-governmental institutions (ie, private foundations or global health initiatives) funding dual-cadre programmes employ unsalaried workers to provide time-consuming, complex services in low-income settings, deviating considerably from labour norms in their home countries.[126] International funding bodies should report the percentage of unsalaried workers they employ.

Policy makers should draw on available tools[127] to model community health workers' work hours and pay commensurate remuneration. Actual time use of community health workers should be routinely monitored. Global recommendations on task-sharing suggest essential health services should not be provided by volunteers.[128] Consistent with WHO recommendations,[5,126,129] community health workers who take on complex tasks should receive fair compensation based on their job demands, work hours, and training.

Both governments and funders should include community health workers—if not mandate their presence—in policy discussions that affect them.[130]

The findings from our study point to the need for further research. More complete and accurate information

about the current levels of pay and the workloads of community health workers are needed, in addition to views of community health workers about their work.

This review suggests that unsalaried community health workers in dual-cadre programmes are routinely assigned an excessive, complex workload without commensurate remuneration and thus are the victims of labour exploitation. These findings call for an urgent review of such programmes. Professional community health worker cadres should be created globally with non-exploitative contracts to promote high levels of performance and retention[3,121,122] and should adhere to global commitments to decent work.

Contributors

MB and AO conceived and planned the study. MB, AO, MMI, AR, AT, JC, ZA, MF, HEO, JH, DL, and CCW identified and extracted the data. AO did the statistical analyses with assistance and input from HBP, MMI, BM, MJ, and MB. AO and HEO prepared the figures and tables and verified the data. AO and MB wrote the first draft of the manuscript with input from all authors. All authors contributed to subsequent revisions, read and approved the final version of the manuscript, had access to and reviewed all data in the study, and approved the decision to submit for publication.

Declaration of interests

We declare no competing interests.

Data sharing

The data for this study are available to the public in the supplementary materials, including all reviewed studies and references mentioned in the systematic review.

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