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Geographical coverage and dominant socio-demographic profiles of community health workers in Togo

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Abstract

Background In Togo, community health workers (CHWs) provide primary healthcare to people living more than 5 km from a health centre or who are geographically difficult to reach. This study presents the geographical coverage of CHWs, as well as their socio-demographic characteristics and, more specifically, the dominant profiles that make them up, in order to inform decision-makers and help them define priorities for managing this workforce.

Methods Data were provided by the Community Health and Elderly Division of the Togolese Ministry of Health. The coverage of government CHWs in Togo was described by region and district using the number of CHWs, the area of regions and districts, and the number of CHWs per 10,000 inhabitants. The variables "sex", "main occupation" and "secondary income-generating activity" were used to determine the dominant socio-demographic profiles of CHWs. The results were presented overall and by health region.

Results The results show major disparities in CHW coverage between regions, but also between districts. Regional coverage varies from 1.0 to 15.5 CHWs per 10,000 inhabitants. CHWs are mainly men (81%) with a median age of 41. The most common profile of CHWs in Togo and in all regions is that of men working in farming, except in the Grand Lomé region where the dominant profile is that of female retailers. Furthermore, 3.3% of CHWs are housewives with no secondary income-generating activity.

Conclusions This study contributes to a better understanding of the geographical coverage and socio-demographic characteristics of government CHWs in Togo. Optimising the size and coverage of CHWs to ensure people's access to primary healthcare would merit further investigation, as would the issues of gender equity, remuneration and the working hours of CHWs.

Keywords Socio-demographic characteristics, CHW, Togo, Health human resources, Universal access to primary care

[†]Sadly, Kao Tanang Salaka passed away in May 2024. As this work was initiated with him, the other authors decided to submit the final version of the article with his name as co-author. We thus pay tribute to our friend and colleague.

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Background

Community health workers (CHWs) are increasingly recognised as critical to achieving universal health coverage (UHC), particularly in low- and middle-income countries [1, 2]. Despite the growing dependence on CHWs, we don't know exactly who they are. In the light of this observation, a guide was published in 2021 to help develop a national georeferenced CHW master list. The aim of this national register is to provide an overview of the number, spatial distribution, socio-demographic characteristics and training of CHWs in different parts of the country [3]. Indeed, it is essential to gain a better understanding of CHW profiles in order to define the role and tasks that can be assigned to them and to develop effective policies that are sustainable over time [2, 4].

Over the last 15 years, Togo has made great strides to formalise the role of CHWs. In 2009, a presentation to Togo's National Assembly highlighted the key role played by CHWs in the fight against infectious diseases such as malaria, HIV/AIDS, tuberculosis and other endemic diseases, which were major public health concerns at the time, especially in rural areas. As a result, policymakers have adopted a strategic approach to the role of CHWs, defined in the 2009 National Policy. They have become key players in the Togolese healthcare system. In 2010, a second step was reached with the development of the first national strategic plan for community-based interventions (CBIs). During this first plan, a database of CHWs was set up, enabling them to be identified and monitored by region, district and health facility. Although they are a non-formally employed workforce, the following strategic plans for CBIs have developed all aspects of a primary healthcare human resources management policy, defining their roles and responsibilities, as well as how to recruit, train and motivate them. The "Togo 2025" plan launched by the government in 2020, which aims to achieve universal access to healthcare, places particular emphasis on improving access to primary care by expanding the coverage of CHWs, i.e. increasing the number of CHWs and their geographic reach [5].

Given the growing importance of CHWs in Togo, it is beneficial to understand the definition of a CHW and their role. In Togo, a CHW is a volunteer (i.e., not officially employed by the government) democratically elected by a community located more than 5 km from a health facility or in an area that is geographically difficult to access (e.g., natural obstacle, more than an hour's walk from the closest government health facility) [6]. The community chooses its CHW on the basis of socio-demographic criteria as set out in the national policy for CBIs. Geographical criteria ensure that the community has a good access to primary healthcare, while socio-demographic criteria (e.g., place of residence, language of the community, level of education or availability) guarantee that the CHW is well integrated and recognised by the community, as well as being able to carry out his or her various tasks. CHWs provide a range of primary healthcare activities, including health education on hygiene, nutrition and disease prevention; case management of diseases such as uncomplicated malaria, diarrhoea, pneumonia or tuberculosis; screening for malaria or malnutrition; referral to health facilities; and stock management of essential supplies such as medicines. They also take part in vaccination and mass distribution campaigns and are involved in the search for patients lost to follow-up. The time CHWs devote to these tasks can vary considerably depending on community needs, seasonal demands and specific health campaigns. To our knowledge, the average time spent on healthcare activities by these CHWs has not been evaluated in Togo. Health facility managers supervise CHWs at community level, giving them advice, monitoring their activities and ensuring the quality of services delivered. At district and regional levels, focal points coordinate the overall CHW program, including planning, training, data collection and reporting, as well as facilitating communication between CHWs and higher-level health authorities.

CHWs receive 5000 CFA francs per month (i.e., just over US$8) from the Community Health and Elderly Division of the Togolese Ministry of Health, thanks to external funding, plus intermittent compensation based on performance or on one-off activities such as the distribution of mosquito bed nets. The question of their living conditions, given the voluntary nature of their activity, has always given rise to much debate in Togo as in many low-income countries [7]. Initially, in 2010, the strategic plan for CBIs called for the community to remunerate CHWs for their work. An evaluation of this plan, carried out in 2016 (Touré H: Revue des interventions à base communautaire au Togo, unpublished) and again in 2020 (Agoudavi K: Evaluation du plan stratégique national des interventions à base communautaire (PSN IBC) 2016–2020, unpublished), showed that communities fully endorse the CHWs for their contribution to community health, but refuse to pay them. The community considers them to be salaried employees of the Ministry of Health, although this is not the case. This socio-political tension between members of the community and the government is the main reason for the lack of financial support from the community. As a result, in the following plans, the requirement for CHWs to have an income-generating activity (IGA) was added to the list of recruitment criteria. In doing so, the Community Health and Elderly Division aims to ensure decent living conditions, but also to limit resignations and the associated costs.

To our knowledge, no study has reported on the geographical coverage and socio-demographic characteristics of CHWs in Togo. How are they deployed in the

regions and districts? Who are the CHWs in Togo? In particular, what are the dominant profiles of CHWs in Togo? Do they represent a group with homogeneous characteristics, or are they made up of various heterogeneous sub-groups? The aim of this study was therefore to describe CHWs, and more specifically their coverage in the country and their socio-demographic profile.

Methods

Setting

Togo is a West African country with a total area of 56,785 km² [8] and a population of 8.1 million in 2022, of which 51.3% are women and 48.7% are men [9]. It is bordered to the north by Burkina Faso, to the south by the Atlantic Ocean, to the east by Benin and to the west by Ghana. It is 600 km long and between 50 and 150 km wide. The highest peak is Mount Agou, at 986 m. Togo has a tropical climate.

Togo has six health regions (from south to north: Grand Lomé, Maritime, Plateaux, Centrale, Kara, Savanes) and 39 health districts (Fig. 1). The Grand Lomé region, in which the capital Lomé is located, was created in 2019 as part of the country's decentralization policy. This new region comprises two districts, Golfe and Agoe Nyive.

In Togo, healthcare provision is divided into three levels [10]. The primary level corresponds to first contact care and includes CHWs, peripheral care units and districts hospitals. CHWs provide care in the community and act as intermediaries between families and health

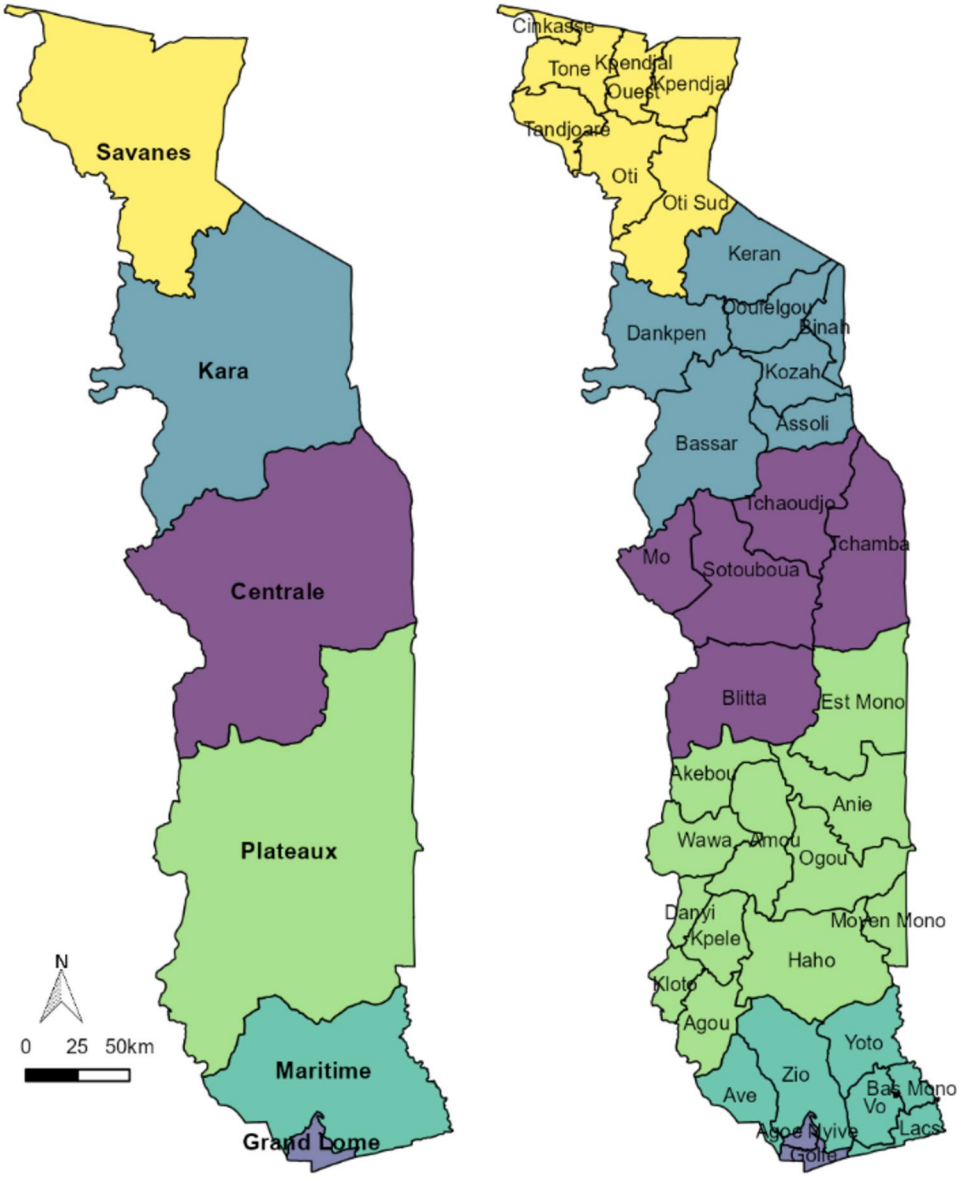

Fig. 1 Maps of Togo's health regions and districts in 2022

services. The peripheral care units form the basis of the care system and carry out activities on fixed and outreach sites. District hospitals are the first referral hospitals. The secondary level is made up of regional hospitals and the tertiary level is made up of university hospitals and specialised hospitals. The coverage of health facilities in the six health regions varies greatly. In 2021, Togo had 1,320 health facilities, distributed as follows: 419 in the Grand Lomé region, 286 in the Plateaux region, 195 in the Maritime region, 169 in the Kara region, 134 in the Centrale region and 117 in the Savanes region [11].

Data source

The database of government CHWs in Togo is managed by the Community Health and Elderly Division of the Ministry of Health and is updated periodically. In this study, we used a version of the database updated in December 2021. Information on the recruitment and departure of CHWs is collected at district level, then sent to regional and central levels. The database contains information collected at the time of initial recruitment, such as the region, district and health facility to which the CHW belongs, as well as age, sex, marital status, education level, basic vocational training (unrelated to the CHW activity), main occupation - which usually corresponds to his/her main IGA - and, if applicable, his/her secondary IGA - which corresponds to an additional source of income to the main occupation. Before proceeding with the analysis, the first step was to identify duplicate data in the database and delete them.

Statistical analysis

The geographical coverage of CHWs in Togo was described using the number of CHWs, the area of regions and districts expressed in km², and the number of CHWs per 10,000 inhabitants. The area of each district was calculated using the st_area function in the sf package in R [12]. This function calculates the area of a geometry, in the coordinate reference system used. The area of each region corresponds to the sum of the areas of the districts that make it up. The population data are taken from the 5th general population and housing census conducted in 2022 [9]. Regions and districts were compared to assess differences in the number of CHWs per 10,000 inhabitants using tests for counts, assuming a Poisson distribution, adjusting for region and district populations. *P*-values <0.05 were considered as statistically significant. In order to visually observe the coverage of CHWs over the territory, the number of CHWs and the number of CHWs per 10,000 inhabitants as continuous variables were represented on maps.

The socio-demographic characteristics of CHWs were described using numbers and percentages for categorical variables, and median, minimum and maximum values for continuous variables. The results were presented overall and by region. The following characteristics were described: sex (female/male), age in years, marital status (single/married/widowed), education level (primary/secondary 1/secondary 2/university), basic vocational training (yes/no), main occupation (farming activity/housewife/retailer/other main occupation), secondary IGA (farming activity/other secondary IGA/no secondary IGA). The "other main occupation" category includes occupations such as construction workers, teachers, dressmakers, etc.

We classified CHWs according to dominant socio-demographic profiles in order to facilitate a more detailed analysis of the composition of this workforce. This approach makes it possible to identify specific subgroups within the CHW population, based on key variables including "sex", "main occupation" and "secondary IGA". We obtained 17 different profiles, which were described using numbers and percentages, overall and by region. In the table of dominant socio-demographic profiles of CHWs in Togo, the first column corresponds to the name of the profile, characterised by three terms separated by a hyphen. The three terms relate to the three variables used to obtain the 17 profiles. The first term, corresponding to the "sex" variable, is presented by a letter: "M" for male and "F" for female. The second term, corresponding to the "main occupation" variable, can take four values: "Far" for farming activity, "Hou" for housewife, "Ret" for retailer and "Oth" for other main occupation. The third term, corresponding to the "secondary IGA" variable, can take three values: "Far" for farming activity, "Oth" for other secondary IGA and "No" for no secondary IGA.

All statistical analyses were performed using R software version 4.1.2 [13].

Results

Of the 7500 CHWs recorded in the database, we found four duplicate records and removed them from the analyses. In December 2021, Togo had 7496 government CHWs in its territory.

Geographical coverage of CHWs

From north to south, 13.8% of CHWs are located in the Savanes region, 20.4% in the Kara region, 13.6% in the Centrale region, 31.4% in the Plateaux region, 17.7% in the Maritime region and 3.1% in the Grand Lomé region (Table 1). Comparisons showed a statistically significant difference in the number of CHWs per 10,000 inhabitants between regions (p-value <0.001) and between districts within regions (p-value <0.001). Figures 2 and 3 illustrate the disparity in the distribution of CHWs between districts.

Table 1 CHW coverage indicators by region and district, Togo

Region	District	No. of CHWs	Area (km^2)	Population 2022	No. of CHWs per 10,000 inhab.
Savanes		1036	8594.9	1,143,520	9.1
	Cinkasse	89	276.7	128,959	6.9
	Tone	270	1224.7	388,775	6.9
	Kpendjal Ouest	132	788.7	123,330	10.7
	Kpendjal	81	1398.8	88,365	9.2
	Tandjoare	190	955.2	138,867	13.7
	Oti	132	1548.1	124,848	10.6
	Oti Sud	142	2402.7	150,376	9.4
Kara		1527	11,818.9	985,512	15.5
	Keran	295	2026.2	128,687	22.9
	Doufelgou	201	1162.3	84,767	23.7
	Binah	121	583.1	84,199	14.4
	Dankpen	200	2551.4	185,662	10.8
	Kozah	380	1090.2	283,738	13.4
	Assoli	109	937.0	66,394	16.4
	Bassar	221	3468.7	152,065	14.5
Centrale		1021	13,176.5	795,529	12.8
	Tchaoudjo	216	2405.6	240,360	9.0
	Tchamba	237	3210.7	200,585	11.8
	Mo	95	1259.7	52,448	18.1
	Sotouboua	221	3159.3	138,864	15.9
	Blitta	252	3141.2	163,272	15.4
Plateaux		2357	17,480.6	1,635,946	14.4
	Est Mono	263	2663.8	164,460	16.0
	Akebou	150	1150.8	73,830	20.3
	Anie	180	1994.4	180,158	10.0
	Amou	177	1815.5	114,172	15.5
	Wawa	160	1249.1	101,300	15.8
	Ogou	209	1952.3	253,467	8.2
	Danyi	139	397.8	40,240	34.5
	Moyen Mono	128	628.9	90,505	14.1
	Kpele	134	934.3	80,939	16.6
	Haho	501	3063.8	305,096	16.4
	Kloto	156	530.0	145,986	10.7
	Agou	160	1099.9	85,793	18.6
Maritime		1326	6001.1	1,346,615	9.8
	Yoto	229	1266.5	174,851	13.1
	Zio	330	2172.9	500,032	6.6
	Bas Mono	98	330.9	94,860	10.3
	Ave	179	1053.9	111,214	16.1
	Vo	343	758.7	224,411	15.3
	Lacs	147	418.2	241,247	6.1
Grand Lomé		229	409.6	2,188,376	1.0
	Agoe Nyive	124	167.8	882,695	1.4
	Golfe	105	241.8	1,305,681	0.8

The Plateaux region is the largest and most populous of Togo's health regions, and has the highest number of CHWs (2357). Although the Maritime region covers only 51% of the area of the Kara region, it has 1326 CHWs compared with 1527 in the Kara region. However, the population of the Kara region represents only 73% of the population of the Maritime region. The number of CHWs is 1036 in the Savanes region and 1021 in the Centrale region, but the Savanes region is smaller and more densely populated than the Centrale region. The area of the Savanes region is only 65% that of the Centrale region, while the population is 44% higher. The Grand Lomé region has 229 CHWs and the largest population. It is by far the smallest region in Togo, but it is also the most urbanised, as it is home to the capital.

At regional level, the number of CHWs varies from 1.0 per 10,000 inhabitants in the Grand Lomé region to 15.5 per 10,000 inhabitants in the Kara region. At district level, the disparity is even greater, ranging from 0.8 CHWs per 10,000 inhabitants in the Golfe district (Grand Lomé) to 34.5 CHWs per 10,000 inhabitants in the Danyi district (Plateaux). In the Savanes region, the ratios can double depending on the district, with 6.9 CHWs per 10,000 inhabitants in the Cinkasse and Tone districts, and 13.7 CHWs per 10,000 inhabitants in the Tandjoare district. In the Maritime region, the differences in ratios between districts are even more marked, with a coefficient of more than 2.5 between the lowest and highest ratios. The Lacs district has 6.1 CHWs per 10,000 inhabitants, while the Ave district has 16.1 CHWs per 10,000 inhabitants. In the Centrale region, the ratio varies from 9.0 CHWs per 10,000 inhabitants in the Tchaoudjo district to 18.1 CHWs per 10,000 inhabitants in the Mo district. Among the 12 districts of the Plateaux region, this ratio varies from one to more than four times. The Ogou district has 8.2 CHWs per 10,000 inhabitants, while the Danyi district has 34.1 CHWs per 10,000 inhabitants. Finally, in the Kara region, as in all the other regions, the ratio varies considerably from one district to another, ranging from a minimum of 10.8 CHWs per 10,000 inhabitants in the Dankpen district to a maximum of 23.7 CHWs per 10,000 inhabitants in the Doufelgou district.

Socio-demographic characteristics of CHWs

In Togo, 81% of CHWs are men (Table 2). The Savanes region has the highest proportion of male CHWs (89%), while the Grand Lomé region has the lowest proportion of male CHWs (47%). The median age of CHWs in Togo is 41, ranging from 20 to 79. At regional level, the median age varies from 38 to 43.

At national level, 97% of CHWs are married. Marital status is different in the Grand Lomé region, where only 64% of CHWs are married and 33% of CHWs are single. Overall, 75% of CHWs have a level of education

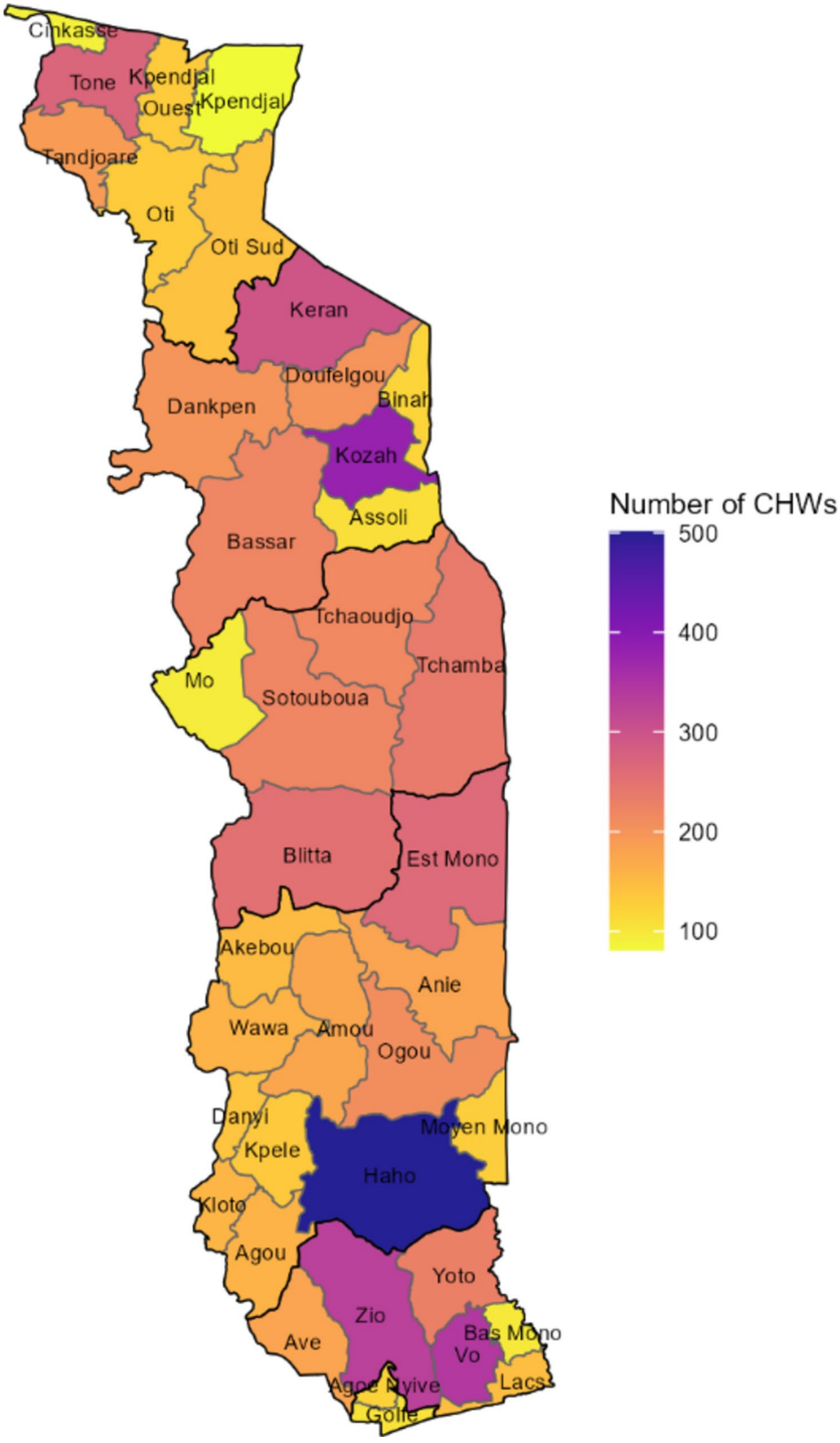

Fig. 2 Distribution of the number of CHWs by district, Togo

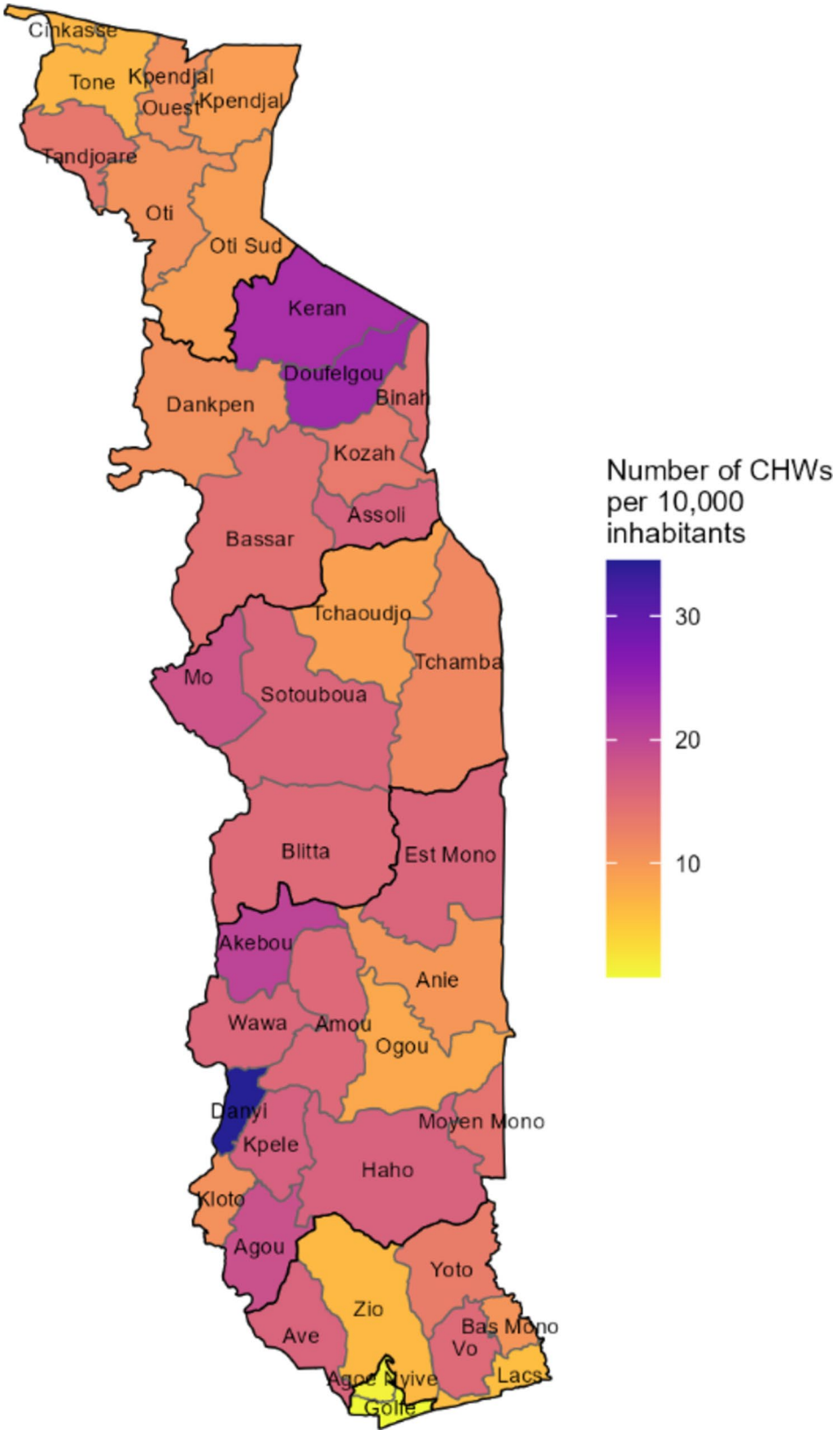

Fig. 3 Distribution of the number of CHWs per 10,000 inhabitants by district, Togo

Table 2 Description of the socio-demographic characteristics of CHWs, overall and by region, Togo

Characteristic	Overall, *N* = 7496	Grand Lomé, *N* = 229	Maritime, *N* = 1326	Plateaux, *N* = 2357	Centrale, *N* = 1021	Kara, *N* = 1527	Savanes, *N* = 1036
Sex, n (%)							
Female	1454 (19%)	121 (53%)	405 (31%)	365 (15%)	255 (25%)	190 (12%)	118 (11%)
Male	6042 (81%)	108 (47%)	921 (69%)	1992 (85%)	766 (75%)	1337 (88%)	918 (89%)
Age (years), median (min., max.)	41 (20, 79)	38 (22, 68)	43 (20, 69)	42 (20, 79)	39 (20, 65)	40 (20, 66)	40 (20, 78)
Marital status, n (%)							
Single	193 (3%)	75 (33%)	31 (2%)	24 (1%)	18 (2%)	35 (2%)	10 (< 1%)
Married	7244 (97%)	146 (64%)	1283 (97%)	2326 (99%)	986 (97%)	1478 (97%)	1025 (99%)
Widowed	59 (< 1%)	8 (3%)	12 (< 1%)	7 (< 1%)	17 (2%)	14 (< 1%)	1 (< 1%)
Education level, n (%)							
Primary	1145 (15%)	15 (7%)	263 (20%)	332 (14%)	114 (11%)	286 (19%)	135 (13%)
Secondary 1	5590 (75%)	146 (64%)	942 (71%)	1824 (77%)	794 (78%)	1085 (71%)	799 (77%)
Secondary 2	697 (9%)	33 (14%)	109 (8%)	197 (8%)	111 (11%)	149 (10%)	98 (9%)
University	64 (< 1%)	35 (15%)	12 (< 1%)	4 (< 1%)	2 (< 1%)	7 (< 1%)	4 (< 1%)
Basic vocational training, n (%)							
Yes	1037 (14%)	114 (50%)	239 (18%)	279 (12%)	161 (16%)	186 (12%)	58 (6%)
No	6459 (86%)	115 (50%)	1087 (82%)	2078 (88%)	860 (84%)	1341 (88%)	978 (94%)
Main occupation, n (%)							
Farming activity	5221 (70%)	9 (4%)	788 (59%)	1772 (75%)	655 (64%)	1164 (76%)	833 (80%)
Housewife	812 (11%)	1 (< 1%)	206 (16%)	291 (12%)	153 (15%)	86 (6%)	75 (7%)
Retailer	572 (8%)	113 (49%)	147 (11%)	79 (3%)	81 (8%)	98 (6%)	54 (5%)
Other main occupation	891 (12%)	106 (46%)	185 (14%)	215 (9%)	132 (13%)	179 (12%)	74 (7%)
Secondary IGA, n (%)							
Farming activity	1364 (18%)	22 (10%)	305 (23%)	443 (19%)	260 (25%)	240 (16%)	94 (9%)
Other secondary IGA	528 (7%)	45 (20%)	215 (16%)	69 (3%)	55 (5%)	31 (2%)	113 (11%)
No secondary IGA	5604 (75%)	162 (71%)	806 (61%)	1845 (78%)	706 (69%)	1256 (82%)	829 (80%)

Percentages may not add up to 100% due to rounding.

Table 3 Distribution of the 17 dominant socio-demographic profiles of CHWs, overall and by region, Togo

Profile name	Overall, *N* = 7496	Grand Lomé, *N* = 229	Maritime, *N* = 1326	Plateaux, *N* = 2357	Centrale, *N* = 1021	Kara, *N* = 1,527	Savanes, *N* = 1036
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
M-Far-No	4827 (64.4%)	4 (1.7%)	604 (45.6%)	1717 (72.8%)	632 (61.9%)	1141 (74.7%)	729 (70.4%)
F-Hou-Far	554 (7.4%)	1 (0.4%)	167 (12.6%)	220 (9.3%)	118 (11.6%)	47 (3.1%)	1 (< 0.1%)
M-Oth-Far	455 (6.1%)	4 (1.7%)	67 (5.1%)	139 (5.9%)	57 (5.6%)	138 (9.0%)	50 (4.8%)
M-Far-Oth	394 (5.3%)	5 (2.2%)	184 (13.9%)	55 (2.3%)	23 (2.3%)	23 (1.5%)	104 (10.0%)
F-Hou-No	248 (3.3%)	0 (0.0%)	34 (2.6%)	68 (2.9%)	34 (3.3%)	39 (2.6%)	73 (7.0%)
F-Ret-Far	234 (3.1%)	10 (4.4%)	48 (3.6%)	29 (1.2%)	70 (6.9%)	41 (2.7%)	36 (3.5%)
F-Ret-No	209 (2.8%)	62 (27.1%)	85 (6.4%)	10 (0.4%)	1 (< 0.1%)	47 (3.1%)	4 (0.4%)
M-Oth-No	184 (2.5%)	36 (15.7%)	43 (3.2%)	33 (1.4%)	32 (3.1%)	24 (1.6%)	16 (1.5%)
F-Oth-No	84 (1.1%)	30 (13.1%)	31 (2.3%)	13 (0.6%)	7 (0.7%)	2 (0.1%)	1 (< 0.1%)
M-Ret-Far	65 (0.9%)	6 (2.6%)	3 (0.2%)	35 (1.5%)	8 (0.8%)	6 (0.4%)	7 (0.7%)
M-Oth-Oth	57 (0.8%)	19 (8.3%)	11 (0.8%)	8 (0.3%)	13 (1.3%)	1 (< 0.1%)	5 (0.5%)
F-Oth-Far	56 (0.7%)	1 (0.4%)	20 (1.5%)	20 (0.8%)	7 (0.7%)	8 (0.5%)	0 (0.0%)
F-Oth-Oth	55 (0.7%)	16 (7.0%)	13 (1.0%)	2 (< 0.1%)	16 (1.6%)	6 (0.4%)	2 (0.2%)
M-Ret-No	52 (0.7%)	30 (13.1%)	9 (0.7%)	4 (0.2%)	0 (0.0%)	3 (0.2%)	6 (0.6%)
F-Hou-Oth	10 (0.1%)	0 (0.0%)	5 (0.4%)	3 (0.1%)	1 (< 0.1%)	0 (0.0%)	1 (< 0.1%)
M-Ret-Oth	8 (0.1%)	4 (1.7%)	0 (0.0%)	1 (< 0.1%)	1 (< 0.1%)	1 (< 0.1%)	1 (< 0.1%)
F-Ret-Oth	4 (< 0.1%)	1 (0.4%)	2 (0.2%)	0 (0.0%)	1 (< 0.1%)	0 (0.0%)	0 (0.0%)

M Male, *F* Female, *Far* Farming activity, *Hou* Housewife, *Ret* Retailer, *Oth* Other main occupation for the second term and other secondary IGA for the third term, No = no secondary IGA. Percentages may not add up to 100% due to rounding

equivalent to secondary 1. The Grand Lomé region has the highest proportion of CHWs with higher education (15%), compared with less than 1% in the other regions. In addition, 86% of CHWs have no basic vocational training, with regional disparities (50% in the Grand Lomé region compared with 94% in the Savanes region).

For 70% of CHWs in Togo, their main occupation is a farming activity. In addition, 11% of CHWs are housewives, 8% of CHWs are retailers and 12% of CHWs have another main occupation. The situation of CHWs in the Grand Lomé region is different with regard to their main occupation, as only 4% have a farming activity, while 49% are retailers and 46% have another main occupation. At national level, 25% of CHWs have a secondary IGA, mainly farming activity. The Maritime region has the highest proportion of CHWs with a secondary IGA (39%), followed by the Centrale region (30%).

Of the 7,496 CHWs in Togo, 64.4% are men who work exclusively as farmers (Table 3). This percentage conceals major disparities between regions, as this profile is poorly represented in the Grand Lomé region (1.7%), while it represents between 70.4 and 74.7% of CHWs in the Plateaux, Kara and Savanes regions. In the Savanes, Kara and Plateaux regions, 890 (85.9%), 1,308 (85.7%) and 1,946 (82.6%) male CHWs have a farming activity as their main occupation or secondary IGA, respectively.

The second dominant profile among CHWs in Togo is made up of 7.4% of women who are housewives with an agricultural activity, in addition to their work as CHWs. This profile is particularly well represented in the Maritime (12.6%), Plateaux (9.3%) and Centrale (11.6%) regions, but much less so in the Kara region (3.1%). This profile is virtually absent in the Grand Lomé and Savanes regions (< 0.5%).

Male CHWs who combine a farming activity with another IGA are the third and fourth dominant profiles. These two profiles together account for 11.3% of CHWs. Here again, the representation of these two profiles varies greatly from one region to another. In the Grand Lomé region, only 3.9% of CHWs have one or the other of these profiles, whereas they represent 18.9% of CHWs in the Maritime region and 14.9% of CHWs in the Savanes region.

Housewives without a secondary IGA are the fifth most common CHW profile, representing 3.3% of all CHWs in Togo. This profile is the most common in the Savanes region (7.0%). It is also the most common profile for female CHWs in this region.

The sixth and seventh dominant profiles are female retailers, with a farming activity as a secondary IGA (3.1%) or without a secondary IGA (2.8%). In the Grand Lomé region, 27.1% of CHWs are female retailers without a secondary IGA. This is the most common CHW profile in this region.

Male CHWs with another main occupation and no secondary IGA are the eighth dominant CHW profile. They represent 2.5% of CHWs in Togo but 15.7% of CHWs in the Grand Lomé region.

Discussion

This study aimed to describe the geographical coverage of CHWs in Togo and their socio-demographic profile.

In Togo, regional coverage of CHWs (≤ 15.5 CHWs per 10,000 inhabitants) is below the recommended threshold in Africa. Ahmat et al. have shown that a regional threshold density of 134.2 health workers, including 25.2 CHWs, per 10,000 population are required to attain at least 70% of the UHC service coverage index in the World Health Organization (WHO) African region [14]. In addition, the results reveal major variations in CHW coverage between regions and also between districts. These large disparities can be partly explained by the fact that in urban regions and districts, the number of health facilities is higher than in rural areas and people are rarely more than 5 km from a health facility. It would have been more relevant to analyse the density of CHWs by restricting the denominator to the population living in areas where it is intended that CHWs be deployed or, more roughly, to the rural population by region or district. However, these data are not publicly available. As a result, there are few CHWs in urban areas, as can be seen in the Grand Lomé region. Conversely, the density of CHWs is higher in rural areas where the population is more than 5 km from a primary healthcare centre or has difficult accessing one. In rural areas, these adjustments to the size of the CHW workforce according to the nature of the area, the terrain or the travel time are made informally, based on the local knowledge of the people responsible for implementing the CHW programme. Geospatial analysis, as carried out in Sierra Leone [15] and Mali [16], could provide useful information for political decision-makers to optimise the scale and deployment of CHWs.

With regard to the socio-demographic characteristics of CHWs in Togo, the results indicate that the CHW population is predominantly male (81%) with a median age of 41. This finding runs counter to the worldwide trend, where the majority of CHWs are women [1, 17]. This can be explained in part by the fact that women are confronted with gender norms that act as barriers to their engagement in rural areas in West Africa [18]. Farming is the main occupation for 70% of CHWs and 25% of CHWs have a secondary IGA in addition to their primary reported occupation. This finding is consistent with the political and recruitment drive to secure the livelihoods of CHWs through another IGA. However, 3.3% of CHWs are housewives with no secondary IGA; in other words, they are not engaged in any IGA. Although the Ministry of Health and the Community Health and Elderly Division have launched a technical and financial feasibility study on the professionalisation of CHWs in 2022 (Ministère de la Santé, de l'Hygiène Publique et de l'Accès Universel aux Soins: Etude de faisabilité technique et financière des options de professionnalisation des ASC au Togo, unpublished), which includes the question of their remuneration, we do not have any information on whether the combination of these sources of income is sufficient to ensure a satisfactory standard of living for CHWs and their families. This question is particularly important, as highlighted in the 2018 WHO guideline on CHW programmes which recommend financial compensation for CHWs [2]. Indeed, the role of CHWs can represent an opportunity cost for volunteers, especially when there is little or no compensation for the time spent [19]. The time that they devote to their CHW activities sometimes prevents them from carrying out their other activities and, therefore, from taking full advantage of the material or financial income that these activities should enable them to generate. However, when CHWs receive incentives or remuneration for specific activities, such as the distribution of insecticide-treated nets, this can help offset potential opportunity costs. The time spent on healthcare activities by CHWs in Togo also needs to be studied in greater depth.

Our results show that the most common profile of CHWs in Togo is that of men working in agriculture. Moreover, as with the characteristics of the geographical coverage of CHWs, the Grand Lomé region is an exception, since the dominant profile of CHWs is that of a female retailer. Conversely, male CHWs with a farming activity as their main occupation or secondary IGA represent between 82.6% and 85.9% of CHWs in the Savanes, Kara and Plateaux regions. Knowledge of the dominant socio-demographic profiles can guide policy development and programme management. First, these profiles highlight the heterogeneity of CHWs, revealing distinct sub-groups according to sex, main occupation and secondary IGA. This information allows policymakers to tailor interventions aimed at enhancing the recruitment, retention and motivation of CHWs by addressing the specific needs of these sub-groups. For instance, male CHWs working primarily in farming may face seasonal challenges that may interfere with their health-related duties, while female CHWs working in retail may have other time commitments or be subject to socio-economic pressures. Recognising these challenges can help decision-makers implement region-specific support systems. Second, it is essential to understand the gender dynamics of the CHW workforce. The reasons for this male predominance in rural areas among CHWs need to be explored further. Currently, the Ministry of Health and the Community Health and Elderly Division have not set specific targets for achieving gender parity within the CHW workforce. However, both entities recognise the importance of gender equity (Ministère de la Santé, de l'Hygiène Publique et de l'Accès Universel aux Soins: Etude de faisabilité technique et financière des options de professionnalisation des ASC au Togo, unpublished) and are in line with the WHO recommendations to promote greater participation of women in CHW roles [2]. Future national strategic plans could include formal gender

parity targets as part of broader efforts to ensure gender-balanced representation and enhance the effectiveness of CHW interventions. Finally, the identification of CHWs who have no IGA raises important questions from a programmatic perspective. This finding may encourage further exploration of the economic support structures available to CHWs, possibly guiding the development of policies that offer financial incentives or professionalization pathways. Analysis of CHW profiles provides a basis for more nuanced workforce management strategies, helping policymakers to optimise the coverage and support of CHWs according to their socio-demographic realities.

This study has several limitations. First, the analysis was based on cross-sectional data from December 2021, which provides an overview of CHW coverage and socio-demographic profiles at a given time but does not take into account temporal variations, such as seasonal fluctuations in CHW availability or workforce turnover. Second, our analysis of geographical coverage used the total population per region or district, even though CHWs are primarily intended to serve populations living more than 5 km from health centres, limiting our ability to precisely assess the adequacy of the number of CHWs in relation to the specific needs of these targeted communities. Finally, while we described variations in CHW coverage between regions and districts, our study did not assess factors such as environmental factors, geographical barriers, population health needs or workload distribution, which could provide additional context for the observed disparities.

Although regular updates of the government CHW database are carried out to ensure the completeness and quality of the data, real-time data collection remains difficult, particularly in remote and hard-to-reach areas. Nevertheless, the data used here are the most recent and comprehensive information available on the CHW workforce in Togo.

Conclusions

Our study reveals pronounced disparities in CHW coverage in Togo. Moreover, while the CHW workforce is predominantly male and mainly engaged in farming, urban areas such as the Grand Lomé region present a contrasting profile, dominated by female retailers. These findings underscore the need for targeted policies that optimise the allocation of CHWs, address gender imbalances and improve working conditions and remuneration. Incorporating these considerations into future national strategic plans could enhance access to primary healthcare and the overall effectiveness of services.

Abbreviations

CBIs Community-based interventions
CHW Community health worker
IGA Income-generating activity
UHC Universal health coverage
WHO World Health Organization

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Authors' contributions

KTS, NV and ML designed the study. AT and NV analysed the data. KTS, AT, NV and ML interpreted the results. AT and ML wrote the manuscript. All authors read and approved the final version of the manuscript.

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Data availability

The data analysed here are the property of the Togolese Ministry of Health and cannot be made available by the authors. To access the data, interested parties can get information from the Ministry of Health of Togo.

Declarations

Ethics approval and consent to participate

The study was approved and authorised by the Community Health and Elderly Division of the Togolese Ministry of Health (Memorandum N°012/MSHP/SG/DGAS/DLMPSP/DSCPA).

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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