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# A job analysis of community health workers in the context of integrated nutrition and early child development

John Phuka, 1 Kenneth Maleta, 1 Mavuto Thomas, 1 and Melisa Gladstone 2

<sup>1</sup>Department of Community Health, College of Medicine, University of Malawi, Blantyre, Malawi. <sup>2</sup>Department of Women and Children's Health, Institute of Translational Medicine, University of Liverpool, and Alder Hey Children's NHS Foundation Trust, Liverpool, United Kingdom

Address for correspondence: John Phuka M.B.B.S., Ph.D., Department of Community Health, College of Medicine, Lilongwe Campus, P.O. Box 30055, Lilongwe 3, Malawi. johnphuka@gmail.com

Stunting and poor child development are major public health concerns in Malawi. Integrated nutrition and early child development (ECD) interventions have shown potential to reduce stunting, but it is not known how these integrated approaches can be implemented in Malawi. In this paper, we aimed to evaluate the current jobs status of community health workers and their potential to implement integrated approaches. This was accomplished by a desk review of nutrition and ECD policy documents, as well as interviews with key informants, community health workers, and community members. We found that Malawi has comprehensive policies and well-outlined coordination structures for nutrition and ECD that advocate for integrated approaches. Strong multidisciplinary interaction exists at central levels but not at the community level. Integration of community health workers from different sectors is limited by workload, logistics, and a lack of synchronized work schedules. Favorable, sound policies and well-outlined coordination structures alone are not enough for the establishment of integrated nutrition and ECD activities. Balanced bureaucratic structures, improved task allocation, and synchronization of work schedules across all relevant sectors are needed for integrated intervention in Malawi.

Keywords: community health workers; early child development; nutrition; Care for Child Development; Malawi; Africa; low-income countries

# **Background**

Stunting and poor child development continue to be major global health burdens, but trends in recent years have been somewhat encouraging. In 2011, the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and the World Bank jointly estimated that globally 165 million children are stunted, a decrease from 178 million in 2005, when globally 40% of children were stunted; by 2011, 26% were stunted.

During that same period in Africa, however, despite the decreases in stunting prevalence—47% to 39.6%—the number of stunted children increased from 44 million in 1990 to 56 million in 2011.<sup>1</sup> In Malawi, the prevalence of stunting in children under the age of 5 years decreased only slightly in the last decade, from 49% in 2000 to 47% in 2010.<sup>2–4</sup> With a growing population, the estimated number

of stunted children, and therefore the number at risk of poor development, increased from less than 1 million in 2000 to approximately 1.5 million in 2010.

Countries around the world are now scaling up nutrition-specific and nutrition-sensitive interventions to reduce the prevalence of stunting and poor child development.<sup>5</sup> Comprehensive approaches addressing children's nutrition, health, and psychosocial development have been shown to be most effective in promoting child development.<sup>6,7</sup> The evidence for these interventions suggests that integrated packages of care are most effective, particularly where good nutrition and stimulation of the child are provided along with improved maternal and child health.<sup>8–11</sup> These packages have a larger impact on developmental outcomes and the sustainability of these changes, compared to packages where nutritional supplementation alone is

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provided to families.<sup>7</sup> The WHO has highlighted this recently with its revised Care for Child Development package, which promotes integrated nutrition and early child development (ECD).<sup>12</sup>

Malawi's efforts to promote child development are guided by a national policy that encourages multisector collaboration. 13 In Malawi, government departments that play major roles in child development at the community level are the Ministry of Gender, Children, and Social Welfare (MoGCSW) and the Ministry of Health (MoH). Both of these ministries employ extension workers, also known as community health workers (CHWs), who are frontline workers that act as primary contacts to communities, families, and children, implementing activities that are specific to either child development or nutrition. The term community health worker embraces a variety of community health aides who are selected, trained, and ideally work in the communities from which they come. A widely accepted definition was proposed by a WHO Study Group in 1989: "Community health workers should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers."14

Within the MoH, CHWs are known as health surveillance assistants (HAS), who are employed CHWs. Originally known as "smallpox vaccinators" in the 1960s, "cholera assistants" in 1970s, and "HSAs" in 1980, they became official MoH staff in 1995. Initially, they were recruited from the communities but are now hired nationally and deployed on the basis of need. In the Ministry of Gender, Children, and Community Development, the CHWs are known as child protection workers (CPW). A total of 800 CPWs were recruited as volunteers from their communities in 2004; 300 were formerly employed by the government in 2008; and another 500 in 2012.

The role of CHWs is increasingly recognized as a critical link to improving access to services and achieving many healthcare goals. <sup>15</sup> CHWs are required to participate in or implement services integrating children's nutrition, health, and psychosocial development in low-income countries like Malawi. Given the financial and human resources constraints in developing countries, CHWs are ex-

pected to do more without necessarily receiving the needed support or additional staffing to do their jobs well. <sup>16</sup>

Despite the existence of policies that guide collaboration,<sup>13</sup> it is not known how integrated the activities by extension workers in these ministries actually are. To evaluate what role CHWs in Malawi can play in integrating children's nutrition, health, and psychosocial development, we analyzed policies, coordination, current job status, and the potential of CHWs in Malawi.

# **Objectives**

This study had the following specific objectives: (1) to analyze nutrition policies related to infant and early child feeding and ECD; (2) to review coordinating structures for infant and early child nutrition services and ECD services; (3) to analyze the job status of extension workers involved in infant and early child nutrition and development; and (4) to review the status of integrated nutrition and ECD activities.

# **Methods**

# Survey approach

We conducted a cross-sectional study that involved desk reviews of current national documents guiding policy, strategic planning, and training on nutrition and ECD. These national documents included the National Policy on Early Child Development, <sup>13</sup> National Nutrition and Strategic Plan 2007–2012,<sup>17</sup> Infant and Young Child Nutrition Policy,<sup>18</sup> The Essential Nutrition Actions for Improving Women and Children's Nutritional Status: Training Manual for Service Providers in Malawi,19 National Nutrition Education and Communication Strategy for Preventing Child Stunting in Malawi 2011–2016,<sup>20</sup> Malawi Health Sector Strategic Plan 2011-2016,<sup>21</sup> Health Surveillance Assistant Course Curriculum,<sup>22</sup> and Health Surveillance Assistant Training Manual Facilitator's Guide.<sup>23</sup>

We also conducted a qualitative evaluation that utilized focus-group discussions (FGDs), key informant (KI) interviews, and a structured questionnaire. The KIs were district environmental health officers (DEHOs), who coordinate and supervise extension workers under the MoH, and district social welfare officers (DSWOs), who are DEHO counterparts in the MoGCSW. Other informants were immediate supervisors of HSAs, including health center nurses or medical assistants. The KIs were

asked to describe their experiences working with HSAs and CPWs, the perceived strengths and weaknesses of these cadres, and the potential of integrated approaches. FGDs were done with HSAs, CPWs, community-based childcare center (CBCC) caregivers, female volunteers from the community who run CBCCs, and parents, mothers, or legal guardians. Data from FGDs were recorded directly on paper by a note taker; there were no tape recordings. Each group was asked about the status of interaction among CHWs and the possibility of integrated approaches, particularly through the use of the Care for Child Development package.

# Quality control

Desk review was completed by two investigators. Research assistants were either medical students or social scientists who were trained on how to conduct interviews by one of the investigators. Data saturation was used as stoppage criteria for deciding on adding more districts, and the starting districts were systematically chosen to include urban and rural experiences and districts where the main study was being implemented (Mangochi and Blantyre districts). The study was conducted in four other districts: Chikhwawa, Lilongwe, Thyolo, and Zomba. Two districts are urban districts, Lilongwe the capital city, and Blantyre the major commercial city. When data were inconsistent, we either revisited the informant for clarification or triangulated the information from other sources. Because of feasibility, results were presented to the HSAs, CPWs, and the DEHO of the Lilongwe District only to check the reliability of the data.

### Results

# Completion of data collection and reviews

In each of the six districts, we interviewed a DEHO and DSWO. All of them were experienced civil servants who had worked for at least 5 years in the government of Malawi. Academically, all the DEHOs had a minimum of a Bachelor's degree in Environmental Health, with a curriculum designed to prepare personnel that serve the government as DEHOs. At the level of community extension workers, we successfully conducted FGDs with HSAs and interviewed at least one CPW in each district. All of them had worked for at least 3 years as extension workers, and each FGD had five to eight HSAs. Seven interviews with two CPWs from Lilongwe and

one from each of the other districts were completed. Each of the CPWs had a certificate in Community Development Studies. At the community level, we successfully conducted FGDs and individual interviews with parents and caregivers. A total of 62 parents and 5 caregivers were involved.

We successfully reviewed the following eight national documents: National Policy on Early Child Development, <sup>13</sup> National Nutrition and Strategic Plan 2007–2012, <sup>17</sup> Infant and Young Child Nutrition Policy, <sup>18</sup> the Essential Nutrition Actions for Improving Women and Children's Nutritional Status: Training Manual for Service Providers in Malawi, <sup>19</sup> National Nutrition Education and Communication Strategy for Preventing Child Stunting in Malawi 2011–2016, <sup>20</sup> Malawi Health Sector Strategic Plan 2011–2016, <sup>21</sup> Health Surveillance Assistant Course Curriculum, <sup>22</sup> and Health Surveillance Assistant Training Manual Facilitator's Guide. <sup>23</sup>

The major findings were that both the MoH and MoGCSW have policies that guide internal implementation of child nutrition or ECD activities. The MoGCSW is responsible for ECD policy development and also leads the implementation of ECD activities. Nutrition activities in the MoH are, however, planned and coordinated by the Department of Nutrition, HIV, and AIDS (DNHA) in the Office of the President and Cabinet (OPC), which is responsible for the coordination of the implementation of the Malawi National Nutrition Policy and Strategic Plan (NNPSP). In addition to describing the roles of different staff cadre within the ministries, these policies stipulate activities of complementing government ministries that implement either nutritionor ECD-sensitive activities.

Through these policies, the government of Malawi demonstrates its commitment to a multisectorial approach involving a multidisciplinary team. However, the government in NNPSP recognized a lack of institutionalized coordination mechanisms and attributed it as one of the main contributors to noneffectiveness of existing nutrition interventions. As such, the government advocated for the interaction of nutrition and ECD, and created the training manual for extension workers entitled, *The Essential Nutrition Actions for Improving Women and Children's Nutritional Status.* The government would want that these integrated approaches benefit children and this is testified by the following

statement: "Encourage the mother or caregiver to interact with the child during feeding (active or responsive feeding) in order to help the child eat more food and stimulate child's verbal and intellectual development." <sup>19</sup>

# Coordinating structures of infant and early child feeding, and ECD

In Malawi, infant- and early childcare-specific activities are implemented mainly by the MoH and MoGCSW. Other key ministries implementing infant- and early child care-sensitive activities are the Ministry of Agriculture, Irrigation, and Water Development; the Ministry of Local Government and Rural Development; and the Ministry of Education, Science, and Technology. ECD activities are mainly coordinated through the MoGCSW, whose coordinating structure includes the National ECD Network, District Child Development Networks, the Area Child Development Network, CBCCs, parents' committees, or childcare committees. Community extension workers, known as child protection workers, operate at the Area Child Development Network level, which serves up to a 25,000 population catchments area. About 300 of the estimated 800 total CPW in Malawi are on a government salary. The others work as volunteers and receive honorarium, which is not a regular income. Further extension work at the village level in the MoGCSW is conducted by village volunteers called caregivers, who run CBCCs.

At the national level, coordination of nutrition is achieved through the Multisectorial Technical Committee, and at the district level, coordination is through the District Coordination Committees (DNCC). Community health workers (or extension workers) in the MoH, known as health surveillance assistants, participate in implementation and coordination through Area Development Committees. The HSAs are designed to serve a 1,000 population catchment area. At all levels, the coordinating committees include officials from both the MoH and MoGCSW. Additionally, other ministries that implement nutrition- and child developmentsensitive activities, including the Ministry of Education, Ministry of Water, Ministry of Agriculture, and Ministry of Local Government, participate in these working groups.

# Child protection workers' and health surveillance assistants' job accounts and perceptions of integrated nutrition and ECD activities

All CHWs had 5 years of experience and were trained for their jobs. The focus of CPWs was child protection and development while HSAs focused on primary health care and nutrition (Table 1). Most of the challenges were, however, similar, and integration of activities is mainly challenged by an implementation framework.

The DSWOs and DEHOs considered disparities in coordinating structures between the MoH and MoGSW at a community level and the nutrition knowledge gap among CPWs as major weaknesses toward an integrated approach. The CPWs were well trained on ECD and child protection works but not nutrition. Likewise, HASs were conversant with child nutrition but not ECD activities. They both cover large populations, with HSAs covering populations as large as two to five times higher than the wanted coverage size and CPWs covering at least five times the population covered by HSAs.

Although all CPWs reported residing within their catchment areas, their homes may be far from some of the villages they cover—in some cases they have to travel for 3 h by bicycle to reach the farthest villages. This is more common among HSAs who largely (31/35) live outside their catchments area. Housing in some of the catchment areas did not satisfy the CHWs because some amenities, such as electricity, a water source, weather-proof roofing, and ventilation, were lacking. Some felt that such poor housing conditions may compromise their advocacy for healthy living. For example, one HSA questioned how you could teach what you don't practice: "How can you advise someone to stay in ventilated house when you yourself stay in unventilated house? These are the houses we find in the catchment areas." Distance and travel time were considered to be a negative attribute to work performance in that the community does not have direct and continuous access to its CHWs in an emergency; the number of visits to the community is minimal or reduced in order to manage the cost of travel; and the duration of each visit is affected by consideration of return travel time.

Although staff in the public sector in Malawi is expected to spend 8 h at the work station each day,

Table 1. Comparison of HSA and CPW job activities and perception

Comparison attributes	Health surveillance assistants	Child protection workers
Length of training	8–12 weeks	6 weeks
Population coverage	2,000	25,000
Job tasks	Promotion of nutrition,	Assessment of early child
	including infant and young child feeding, growth monitoring, vaccination, water sanitation and hygiene, disease surveillance, village health inspections, participating in village health and water committees, providing family planning methods	developmental milestones, protection of children's rights, child protection from abuse, discrimination and child labor, protecting and safeguarding children in difficult circumstances (orphans, street children, children with disabilities)
Frequency of village visit	Once to twice monthly	Monthly
Proportion of CHWs on government salary	100% covered	40% covered
Perception of job difficulty and workload by CHWs themselves	Considered too much	Considered normal

CHW, community health worker.

CHWs often spend less time and typically leave work as soon as they finish that day's scheduled job. HSAs are usually at the health center for 5 h and in the community for about 2 hours. The rest of the day is usually spent on nonofficial activities. For example, when they are assisting patients who come for outpatient care at the health center, and if all patients are attended to by 11:00 am, then they would leave work at that time. Typically, patients attend health centers in the morning as there is no systematic scheduling that could stagger them throughout the day. Senior health center staff acknowledged that HSAs usually work part of the day and were allowed to leave work to rest for the next morning's heavy schedule. Both HSAs and their supervisors thought that HSAs were overloaded. On a scale of 1-10, HSAs were considered to have a workload of more than 5. But surprisingly, they welcomed additional work. The CPWs on the other hand considered their job to not be too difficult and thought integration of nutrition and ECD activities would be taken on board. Integrated child development, nutrition, and infection prevention and treatment were considered a time-saving approach for caregivers, HSAs, and the CPWs themselves.

In addition, HSAs were also not continuously available to their communities because of task shifting. HSAs participated in much more work than

what was listed in the HSA job description that specified that all HSAs spend half their work time or more at health centers in a variety of capacities: serving as clerks, health educators, and pre- and post-HIV testing counselors in outpatient departments; providing family planning and reproductive health education; monitoring growth and development among children younger than 5 years old; packing and dispensing drugs in pharmacy departments; running rapid tests for hemoglobin concentration, malaria, HIV, and syphilis in the laboratory; supporting vaccinations in the Expanded Program of Immunization (EPI); and recording and checking data for the Health Management Information System (HMIS).

The HSAs preferred to work at health centers because they were usually closer to their homes than some of the catchment areas, and they felt that working at a health center gave them respect and status in the community. The HSAs were happy to take on the Care for Child Development package. The motivation to take on this additional burden was driven by the expectation of more money. Usually training of staff on new interventions and implementation of new interventions comes with some honorarium or allowances. Both HSAs and CPWs were dissatisfied with their income from salaries, although bicycles ranked highest as items that would help them take on

additional activities. Other causes of dissatisfaction were a lack of recognition, a lack of community support, and uncoordinated supervision. Senior HSAs, who are the immediate supervisors of HSAs, work as any other HSAs but also act as leaders. They seemed to play a role in supervision, acting as a kind of team leader of a group of HSAs. Senior HSAs did not have a clear job description with respect especially to how to supervise the others, and there was no incentive for this extra work.

Some of the CPWs reported working in concert with HSAs on a small scale. Often this was when HSAs were taking anthropometry measurements and screening for acute child illnesses in CBCCs. Both groups thought it was possible to work as an integrated team. However, they cautioned that joint community activities may not be easy to implement because of differences in coverage.

# Caregivers' and parents' perceptions of integrated nutrition and ECD activities

All caregivers—community members who care for children in CBCCs—knew the HSAs responsible for their catchment areas, as well as the role HSAs play in the community. Additionally, all 62 parents—biological or foster fathers or mothers who are responsible for the day-to-day care of the child—were aware of HSAs. All parents and caregivers associated HSAs with general healthcare delivery, including nutrition. Forty-six parents reported interacting with HSAs, compared to 10 who reported interacting with CPWs. The parents and caregivers who interacted with both HSAs and CPWs reported weak interaction between the two extension worker groups and were largely unaware of integrated nutrition and ECD activities.

Both the parents and caregivers considered CBCCs to have the highest potential for integrated nutrition and ECD activities of even younger children, although at present CBCCs mostly cover children older than 2 years. If a CBCC was either not running or did not exist, or was not patronized by younger children, the alternative was a village clinic or existing traditional or cultural female social gathering, for example, a baby shower—a traditional function where mothers of newly born babies are taught about child feeding and care. The caregivers reported that visiting CPWs taught them mainly about child rights, child protection, and ECD activities, such as play and interaction. HSAs were also

reported to visit CBCCs, but at rather infrequent intervals and often during outbreaks like measles or during immunization campaigns. HSAs were largely associated with village clinics at which health education, growth, monitoring, and dispensing of drugs were the main activities. Village inspections, a door-to-door census approach for inspecting household sanitation or household nutrition status, were rare and occurred only at intervals of 4–6 months.

Parents who thought of integration as a better approach were hopeful that it would improve service delivery and care for children. They felt that integration was considered the best approach because if the CPWs and HSAs visited households together, the extension workers would learn and understand the children's living environment. With this knowledge, the CPWs and HSAs would plan better children's activities. Additionally, integration was considered an opportunity to meet both HSAs and CPWs at the same time, a situation that would allow parents to learn more; to receive fewer conflicting messages, as they would expect the HSAs and CPWs to agree on messages and activities to implement; and to save parents' time by receiving both nutrition and ECD messages together. Some caregivers, however, had low self-efficacy and perceived integrating nutrition and ECD activities as a barrier—they thought integration would overload them with too much information in one session. Any programs aimed at introducing integrated approaches need to identify these women as they may need targeted reassurance, incentives, and support to promote their self-efficacy and participate in the integrated services.

Some parents considered gender a barrier and preferred working with female HSAs or CPWs only: they reported that it was difficult for them to be open with males and also difficult for them to be with a male in the house when their husbands were not around. However, they had no problem working with male CHWs if the training was with groups of women. This barrier may be circumvented by male involvement and integrated approaches involving groups of women in each session. Conversely, some parents had low expectations of the female extension workers and did not believe they could learn much from a female CHW because they felt women could not have knowledge to teach others. They advised that female CHWs should be adequately trained before being asked to lead the integrated sessions. Thus, programs need to take into account the use of personalities to bring positive attitudes among such sectors of the population.

## **Discussion**

With the growing optimism toward integrating services aimed at nutrition delivery and psychosocial and health care to infants and young children—with a goal of promoting child growth and development—this study was conducted to evaluate the current job situation of CHWs in Malawi and the potential of introducing integrated approaches through these cadre. This was a substudy of a larger study aimed at evaluating the introduction of the WHO's Care for Child Development package in Malawi. We therefore examined policies guiding CHW activities, the organizational structures of the MoH and MoGCSW, collaboration of CHWs between the MoH and MoGCSW, and how CHWs relate with community members.

These findings show that Malawi has wellconceptualized policies focusing on both ECD and infant and young child feeding. Both policies realize the importance of integrated approaches and refer to activities implemented by other government departments. For example, under the nutrition policy published in the Essential Nutrition Actions for Improving Women and Children's Nutritional Status, the OPC reports that "the Government realizes that adequate nutrition promotes child survival, physical and mental growth and development that improves the child's physical well-being, intellectual ability and productivity."19 The government's position is emphasized by both policy documents having a list of stakeholders and their roles. 13,17 However, the strong collaboration observed at the higher policy level and national coordination and district coordination levels does not extend to the community level. Neither the nutrition nor ECD policy documents stipulate how the pushed-for integration could be implemented at the community level. The area development committee that was designed to champion integration of activities had no clearly defined communication plan. At the community level, these activities were implemented as vertical programs despite a clear wish by the NNPSP to integrate nutrition, health, and psychosocial development.

These findings are consistent with previous reports, <sup>15,16</sup> which found that a CHW's performance is affected by the size of the catchment area, organization of tasks, number of tasks, workload, respect

received, and equipment available. In addition, our findings show opportunities and challenges to integrated approaches in low-income settings such as Malawi. Extension workers continue to struggle with widely accepted challenges. Our findings also show that the difference in population coverage between CPWs and HSAs limit the interaction between the two groups. One CPW serves up to five times the number of people served by one HSA, which means that each CPW has to synchronize activities with up to five HSAs. This finding explains why CPWs are not as well known by community members as HSAs; why CPWs rarely interacted with HSAs or caregivers; and why their village-visit frequency is much lower than that of HSAs. The wider geographical coverage by CPWs and their larger population coverage increases their workload, which plays a defining role in the productivity and quality of their work. 16 With this situation that may not be corrected easily, since equaling and balancing up the number of CHWs and HSAs is a huge undertaking due to the high-wage bill it would attract, a more practical approach would be to ensure that activities done by HSAs and those by CPWs be complementary. With this approach, however, there would still be a need to have a liaison officer who should track integration of the activities.

On the other hand, although the HSAs had a localized geographical population coverage when compared to CPWs, the coverage is usually twice the number planned of 1,000 people per HSA, and the HSAs had an extensive list of activities to perform, which contributed to the perception that they had too much work. In addition, unevenly distributed work intensity during the day affected the management of HSAs, as they and their supervisors had the perception that HSAs worked too hard and therefore justified excessively long breaks (whole afternoon breaks, for example). The allowance by supervisors of long breaks questions the adherence of supervision of HSAs' work overall. The willingness of HSAs to take on new activities contradicts the impression that they are overburdened by population coverage and their own ranking of job difficulty where they suggested that, on a scale of 1-10, the job difficulty was above 5. This willingness to take on more work seems to agree with reported time expenditures that suggest that they actually have a lot of time to spare. In fact, HSAs already take on additional work, for example, during child health days campaigns and other cross-sectional interventions. This willingness could also be explained by the expectation of new income, which comes with almost all cross-sectional activities. In the healthcare system in Malawi, most of the nonroutine activities implemented by CHWs are accompanied by honorarium. The high rating of job difficulties may be advocacy for sympathy to attract support. The HSAs are in a way justified by the coverage, but triangulated information from time spent on the job and willingness to take on new jobs contradicts them.

Although there is regulation, the notion that supervisors feel justified in allowing HSAs to leave earlier suggests broken down institutional factors where rules, regulations, or policies are not enforced adequately. In such an environment where informal conduct and behavior predominate, it is likely that output is constrained. In another evaluation on coverage of national nutrition programs, one of the authors found that geographical coverage was very high while met needs were very low because of extremely weak extension structures and a lack of interaction between HSAs and the community (personal communication). These findings agree with two previous studies on HSAs in Malawi. 24,25 Both studies found that HSAs were dissatisfied with their work, mainly because of perceived heavy workload, low recognition, and low income. The later study also found that these perceptions were recognized within ranks and that supervision of HSAs was almost nonexistent. HSAs' immediate supervisors were Head HSAs who did not have a clear supervisory system and their own reported activities did not differ from other HSAs.

One point worth noting is that HSAs in Malawi are no longer appointed by the community or are always from the community they serve, but are hired by the government from anywhere in Malawi. Once there is a vacancy, all eligible people are able to apply for the job. One can assume that if they were chosen by the community and were answerable to the community, they may live within the same community and avoid all the problems caused by living elsewhere. The approach employed in Malawi does not entirely follow the WHO guidelines that advocate that the CHW should be appointed by and answerable to the community. The MoH supports them by employment. Similarly, CPWs who were initially volunteers are now government employees. This is good but some communities may not have members that have the minimum qualifications required to be employed as CHWs, hence the idea of recruiting from elsewhere. Hiring for all Malawi government jobs is on an equal opportunity basis for all Malawian citizens. Therefore, employment of CHWs on the basis of the WHO definition that supports the idea that CHWs live within the community may need supporting policy and regulation that clearly outlines recruitment of staff and supervision methods.

Several methodological limitations should be considered when interpreting the data. Although these data come from a typical low-income country, our sampling procedure for districts, villages, HSAs, CPWs, and caregivers was not random or based on sample size calculations. Hence, we suggest further studies that complement these data with wider surveys and better representation of cadres of government staff.

### Conclusion

Taken together, despite good policy guidance and well-outlined organizational structures in Malawi, CHW performance is affected by a heavy workload, lack of a clearly defined schedule, unexhausted time use, logistical and transportation challenges, task shifting, and a lack of collaboration among different government departments at the community level. The same factors negatively affect integration of nutrition and ECD activities. The willingness by the government to integrate nutrition, health interventions, and psychosocial development together with the willingness of the community to receive integrated interventions are exceptionally important opportunities, but unless there are clearly outlined strategies and guidelines for integrated implementation of activities conducted by CHWs from different sectors, the successful integration of nutrition and ECD activities may be threatened. We therefore recommend synchronization of work schedules of CHWs from different government sectors.

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#### Conflicts of interest

The authors declare no conflicts of interest.

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