DOI: 10.1590/1413-81232023282.12222022EN

Community Health Workers: what do international studies tell us?

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Abstract *This is a narrative review whose objective is to understand the state of the art of the literature on Community Health Worker (CHW) programs worldwide, identifying their nomenclatures, practices, training, and working conditions. The major concentration of CHW programs can still be found in low- and middle-income countries in Africa (18), Asia (12), and Latin America (05), with a few experiences in high-income countries in North America (02) and Oceania (01). In total, 38 experiences were cataloged, and the practices of care, surveillance, education, health communication, administrative practices, intersectoral articulation, and social mobilization were described. The levels and duration of CHW training were characterized, as were the different working conditions in each country. Much of the work is precarious, often voluntary and carried out by women. This review provided a comparative overview that can contribute to enrich the view of managers and decision-makers in contexts of the implementation, expansion, and reconfiguration of such programs.*

Key words *Community health workers, Primary Health Care, Health policy, Public health, Workforce*

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Introduction

Through the experience of China' barefoot doctors, created in 1920, which linked community residents to the activities of health education, surveillance, and care, we now see the creation of other experiences of Community Health Workers (CHW) in Honduras, India, Indonesia, Tanzania, and Venezuela in the 1960s. However, it was only with the Christian Medical Commission, from the World Council of Churches, in the same year, that the principle of justice, equity, community participation, intersectoriality, decentralization, and teamwork were incorporated into the CHW programs[1].

Such experiences serve as the intellectual basis for the international conference on Primary Health Care (PHC) in Alma-Ata (today Kazakhstan) in 1978, suggesting, in a final declaration, that the PHC should be developed by doctors, nurses, midwives, nurse's aids, and community workers, as well as by traditional professionals[2].

Currently, many studies discuss the insufficiency of the Western medical model, the global crisis in the work force in the field of health, the persistent global deficit of millions of health professionals, which continues to affect nearly all countries. Adding to this equation are the regional, national, and subnational inequalities in the distribution and access to this work force, particularly in rural regions, peripheral urban regions, or regions of difficult access[3].

A document drafted by the World Health Organization (WHO), entitled "Global Strategy on Human Resources for Health: Workforce 2030" estimates a demand by 2030 of 80 million workers, with 2.4 million in Africa, 15.3 million in the Americas, 6.2 million in the Eastern Mediterranean, 18.2 million in Europe, 12.2 million in Southeast Asia, and 25.9 million in the Western Pacific[4].

Based on this document, the world health assembly of 2016 encouraged countries to adopt a combination of diversified and sustainable skills, taking advantage of the mid-level and community health potential in the formulation of multidisciplinary PHC teams[4].

In this sense, from the perspective of Universal Health Coverage and from the context of the COVID-19 pandemic, what can be seen is a resumption of the health agenda regarding CHW programs, which include the introduction, expansion, or change in the scope of the practices of these healthcare system workers from low-income or even high-income countries. The aims of these programs seek to attend to the population's health needs, qualify the access to health services, treat the inequalities in health, and improve the performance and efficiency of the healthcare system[5-10].

In Brazil, the CHWs represent a workforce of approximately 250,864 professionals, most of whom are women[11], which is imperative for the realignment of the care model, which should recognize the social and historical determinants of health. Nonetheless, together with the Family Health Strategy (FHS), they have directly impacted health indicators, especially regarding hospitalization due to conditions sensitive to PHC[12].

The literature that shows that the work of the CHWs in Brazil is widespread; however, the scientific production that describes analogous experiences in the international scenario is scarce[13]. Considering the importance of the CHWs in ensuring access to health care, it thus becomes necessary to constantly update the information on the theme to better aid managers, researchers, and professionals as regards the policies for this workforce in health.

Therefore, this article aims to conduct a literature review and identify CHW experiences worldwide, their nomenclatures, practices, formation, and working conditions.

Methodology

This work is a qualitative study of a narrative review, appropriate to debate the state of the art of the literature on this specific issue, in a broad analysis, without defining a strict and reproducible methodology, but which is essential to updating knowledge[14].

This study stemmed from the findings of Méllo *et al.*[15], who conducted a systematic review of international experiences of the work of CHWs around the world during the COVID-19 pandemic, listing the nomenclatures used for this category in different countries. The process of search and analysis followed that set forth by Costa *et al.*[16] and was conducted in a non-systematic manner from January to October 2021. The databases and scientific libraries consulted for this study were: SciELO, Medline, Lilacs, PubMed, together with the repository of dissertations and theses from CAPES. The databank was complemented with materials indicated by specialists on the theme.

All collected data was read in full, categorized, and analyzed critically[17].

Results

Although the term "Community Health Workers" has a poor international specificity, Chart 1 lists the main terms found in the literature, by continent, country, and scope of practices. As can be observed, the major concentration of CHW programs still occurs in low- and middle-income countries from Africa (18) Asia (12), and Latin America (05), with a few examples in high-income countries in North America (02) and Oceania (01), totaling 38 CHW experiences reported for this review[13,18-27].

Multidiversity of CHW knowledge and tasks: a global view

In an attempt to advance in the characterization of knowledge and tasks of CHWs, our study stems from the classification of the practices proposed by Méllo *et al.*[28], subdividing them into: care practices, health surveillance, health education and communication, administration, articulation, and social mobilization (Chart 1)

Observing Chart 1, it can be said that the CHW care practices vary according to each country. For didactic purposes, we can further divide this category into subcategories of health promotion, disease prevention, diagnosis, and clinical treatment.

In the subcategory of health promotion, according to the literature review, these actors execute oral, sexual and reproductive, mental, maternal-child, and nutritional health, as well as provide physical activity, the management of chronic diseases or infectious-contagious diseases and parasites, home visits, follow-up for health services, and food actions.

For the subcategory of clinical treatment, it is curious to note that this varies from the prescription and distribution of medications, such as antibiotics, contraceptives, vitamins, minerals, and even the intervention itself, which would require an even greater clinical and biomedical rationality. The focus of the treatment and diagnoses involved: malnutrition, HIV, TB, malaria, diarrhea, cholera, respiratory infections, scabies, minor cuts and wounds, pre-natal care, deliveries, anemia, convulsions, hypertension, diabetes, strokes, epilepsy, dengue, lymphatic filariasis, and leprosy.

In the Brazilian scenario, the functions established for the CHWs of "measuring blood pressure, measuring blood glucose, measurement of axillary temperature, and clean curative techniques" are still being discussed, be it for their incorporation into CHW education, be it in their professional practices, even though they are already a reality in remote areas.

Finally, the preventive activities can include: aid in and execution of vaccination campaigns, quick tests for infectious and contagious diseases and pregnancy, and the distribution of nets treated with insecticides.

Health surveillance, such as the care practices, also seems to adapt to the local reality. The CHWs carry out actions for the identification, notification, and monitoring of diseases, illnesses, and health conditions, such as TB, HIV, AIDS, malnutrition, diarrhea, pneumonia, breast cancer, hepatitis, noncommunicable diseases, neglected tropical diseases, and mental diseases, as well as the tracking of pregnant women and newborns for maternal-child care.

The data collection in the scope of the community with the mapping of the population and of the ascribed homes is common practice in most countries. Another aspect that arises from the surveillance practices is the concern with environmental questions and its relationship with health, such as the garbage collection, filling of holes to avoid "stagnant water", sanitary inspection, environmental sanitation, and the control of border posts.

The practices of education and communication are characterized by advice provided concerning gestational, sexual, and reproductive health, maternal-child care, nutrition, sanitation, environment, adherence to treatments, immunizations, hygiene, prevention of breast cancer and cervical cancer, and healthy lifestyles, in addition to promoting first aid and other training courses.

On the other hand, the administrative practices were the least evident, according to the studies included in this work, related to bureaucratic activities, such as organization, administration, or service aids, the updating of user data through census, and support provided to other professionals of the community health team.

The social mobilization conducted by the CHWs revolves around the perspective of citizen empowerment by means of community development activities along with their participation in public policies, maintaining a link between the services and the specific population groups, such as community leaders and the elderly. By contrast, intersectoriality involves actions to facilitate access to specific housing, legal, and political services of the place of operation. Cultural competency is also triggered insofar as the infor-

mation between the users and the other health professionals is interconnected, including the linguistic translation in the context of the difference in languages.

Chart 1. CHE by continent, country, and scope of practices.

Continent	Country	Nomenclature	Practices	
Latin America	Brazil	Community Health Workers (CHW) Endemic Combat Agents (ECA)	Care	CHW and ECA: Home visits, development of health promotion activities and activities to prevent diseases and illnesses, especially those more prevalent in the country; advice to the community concerning symptoms, risks, and disease transmission agents, as well as measures for individual and collective prevention CHW: check blood pressure, measure blood glucose, measure axillary temperature, carry out clean curative care techniques
			Surveillance	CHW and ECA: demographic, social, sanitary, and environmental diagnosis of the community; epidemiological investigation of suspected cases of diseases and illnesses, together with other professionals of the team, when necessary; identify and record events that may interfere in the course of the diseases or illnesses
			Health education and communication	CHW and ECA: develop individual and collective educational actions, in the basic health unit, at home, or in other community spaces
			Administration	CHW: feed, maintain, update, and guarantee the quality of the data from the information system; participate in the embracement of the users; participate in the management of the inputs of the basic health units; inform the users about the dates and times of doctor's appointments and scheduled exams
			Articulation and social mobilization	CHW and ECA: inform and mobilize the community to develop feasible environmental handling measures and other forms of intervention in the environment to control vectors, encourage the participation of the community in the public policies geared toward the health area
	Cuba	Sanitation Brigades	Care	Vaccination, hygienization of unhealthy neighnoorhoods, health promotion
			Health education and communication	Organization of first aid courses.
	Ecuador	Primary Healthcare Technicians	Care	Health promotion and disease prevention, together with integrated health care teams
	Peru	Community Educator in Nutrition	Care	Refer cases that need more well-equipped care installations
			Health Surveillance	Management of cases of diarrhea and pneumonia; map out the population, identify and trace families with small children and pregnant women
			Articulation and social mobilization	Contribute to the strengthening of citizens' participation
	Venezuela	Primary Healthcare Community Worker Health Advocates	Care	Health promotion activities, disease prevention and opportune treatment of illnesses in indigenous and rural communities, and those with difficult access
			Administration	Contribute with administrative actions in the health services routine
			Intersectoriality and social mobilization	Community mobilization in defense of the Adentro Neighborhood Mission.

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Chart 1. CHE by continent, country, and scope of practices.

Continent	Country	Nomenclature	Practices	
North America	Canada	Community Health Representatives Lay Health Professionals/ Promotors/ Councilors Community Health Workers	Care	Oral health promotion for pre-school children; maternal-child and nutritional health promotion; HIV prevention; facilitation of access to health services for marginalized populations
			Health surveillance	Tracking of breast cancer, Tuberculosis (TB), Hepatitis B, and HIV
			Administration	Data collections from the communities for research projects
	USA	Community Health Workers	Care	Home visits, health promotion activities, and prevention of diseases and illnesses, such as TB and HIV
			Surveillance	Monitoring and control of diseases, such as asthma in children
			Health education and communication	Training of the population to participate as health counselors
			Articulation and social mobilization	Cultural and linguistic translation activities
Europe	United Kingdom	Health trainers	Care	Health promotion for behavioral changes, such as stopping smoking, support for breast-feeding, sexual health, and physical activity
			Administration	Support provided to individuals to develop their personal health plans
Asia	Afghanistan	Community Health Workers	Care	Treatment of patients with a diagnosis of TB, referral to health service, administration of injectable contraceptives, health promotion, and prevention actions.
			Health surveillance	Report of vital events (births, maternal deaths, and deaths among children under five years of age).
			Health education and communication	Conduct family health groups.
			Administration	Update adscription map.
	Bangladesh	Family Wellbeing Assistant (FWBA) Health Assistant (HA) Community Health Provider (CHP) *Shasthya Shebika* (SS) *Shasthya Kormi (SK)*	Care	FWBA: distributes contraceptives, health promotion actions, and make pregnancy, delivery, and birth follow-up visits HA: provides immunizations and other products, like vitamins and mineral salts CHP: provides pre-natal and post-natal care, treats pneumonia, diarrhea and anemia SK: provides pregnancy tests and pre-natal and post-natal care
			Health education and communication	SS: home visits, where workers educate families on nutrition, safe delivery, family planning, immunizations, hygiene, and sanitation. Provides education about breast cancer and cervical cancer
	Bhutan	Village Health Worker	Care	First aid, immunizations
			Health surveillance	Disease notification
			Health education and communication	Health education for family planning
			Intersectoriality and social mobilization	Community development activities.

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Chart 1. CHE by continent, country, and scope of practices.

Continent	Country	Nomenclature	Practices	
Asia	China	Community Health Workers (CHW) Barefoot doctors (1950-1980)*	Care	CHW: aid in the mapping of patients, including prescriptions of antibiotics and minor surgeries; directly observed treatment for HIV and TB; measure blood pressure; administer some vaccines. *Barefoot doctors: provide basic health care, first aid, infectious disease control, and child care
			Health surveillance	CHW: control of sexually transmitted diseases, monitoring of vaccine card, and monitoring of the use of medication
			Health education and communication	CHW: provides health education
	Phillipines	*Barangay* health workers (BHW)	Care	Aid midwives, measure blood pressure, aid patients in the self-management of their own chronic conditions
			Health Surveillance	Monitoring of prevalent health conditions
			Articulation and social mobilization	Conduct community health mobilization, being a liaison between the community and the local health center
			Administration	Conducts the admission and interviews of patients, records patient information and/or vital signs, before being seen by a doctor or nurse
	India	Nurse's Aid - Midwife (NAM) *Anganwadi Worker* (AW) Accredited Healthcare Social Activist (AHSA)	Care	NAM: focused on providing immunization and pre-natal care, as well as performs delivery and births. AW: provides supplementary diet for small children, teenage girls, and breast-feeding women. AHSA: provides medications such as oral contraceptives, packages of rehydration salts, condoms, and folic acid pills, provides home care for newborns
			Health surveillance	NAM: tracks noncommunicable diseases AHSA: identifies cases of malaria, support provided to TB treatment, tracks noncommunicable diseases
			Health education and communication	AW: provides education about health and nutrition for pregnant women, mothers, and teenage girls. AHSA: educators and activists
	Indonesia	*Kaders*	Care	Provide immunization and follow-up for babies; packages of oral rehydration and iron pills; home visits
			Surveillance	Update the community indicator reports
			Intersectoriality and social mobilization	Participate in community committee meetings
	Iran	*Behvarz* (rural) *Moraghebe-Salamat* (urban)	Care	*Behvarz:* provides oral, maternal-child, and reproductive health care.
			Health surveillance	*Behvarz:* identification and follow-up of important communicable diseases (TB and malaria) and noncommunicable diseases (diabetes, hypertension, and mental disorders).
			Administration	*Behvarz:* conducts a census at the beginning of the year and classifies the individuals according to the services that they provide.
			Intersectoriality and social mobilization	*Behvarz:* encourages community-based empowerment

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Professional education and working conditions: between the precariousness and legitimation of the category

The experiences found here refer to the CHWs as a typology of laypeople and workers with no formal education, formally and informally connected to the health systems, whether paid or unpaid, with the main characteristics found in the literature presented in Chart 2.

Based on the literature, the characteristics of entrance into CHW training/education are not

Chart 1. CHE by continent, country, and scope of practices.

Continent	Country	Nomenclature	Practices	
Asia	Myanmar	Midwife assistants (MA) Community Health Workers (CHW) Malaria Volunteers TB Volunteers	Care	MA: pre-natal care and home births, aids midwives in maternal-child health services Malaria volunteers: provides diagnosis and treatment of malaria, distributes mosquito netting and insecticides; performs screening for Dengue, lymphatic filariasis, TB, HIV/AIDS, and leprosy TB Volunteers: provides screening and aid in the collections and transport of sputum, follow up of individuals with presumed cases of TB, and in directly observed home therapy
			Health surveillance	MA and CHW: detect and report epidemic outbreaks
			Administration	MA and CHW: organize and aid in the activities of sanitation and immunization
	Nepal	Village Health Worker (VHW) Female Community Health Volunteer (FCHV) Maternal Child Health Professional (MCHP)	Care	FCHV: distribution of products related to the health and care of sick children, such as medications, rehydration salts, and antiseptic gel. Aid in immunization strategies, evaluate and treat children with respiratory infections
			Health education and communication	FCHV: Advises women and family members about the preparations for delivery, care for newborns, family planning services
	Pakistan	Female Health Worker	Care	Treats common diseases, such as TB, malaria, diarrhea, wounds, scabies; participates in immunization campaigns; makes home visits; provides condoms and oral contraceptives
			Health surveillance	Monitors common diseases, such as TB, malaria, diarrhea, wounds, scabies
			Health education and communication	Raises awareness about maternal-child conditions
			Intersectoriality and social mobilization	Maintains direct connection with community leaders, the elderly, and health professionals
	Thailand	Village Health Volunteer	Care	Provides basic health services to the local communities
			Health surveillance	Recognize specific health problems by lifecycle and surveillance in search of infectious and non-infectious diseases
			Administration	Participate in planning and management of community health problems
Africa	South Africa	Community Health Worker	Care	Activities of child development in families, school, and the community; incentive for exclusive breast-feeding; distribution of medications for chronic diseases; providing of palliative and geriatric care
			Health surveillance	Identify pregnant women; track treatment defaulters
			Health education and communication	Advise and support family planning schools
	Ethiopia	Health Extension Worker (HEW) Female Development Army (FDA)	Care	HEW: Provide basic curative care, administer vaccines, injectable contraceptives; provide family planning; distribute nets treated with long-lasting insecticides and condoms; provide support to people with chronic diseases
			Health education and communication	TES: provide health education in families and communities; informal training for leaders of the Female Development Army, supervision, and support
			Interectoriality and social mobilization	FDA: involves communities, organizing five or six neighboring families in teams, with each team selecting one volunteer from a model family (defined by the adoption of healthy behavior)

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Chart 1. CHE by continent, country, and scope of practices.

Continent	Country	Nomenclature	Practices	
Africa	Gambia	Village Health Workers	Care	Provide support to pregnancies and births, including home deliveries; home visits and treatment of malaria, diarrhea, pneumonia, fever, bodily pains, and small wounds; refers severe cases to the health unit
			Health surveillance	Clean the village once a month to remove trash and fill in holes to avoid "stagnant water"
	Ghana	Community Health Official (CHO) Community Health Volunteer (CHV)	Care	CHO: Provides services of maternal-child and reproductive health, including pre-natal care and procedures, treatment of malaria, diarrhea, pneumonia, and fever, small cuts and wounds; aids in normal deliveries in cases of emergency and immunization
			Health surveillance	CHO: Monitor and provide support to treatment of patients with TB and HIV
			Health education and communication	CHO: educates in general about sanitary and hygiene practices and offers advice on healthy lifestyles and good nutrition
	Kenya	Community Health Volunteer (CHV) Community Health Extension Worker (CHEW)	Care	CHV: Treat common diseases and mild wounds, home visits CHEW: diagnose, treat, manage, or adequately refer severe childhood diseases, diarrhea, malaria, malnutrition, and penumonia
			Health education and communication	CHV: advise the community regarding improvements in health and disease prevention
			Intersectoriality and social mobilization	CHEW: organize and participate in community health committees
	Liberia	Community Health Assistant	Care	Home visits, first aid care
			Health surveillance	Provides surveillance of health conditions and outbreaks of diseases, such as HIV, AIDS, TB, neglected tropical diseases, and mental diseases; tracking of pregnant women and newborns for maternal-child care
	Malawi	Health Surveillance Assistant	Care	Treats childhood pneumonia, diarrhea, and malaria, and follows up on patients with TB; provides contraceptives, HIV tests, immunization for children under five years of age, and pregnant women
			Health surveillance	Sanitary inspection, environmental sanitation, and control of border posts
			Health education and communication	Advice about sexual and maternal-child health, and family planning
	Mali	Community Health Workers	Care	Antimalaria treatment, distribution of medications and contraceptives, referrals to health services
			Health surveillance	Monitoring of maternal-child conditions
			Health education and communication	Advice about disease prevention, health promotion, and family planning
			Intersectoriality and social mobilization	Provides support to mass distribution campaigns of mosquito netting and deworming
	Madagascar	Community Nutrition Workers (CNW) Community Workers (CW)	Care	CNW: Home visits; provides treatment for moderate acute malnutrition CW: Home visits; treats diarrhea and malaria
			Health surveillance	CNW: monitors the nutritional state of the children.
	Mozambique	Basic Multipurpose Health Workers	Care	Conducts malnutrition exams and quick malaria tests, provides medications and treats diseases, refers users to the health services
			Health surveillance	Monitor the health conditions of the community
			Health education and communication	Offers advise concerning adherence to HIV and TB treatments, and promotes maternal-child care

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Chart 1. CHE by continent, country, and scope of practices.

Continent	Country	Nomenclature	Practices	
Africa	Niger	Community Health Worker (CHW) Relay Volunteers (RV)	Care	CHW: provides vaccination, contraceptives, maternal-child care, such as pre-natal, delivery, and health promotion RV: home visits
			Health surveillance	RV: monitors the health of the children in the community and distributes mosquito netting
	Nigeria	Village Health Volunteer Workers (VHVW) Community Health Extension Workers (CHEW)	Care	VHVW: Health promotion, treatment of diseases, such as malaria, referrals to other healthcare service levels. CHEW: provides curative care: referrals to other healthcare service levels
	Uganda	Village Health Teams	Care	Antimalarial Treatment, provides zinc and oral rehydration for diarrhea and amoxicillin for the treatment of pneumonia; refers cases to health units and reference services with severe acute symptoms, such as difficulty breathing and convulsions
			Health surveillance	Newborn screening and acute malnutrition; monitoring and referral for pre-natal, post-natal, and neonatal care; record of homes in their coverage area
			Intersectoriality and social mobilization	Community mobilization, support provided to mass distribution campaigns of mosquito netting. Support and involvement in village health committees
	Ruanda	Maternal Health Moderator (MHM) Binomial	Care	MHM: guarantees that deliveries occur in health units in which there are qualified health professionals available; provide contraceptives and raise awareness of families about the prevention of noncommunicable diseases
			Health surveillance	Binomial: diagnosis and treatment of childhood diseases and malaria, provides contraceptives and TB treatments
	Sierra Leone	Community Health Workers	Care	Reproductive, maternal, neonatal, and child health actions, including integrated management of childhood diseases in the community; distribution of condoms and oral contraceptives; referrals to health services
			Health surveillance	Collection of essential demographic information and disease surveillance
			Health education and communication	Provide preventive educational actions during home visits.
	Tanzania	Community Health Workers	Care	Implement health interventions in the community; provide oral rehydration solution and zinc for children with diarrhea; initial treatment of lower respiratory infection, malaria, and TB; provide support to HIV patients and family planning, distribution of oral contraceptives and condoms; participate in the early response and management of disease outbreaks (cholera and dysentery); execute basic first aid; provide psychosocial support
			Health surveillance	Community data collection and analysis though home visits; identification of patients that require referrals; identification of pregnant women and newborns with signs of danger, as well as patients with signs of mental disorders

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homogeneous. In fact, pre-requisites range from the ability to read and write in Uganda to a complete high school education in Tanzania. However, Iran calls our attention due to its tendency

Chart 1. CHE by continent, country, and scope of practices.

Continent	Country	Nomenclature	Practices	
Africa	Zambia	Community Health Assistant	Care	Provide basic curatives that can be done in the health clinic and in the community
			Health surveillance	Provide health diagnosis of the community, mapping of the area of acquisition and resources, as well as community planning.
			Health education and communication	Provide community health education and health promotion activities
	Zimbabwe	Village Health Worker	Care	Identify and refer people that require treatment to health units; provide oral rehydration salts during cholera outbreaks; treat minor diseases, provide prophylaxis for malaria, provide advice and volunteer testing for HIV, supervision of patients with TB and directly observed therapy; promote immunization; provide care for patients with chronic diseases (hypertension, diabetes, stroke, epilepsy); promote oral and mental health
			Health surveillance	Collect health information in the community to share with rural health centers and feed the national information system; provide monitoring of child growth, follow-up on babies exposed to HIV and their mothers
			Health education and communication	Provide education and health promotion about water and sanitation, important diseases for public health, pregnancy, maternal health, and family planning
Oceania	Australia	Community Navigators Lay Health Workers	Care	Support members of culturally and linguistically diverse communities (CLDC) in their access to health services and referrals
			Intersectoriality and social mobilization	Facilitate access to community housing services, immigration rules, employment search techniques, funding eligibility, as well as policies and procedures in various governmental departments; facilitate the access of general clinicians to linguistic interpreters

Source: Authors.

to recruit university students and those with a bachelor's degree in public health, obstetrics, or nursing in order to work as a CHW.

The modalities of CHW education worldwide are multiple, diverse, and unique for each country, ranging from quick and unspecific courses in most countries to 3-year technical courses in Nigeria, and a higher education degree as a health technician in Ecuador and Australia. Educational institutions can include universities, technical schools, the health system itself, or online courses.

Some countries appear to use tutors with functions and formal education to teach the CHWs, ranging from more experienced pairs from the category itself, such as Senior CHWs, to nursing or environmental health professionals in Zambia.

The aspects concerning working conditions can be subdivided into type of selection, employment relationships, remuneration, working hours, worker rights, supervision, and ascribed families.

In the few countries in which the selection subcategory was identified, the selection was generally based on personal and political relations, converging into indications from the community to a public testing process.

The type of priority employment relationship seems to be that of volunteers but with some salaried experiences working in the public sectors. As regards remuneration, some receive allowances and basic supplies, established by national governments, counties, communities, villages, and NGOs. The allowances involve: garments, transport vouchers, bicycles, free medical treatment, medicines, public recognition, and food.

The time worked varies from the exclusive dedication up to part-time work only 2-3 days/week. By contrast, the type of selection, employment relationship, and time worked seem to involve the rights that the CHWs receive for developing their tasks, such as: vacations, monthly payments, payment per performance, and even unpaid subsidies.

Chart 2. Characteristics of the education and working conditions of the CHWs.

Country	Nomenclature	Education	Working conditions
Brazil	Community Health Worker (CHW) Endemic Combat Agent (ECA)	ACS: Minimal high school education to take the public exam and later participation in introductory course in the profession	ACS: Provisions by means of public examination, with work in the PHC; worker rights, such as national minimum salary and vacation. Allocated to a family health team, with multidisciplinary work, responsible for up to 750 people
Cuba	Sanitation Brigade	Short-term training courses	Volunteers who work in the public sector
Ecuador	Primary Health Technician	Higher education, technician, worked for two years	Employment relationship with work in the public sector, but receives study grants during university education
Peru	Community Educator in Nutrition	Short-term training courses	Volunteer with work in the public sector; receives unpaid stimuli, such as certifications, equipment, and work gear
Venezuela	Primary Healthcare Community Worker Health Advocates	Technical education	Employment relationship with work in the public sector
Canada	Community Health Representatives (CHR) Lay Health Professionals/ Promotors/Councilors Community Health Workers	Three types of education and training: organizational training programs, institutional training programs, and on-the-job training	Not Informed (NI)
USA	Community Health Workers	Currently, 30 states offer some type of standardized training for CHWs	There are approximately 61,000 professionals, developing activities in the private and public sectors or non-governmental organizations. The work is executed in primary, secondary, and tertiary health care
United Kingdom	Health trainers	Broad standardized training, but at a low technical level	Part-time work, with high turnover; operate in parallel with PHC services
Afghanistan	Community Health Workers	Four-month course, with monthly continued education. Three classroom modules are applied, together with one month of practical experience in the respective villages	Volunteers, with expenses for meetings and training sessions paid by the government
Bangladesh	Family Wellbeing Assistant (FWBA) Health Assistant (HA) Community Health Provider (CHP) Shasthya Shebika (SS) Shasthya Kormi (SK)	FWBA and HA: receive 21 days of theoretical training, followed by on-site training. CHP: receive 12 weeks of training SS: receive 03 weeks of basic training SK: receive 02 weeks of theoretical training, followed by two weeks of field orientation	Most work with non-governmental organizations, while the rest are employed by the government and receive a monthly salary. The SS receive small loans to set up revolving funds, which they use to make money selling health products. The SK work full time and receive a monthly salary
Bhutan	Village Health Worker	NI	NI
China	Community Health Workers (CHW) Barefoot doctors (1950-1980)*	Most of the training sessions are administered by professors or specialists through presentations, classroom and group discussions, as well as role-plays. Training sessions also took place via internet. *extinct category	The number of CHWs in each community health center can vary from 5 to 10; the population that each CHW attend to can vary from 300 to 2,500 residents There is a lack of governmental support both in funding and in work regulations. The financial compensation for the CHW is provided by local health institutions based on the services rendered

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Chart 2. Characteristics of the education and working conditions of the CHWs.

Country	Nomenclature	Education	Working conditions
Phillipines	*Barangay* health workers (BHW)	BHWs do not receive any formal training as a basic health worker before beginning their jobs	Selection is based on personal and political relationships These are part-time workers, volunteers, but some places, especially in rural areas, pay salaries They receive unpaid incentives, such as free medicine from the health center, free health services, and Christmas food supplies
India	Nurse's Aide - Midwife (NAM) *Anganwadi* Worker (AW) Accredited Health Social Activist (AHSA)	NAM: receives 24 months of training AW: receives 3 to 4 weeks of training, while the AHSA 4 to 5 weeks of training	NAMs report directly to doctors. The AHSA report to the AHSA facilitators, and the AW report to the Anganwadi supervisors NAMs receive a salary from the government; AWs are volunteers but receive a monthly allowance; the AHSA receive incentives based on their performance in more than 64 activities
Indonesia	*Kaders*	Receive less than one week of formal training. Many are trained by more experienced Kaders "on the job"	They work around 10 to 20 monthly hours; Volunteer service with small reimbursements of expenses for transport and free medical treatments
Iran	*Behvarz* (rural) *Moraghebe-Salamat* (urban)	*Behvarzs* should have 12 years of general education and a two-year training course. More and more young university students are being selected. *Moraghebe-Salamats* are university graduates with a bachelor's degree in public health, obstetrics, or nursing, as well as complete an additional short-term course	They receive a monthly governmental salary, with the possibility of incentives per performance
Myanmar	Midwife assistants (MA) Community Health Workers (CHW) Malaria Volunteers TB Volunteers	MAs receive six months of initial training, the CHWs one month, and the Malaria/TB volunteers up to one week	MA and CHW do not receive monetary incentives Malaria and TB volunteers receive monetary incentives with donator funding
Nepal	Village Health Worker (VHW) Female Community Health Volunteer (FCHV) Maternal Child Health Professional (MCHP)	FCHV should be literate and receive 18 days of initial training. VHW has 15-18 months of initial education	VHW are jobs paid by the government. FCHW are supervised by the VHW, and part-time volunteers, but they receive allowances for training and uniforms. They have monthly support from health units where they receive supplies, materials, advice, and scheduled feedback
Pakistan	Female Health Worker	15 months of training, with three months in the classroom and 12 months in service	Each health worker has, on average, a coverage area of 1,000 individuals. They receive supervision and monthly salaries, with work under exclusivity contracts
Thailand	Village Health Volunteer	Initial training of 43 classroom hours	Supervised by local health professionals
South Africa	Community Health Worker	Nationally standardized curriculum with face-to-face and hands-on training, totaling 12 months of duration	Supervised by Outreach Team Leaders (nurses with higher education or high school education)

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Chart 2. Characteristics of the education and working conditions of the CHWs.

Country	Nomenclature	Education	Working conditions
Ethiopia	Health Extension Worker (HEW) Female Development Army (FDA)	Must have at least completed elementary school Receive one year of pre-service training from a technical institute or from a higher education health center On-the-job training every two years for their initial education	HEW are supervised by the health center team; they are formal salaried workers paid by the government FDAs are volunteers
Gambia	Village Health Workers	Receive training from the national health system and are educated by community health nurses	Volunteers indicated by the community; they do not receive payment; but they do receive limited aid from the community in their duties and in the purchase of medicines
Ghana	Community Health Official (CHO) Community Health Volunteer (CHV)	CHO: They are first trained as community health nurses, receiving two years of education in an accredited community health nursing training school; after, they receive two additional weeks of training, in engagement, mobilization of the community, and internship CHV: They receive five days of training	CHO: supervised monthly by public health nurses, medical assistants, and PHC coordinators. They are full-time workers paid by the Ministry of Health; they receive paid vacations and the opportunity to advance in their education with paid educational leave CHV: part-time health workers, volunteers, and are not paid. But they do receive incentives, such as shirts, daily transport, and occasionally bicycles
Kenya	Community Health Volunteer (CHV) Community Health Extension Worker (CHEW)	The trainings for the CHV are based on a curriculum with 13 modules that takes approximately three months and consists of 324 hours of education conducted by a facilitator in a classroom environment and 160 hours of practical experience	CHV receives supervision and monthly support from a CHEW, in the health unit or in the community Some counties of Kenya pay monthly incentives to the CHV with their own budget
Liberia	Community Health Assistant	Education in four modules, each one lasting 8-11 days for two months. Between one module and another, the CHW practices the new skills with support and assessment from their supervisor	One CHW for every 40-60 homes or 350 people; they receive monthly financial resources as an incentive Each Community Health Service Supervisor (nurse, midwife, or medical assistant) supervises nearly 10 CHWs
Malawi	Health Surveillance Assistant	12 weeks of training (eight weeks in a classroom and four weeks on the job), followed by a final exam Complementary training in Integrated Community Case Management (iCCM)	They are supervised monthly by a Senior Community Health Service Supervisor and quarterly by an Environmental Health Official Assistant, an Environmental Health Official, or a Community Health Service Nurse They receive a monthly salary and non-financial incentives (such as uniforms, shirts, bags, a bicycle, and public recognition) through a partnership between the government and NGOs
Mali	Community Health Workers	NI	NI
Madagascar	Community Nutrition Workers (CNW) Community Workers (CW)	Initial training of the CNW is generally 10 to 15 days	The CNW receives a monthly payment when there is a project funded by an external donor. The CW does not receive a regular formal payment The CWs are supervised by the chief of staff of the health centers, while the CNW reports to a supervisor from the NGO

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Chart 2. Characteristics of the education and working conditions of the CHWs.

Country	Nomenclature	Education	Working conditions
Mozambique	Basic Multipurpose Health Workers (BMHW)	18 weeks of training divided into didactic and practical modules	Each BMHW is responsible for 500–2,000 inhabitants They receive a small subsidy, in addition to a bicycle, flashlight, vest, medicine bag, badge, cap, calculator, thermometer, and chronometer They are supervised by a member of the health unit team
Niger	Community Health Worker (CHW) Relay Volunteers (RV)	CHW: receives six months of training RV: receives many days of training in the Community Integrated Management of Prevalent Childhood Illness (C-IMPCI)	CHW: Salaried workers, one for every 9,000 or more people; RV: volunteers, one for every 4,500 people or more, supervised by the CHW
Nigeria	Village Health Volunteer Workers (VHVW) Community Health Extension Workers (CHEW)	The training curriculum for VHVW is flexible and based on the local needs CHEWs receive three years of formal training	VHVW: work mainly through NGOs, which provide their supervision They have a formal employment and are supervised by the person responsible for the closest health unit
Uganda	Village Health Teams (VHT)	They should know how to read and write and receive initial training in Integrated Community Case Management (iCCM)	They are volunteers and do not receive financial payment There is one VHT for every 240 people. They receive support from a health unit inside of their community, where one health professional supervises them
Ruanda	Maternal Health Moderator (MHM) Binomial	On average, they receive approximately three months of initial training	They are supervised directly by the Health Center; They are volunteers, with incentives based on the achievement of targets and cell phone reports
Sierra Leone	Community Health Workers	24 days of classroom training, divided into three modules, with one month of practical training after each module	They receive a monthly financial incentive, together with an allowance for expenses with trips to participate in monthly meetings and to cover communication costs They receive support from supervisors. Most work about 20 hours/week
Tanzania	Community Health Workers	They should have completed high school and be registered in a Health Training Institution, paying their own training fees The training lasts 12 months and includes 14 modules, with certifications as a Basic Community Health Technician	They receive supervision from the closest health center They receive a monthly salary, plus benefits, such as health insurance and annual vacations. They receive a kit with supplies and essential equipment
Zambia	Community Health Assistant (CHA)	They participate for one year in pre-service training, formalized based on 11 training modules	Each CHA is responsible for a region made up of 1,750 people. They receive a monthly salary, including benefits as public servants. They receive a bicycle, work boots, a backpack, and a uniform from the Government of the Republic of Zambia

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Chart 2. Characteristics of the education and working conditions of the CHWs.

Country	Nomenclature	Education	Working conditions
Zimbabwe	Village Health Worker (VHW)	They receive a 5-month training, classroom activities, and on-the-job practice	They work four hours/day, 2-3 days/week, and cover approximately 100 families The VHWs are supervised by a responsible nurse from the closest health center They receive quarterly financial subsidies They receive a uniform, a bicycle, and a medical supplies kit
Australia	Community Navigators Lay Health Workers	Five 3-hour modules are administered by a university, followed by a part-time, one-year, undergraduate certification in community development and learning circles created to support their practice	Pilot project with 11 hours/week of work. Minimal pay

Source: Authors.

The supervision of the work process of this category ranges from the monthly contract with higher education professionals, such as nurses and doctors, to pairs from the same category with a greater time of service in the local health centers or contracting entity, such as NGOs.

Finally, each CHW is responsible for a contingent of people, which varies from 240 in Uganda to 9,000 in Niger.

Discussion

Based on this literature review[14,18-27], it is possible to observe that most CHWs develop practices that the International Labor Organization (ILO), through their International Standard Classification of Occupations, specifies as:

[...] to provide education health and referrals for a wide range of services, and provide support and assistance to communities, families, and individuals through preventive health measures and access to adequate social and health services. They create a bridge between the health, social services, and community providers and communities that can hinder one's access to these services[29](p.112).

Studies have reported the CHW contributions to treat these social and health questions, where this category has contributed to important results, including the reduction in hospitalizations sensitive to CHWs and positive impacts in the Millennium Development Goals[30-32].

One affirmation in the literature is that the number, complexity, and variety of functions performed by the CHWs varies substantially according to the needs, types of health system, and contexts for each country, with an increase in duties over time[22,23,33].

In low- and middle-income countries, the CHWs generally provide curative care services, aimed at replacing the attributions from higher education professionals, who are scarce in the country, and the difficulty to maintain these professionals in remote areas[34].

By contrast, in high-income countries, the CHWs generally have the main goal of combatting the iniquities and preventing noncommunicable diseases in vulnerable groups, such as immigrants, aborigines, and low-income populations, such as the homeless. According to Najafizada *et al.*[18], the activities are mainly geared toward health issues related to culture, ethnicity, race, gender, language, and legal issues, considering the social determinants of health.

According to Glenton *et al.*[35], the attributions of the CHWs in each context need to be based on acceptable and appropriate recommendations for the users who depend on local needs, by the category itself, contemplating the practical and organizational implications, such as training, support, and place of work. Schneider and Lehmann[6] also call attention to the importance of taking into consideration the existence and attributions of other health professionals before defining the framework of the role of the CHWs in order to appropriately integrate the CHW programs into the health system.

The low and absent remunerations and the lack of opportunities to advance in their studies and careers are seen as threats to motivations,

legitimacy, and sustainability of the CHW programs in many countries[23,28,36].

Qualitative studies have emphasized that the CHWs with a higher level of education were seen in a more positive manner than those with a lower level of education[37]. However, the WHO highlights that a high educational level can also lead to burn-out among the more well-educated CHWs, due to the lack of opportunities to advance in their careers, in addition to limiting the potential group of candidates, especially in contexts of low educational levels[25].

These findings indicate that the CHW programs can be understood as inclusion and social and human development programs, if they are inserted into the work market at the same time that they commit themselves to achieving a higher education.

Considering the traditional predominance of women in health professions, studies have observed that this phenomenon is also true for CHWs around the world[25,38]. Such an aspect is understood as a stronghold for the socioeconomic development, which is often a means of inclusion for women in the work market. In this light, the WHO recommends, as one of its CHW selection criteria[25]:

[...] a minimum adequate educational level for the tasks in question; adherence and acceptance by the target community; gender equity, preferably considering women. *Personal attributions, skills, values, and professional and life experiences of the candidates* (authors' highlight).

However, the political and financial support provided to CHW programs is still considered to be weak, which translates into the lack of supplies, infrastructure, low remuneration, poor education, and inadequate supervision, long-standing challenges faced by the category and that need to be included in governmental agendas[12,39,40]. This may well be a reflection of the age-old question of gender, since the work of providing care developed by the category is seen as an extension of the role of women in the realm of unpaid domestic work[38].

For Cometto[19], the CHW programs should not merely represent a means through which to cut costs or to act as substitutes for other health professionals, but rather serve to integrate multidisciplinary CHW teams. It is also recommended that people consider the possibility of linking the CHW initiative to multidimensional policies and structures, such as education, work, and community development[41].

Concerning the cost implications, what calls attention is the fact that CHW programs demand a long-term funding, although there is a lack of information on the issue and its connection to government expenses[39,42]. Nevertheless, the WHO[43] points out that the implementation of CHW programs seem to be a cost-effective strategy and that countries at all levels of socioeconomic development show that it is possible to make investments in large-scale initiatives.

According to that pointed out in comparative studies of health systems, there is an almost seesaw movement in the history of the configuration of systems. On the one hand, the reduction in costs, suppression of rights, and the opening of the market in times of crisis, and on the other hand, in favorable economic scenarios, health is seen as an important vector of development and social cohesion, defining the construction of networks coordinated by PHC, guaranteeing the rationality, quality, and sustainability of the systems[44].

In the most diverse scenarios, be it in low- and middle-income countries, be it in high-income countries, the health surveillance integrated into CHW programs, as well as community participation, have been recommended and, in some way, implemented. The initiatives count, to a great extent, on the protagonism of the CHWs, which are challenged when faced with the new information technologies, but primarily when faced with the devastating socioeconomic inequalities heightened during the COVID-19 pandemic[45-47].

The limitations of this study are related to the model adopted, which do not apply a systematic review approach, though they are appropriate to describe and discuss the state of the art of a specific issue in time. Another important aspect was the historical non-contextualization of the institutionalization of the health systems to better understand the role of CHWs in each country.

Conclusion

This article did not intend to exhaust the literature related to this theme, but rather to expand the perceptions related to CHW practices, working conditions, and education worldwide, perceiving similarities and differences that can enrich the outlook of managers and decision-makers in contexts of implementation, expansion, and reconfiguration of these programs.

Concerning practices, the low- and middle-income countries direct the category toward curative care and biomedical procedures, within a selective CHW logic, faced with the lack of oth-

er professionals in the health teams. By contrast, the high-income countries seem to adopt the programs in order to achieve a greater equity and access to specific populations.

Most of the countries did not guarantee an adequate schooling, with only two countries, of the 38 catalogued here, guaranteeing a higher level of education. The precariousness and predominance of volunteer work still persists and, to a great extent, is led by women.

The current scenario of global crisis complicates and worsens the social and sanitary problems at the same time that it calls for creativity in community responses. The challenge is to take advantage of the CHW workforce, providing them with proper conditions and respect to tackle this new social and epidemiological reality with the necessary community mobilization and engagement.

Collaborations

All of the authors contributed equally to the drafting of this manuscript.

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Article submitted 24/05/2022
Approved 12/08/2022
Final version submitted 14/08/2022

Chief editors: Romeu Gomes, Antônio Augusto Moura da Silva