Community Health Workers in the Covid-19 pandemic: scoping review

Agentes Comunitárias de Saúde na pandemia de Covid-19: scoping review

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ABSTRACT This paper aimed to systematize and analyze the literature that addresses the role of Community Health Workers (CHWs) in addressing the Covid-19 pandemic. This scoping review was conducted in the Embase, Lilacs, SciELO, Medline, and Cochrane Virtual Libraries databases. It includes publications from January to December 2020, and the selected studies were submitted to analysis, considering the following categories: practices, training, working conditions, and legitimacy. Twenty-nine studies were included in the review whose CHW performance backdrops were African, South American, North American, Asian, and European countries. The results revealed diversified approaches to practice in the countries studied that involve care, surveillance, health communication, education, administrative, intersectoral articulation, and social mobilization actions. The training received does not seem to correspond to the list of practices and expected impact of the CHWs. Working conditions remain substandard, with some extra incentives offered in different backdrops. The recognition and legitimacy before the health authorities reveal the dispute over the direction of health care models and the scope of social protection systems in different countries.

KEYWORDS Community Health Workers. Coronavirus infections. Public health. Global health.

RESUMO *Este artigo teve por objetivo sistematizar e analisar a literatura que aborda o trabalho das Agentes Comunitárias de Saúde (ACS) no enfrentamento da pandemia de Covid-19. Trata-se de uma revisão de escopo, realizada na Embase, Lilacs, SciELO, Medline e Cochrane Library. Envolve publicações no período de janeiro a dezembro de 2020, tendo os estudos selecionados sido submetidos à análise, considerando as seguintes categorias: práticas, formação, condições de trabalho e legitimidade. Foram incluídos 29 estudos na revisão cujo cenário de atuação das ACS foram países da África, América do Sul, América do Norte, Ásia e Europa. Os resultados revelaram enfoques diversificados de práticas nos países estudados que envolvem ações de cuidado, vigilância, comunicação e educação em saúde, práticas administrativas, articulação intersetorial e mobilização social. A formação recebida parece não corresponder ao rol de práticas e impacto esperado do trabalho das ACS. As condições de trabalho continuam precarizadas com alguns incentivos extras sendo ofertados em diferentes cenários. O reconhecimento e a legitimidade perante as autoridades sanitárias revelam a disputa em torno do próprio rumo dos modelos de atenção à saúde e abrangência dos sistemas de proteção social nos diversos países.*

PALAVRAS-CHAVE *Agentes Comunitários de Saúde. Infecções por coronavírus. Saúde pública. Saúde global.*

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Introduction

The International Labor Organization (ILO) defines Community Health Workers (CHWs) as professionals who provide health education and referrals to a wide range of services, providing support and assistance to communities, families, and individuals with preventive and access measures to adequate social and health services[1]. Much evidence has shown positive results from the work they do in low-, middle- and high-income countries, besides the persisting gaps and barriers that must be overcome regarding the pathways of these workers in the different health systems[2-4]. Regarding action in response to health crisis contexts, the literature clarifies that they bring efficient and effective contributions, such as actions in the HIV, Dengue, Zika, and Ebola epidemics[5,6].

The International Health Regulations (2005), the Guidelines to Optimize CHW Programs (2018), and the Global Influenza Strategy for 2019-2030 (2019), published by the World Health Organization (WHO), are accumulations and guidelines for countries to improve prevent, protect, and control the international spread of diseases, considering the importance of the involvement of CHWs and communities[7-9].

In the Covid-19 pandemic, a critical health event, it is essential to place the organic body, the human subject, society, the environment, and culture at the center of the analysis. Thus, the importance of responses that involve both medications and hospital services and complex measures is revealed, and Primary Health Care (PHC) integrated with Epidemiological Surveillance holds a prominent place[10,11]. From this perspective, the CHWs are in a strategic position, reorienting practices to face and mitigate the pandemic effects.

This article aims to systematize and analyze the literature that addresses the work of CHWs in addressing the Covid-19 pandemic, considering recommendations, practices, training, working conditions, and legitimacy.

Material and methods

This Scoping Review employed the review method proposed by the Joana Briggs Institute (JBI). This method maps the main concepts, clarifies research and knowledge gaps, and synthesizes different types of studies on policies to improve health outcomes[12].

The Population, Concept, and Context (PCC)[12] strategy was used to build the research question, as follows: P – CHW; C – Work; and C – Covid-19 pandemic. Based on these definitions, the guiding question of this review was defined: How did the CHWs work to face the Covid-19 pandemic, considering recommendations, practices, training, working conditions, and legitimacy?

An electronic search was carried out from February 1 to 20, 2021, in Bireme Virtual Libraries, to access Latin American and Caribbean Literature on Health Sciences (Lilacs) and Scientific Electronic Library Online (SciELO); PubMed, to access studies published in Medical Literature Analysis and Retrieval System Online (Medline); Cochrane Library/Cochrane Database of Systematic Reviews; and the Excerpta Medica Database (Embase).

In the search strategy, we employed the Portuguese Boolean descriptors and operators[13] "Agente Comunitário de Saúde" AND "Coronavirus Infections", registered in the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH). Terms related to "Agente Comunitário de Saúde" were identified in the literature[4,14-17], which were also searched using the Boolean operators AND and OR, one by one, as detailed in the example below. The following strategy was adopted on February 20, 2020, on Medline, through PubMed:

"Community Health Workers" AND "Coronavirus Infections"; "Frontline health workers" AND "Coronavirus Infections"; "Lay Health Workers" AND "Coronavirus Infections"; "Close-to-community providers" AND "Coronavirus Infections"; "Anganwadi

Worker" OR "Accredited Social Health Activist" OR "Auxiliary Nurse Midwife" AND "Coronavirus Infections"; "Gizi" OR "Kesehatan" OR "KB" AND "Coronavirus Infections"; "Community Health Agent" AND "Coronavirus Infections"; "Family Welfare Assistant" AND "Coronavirus Infections"; "Shasthya Shebika" AND "Coronavirus Infections"; "Health Assistant" AND "coronavirus infections"; "Community-Based Skilled Birth Attendant" AND "coronavirus infections"; "Community Health Care Provider" AND "Coronavirus Infections"; "Health Extension Worker" AND "coronavirus Infections"; "Health Development Army Teams" AND "Coronavirus Infections"; "Lady Health Worker" AND "Coronavirus Infections"; "Village Health Worker" AND "Coronavirus Infections"; "Village Health Teams" AND "Coronavirus Infections"; "Village Health Volunteer" AND "Coronavirus Infections"; "Home-Based Carer" AND "Coronavirus Infections"; "Lay Counselor" OR "Adherence Counselor" AND "Coronavirus Infections"; "Female Community Health Volunteer" AND "Coronavirus Infections"; "Maternal Child Health Worker" AND "Coronavirus Infections"; "Behvarz" AND "Coronavirus Infections"; "Brigadista" AND "Coronavirus Infections"; "Volunteer Midwives" OR "Volunteer Collaborators" AND "Coronavirus Infections"; "Health Promoters" AND "Coronavirus Infections"; "Community Health Volunteer" AND "Coronavirus Infections"; "Community Health Assistant" AND "Coronavirus Infections"; "Community Based Agent" AND "Coronavirus Infections"; "Health Surveillance Assistant" AND "Coronavirus Infections"; "Agentes Polivalentes Elementares" AND "Coronavirus Infections"; "Community health representatives" AND "Coronavirus Infections"; "Aboriginal health workers" AND "Coronavirus Infections"; "Community health aides" AND "Coronavirus Infections"; "Community navigators" AND "Coronavirus Infections"; "Health trainers" AND "Coronavirus Infections"; "Paraprofessional home visitors" AND "Coronavirus Infections"; "Community nutrition workers" AND "Coronavirus Infections"; "Barangay Health Workers" AND "Coronavirus Infections".

Subsequently, we filtered studies in English, Spanish, and Portuguese, published between January 1, 2020, and December 31, 2020. The reviewers performed the search strategies individually, with the following inclusion criteria: studies focusing mainly on the work of CHWs in the Covid-19 pandemic; studies published in 2020; and studies in Portuguese, Spanish, or English. On the other hand, the exclusion criteria were studies that do not objectively mention the role of CHWs in the pandemic; studies that mention the CHWs, but do not provide any information that answers the guiding question and the analytical categories; studies whose descriptor is synonymous with CHWs, but the professional object of the study is another actor.

The research was carried out in three steps by two evaluators (L.M and R.C), and disagreements regarding the inclusion or exclusion of the studies were resolved with discussion and the search for consensus. Any unresolved disagreement would require the opinion of a third reviewer (P.C). The first step of identifying the studies was conducted by searching the databases using Boolean descriptors and operators mentioned above, followed by a search for studies in their bibliographic references, for new inclusions, with subsequent elimination of duplicates. The second step consisted of selecting the studies after evaluating the titles and abstracts, reaching the definition of studies for full-text reading. The third step analyzed the full texts and selected those included in the review based on the inclusion and exclusion criteria.

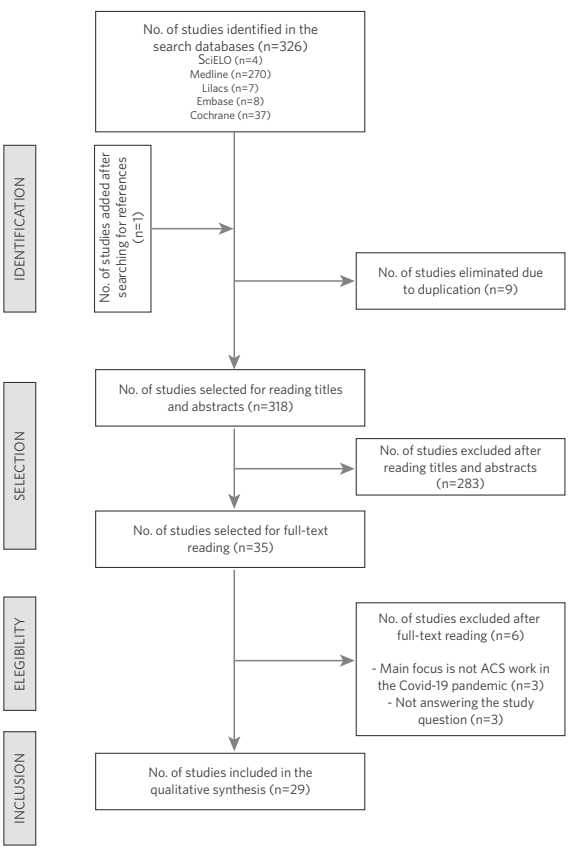
After establishing the corpus of this review, all the studies included were

systematized in a standard form in Excel®, stratified into predefined categories inductively[18]: practices, training, working conditions, and legitimacy. Underlying categories were delimited throughout the reading and systematization process and are shown in *tables 2 and 3*.

Results

The search and selection process of studies followed the JBI recommendations and the checklist adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Prisma)[12]. A total of 326 studies were identified, 4 of which were indexed in SciELO, 270 in Medline, 7 in Lilacs, 8 in Embase, and 37 in Cochrane. A new inclusion was performed by manually screening the reference list in the selected studies (1), followed by eliminating duplicate studies (9). A total of 318 studies were selected for reading titles and abstracts, and 238 papers were excluded, leaving 35 studies for reading in full. Then, six studies were excluded because they did not meet the inclusion criteria, with the appropriate justifications, leaving out a final sample of 29 studies, which we included in this scoping review (*figure 1*).

Figure 1. Flowchart indicating the study selection process adapted from Prisma



Source: own elaboration.

Table 1 presents a summary of the information from the 29 studies included, in which the following distribution was verified regarding the countries/backdrop of the CHWs' action: seven in Africa (South Africa, Liberia, Nigeria, and Zambia), four in South America (Brazil and Peru), nine in North America (U.S.), four in Asia (India, Philippines, and Vietnam), one in Europe (England) and four without a specified setting. The scoping review included literature review studies (3), qualitative research (13), cross-sectional studies (1), and opinion articles in academic journals (12).

Table 1. General characteristics of the studies included in the systematic literature review

Authors	Country/ Backdrop	Theme	Study type
		Recommendations	
Akseer et al.[19]	Not specified	Mother and child health	Literature review
Ballard et al.[20]	Not specified	Rapid action roadmap for coping with the Covid-19 pandemic	Opinion article
Bhaumik et al.[21]	Not specified	Main problems, barriers, and facilitators in the Covid-19 pandemic	Literature review
Corburn et al.[22]	Not specified	Work with vulnerable populations	Opinion article
Maciel et al.[23]	Brazil	Community Health Worker (CHW) work process	Literature review
Naylor; Hirschman; Mccauley[24]	U.S.	Elderly health	Opinion article
Haines et al.[25]	England	Proposal of an CHW program	Opinion article
		Experience Reports	
Nepomnyashchiy et al.[26]	Africa	Importance of CHW in the pandemics	Opinion article
Brey et al.[27]	South Africa	Medication home delivery	Qualitative research
Mash; Goliath; Perez[28]	South Africa	Reorganization of Primary Health Care services	Qualitative research
David; Mash[29]	South Africa	Community screening and testing	Qualitative research
Omoronyia et al.[30]	Nigeria	Assessment of knowledge and practice	Cross-sectional study
Sham; Ciccone; Patel[31]	Zambia	Epilepsy patient care	Qualitative research
Lotta et al.[32]	Brazil	CHW general work	Opinion article
Duarte et al.[33]	Brazil	Work with nurses	Qualitative research
Reinders et al.[34]	Peru	Mother and child health	Qualitative research
Mayfield-Johnson et al.[35]	U.S.	CHW general work	Pesquisa qualitativa
Logan; Castañeda[36]	U.S.	Qualitative research	Pesquisa Qualitativa
Katzman et al.[37]	U.S.	Comparison of CHW work	Qualitative research
Peretz; Islam; Matiz[38]	U.S.	Continuing Education	Qualitative research
Kerkhoff et al.[39]	U.S.	Health determinants	Qualitative research
Waters[40]	U.S.	Testing and care model in the pandemic	Qualitative research
Rosenthal; Menking; Begay[41]	U.S.	CHW general work	Opinion article
Nanda et al.[42]	India	Work in indigenous community	Qualitative research
Chatterjee et al.[43]	India	Opportunities arising from the pandemic	Opinion article

Table 1. (cont.)

Authors	Country/ Backdrop	Theme	Study type
Experience Reports with Recommendations			
Wiah et al.[44]	Liberia	Proposal of an CHW program	Opinion article
Tran et al.[45]	Vietnam	CHW general work	Opinion article
Palafox et al.[46]	Philippines	Importance of CHW in low- and middle-income countries	Opinion article
Goldfield et al.[47]	U.S.	Opportunities arising from the pandemic	Opinion article

Source: Own elaboration.

Comprehensive and diverse practices in the Covid-19 pandemic

According to the literature we reviewed, the CHWs engaged in diverse activities, varying per the preexisting professional settings and profiles (*table 2*). Care practices during the pandemic involved the continuity or restoration of programs to support sexual and reproductive health and mother and child care[19,20,33,34,36,42,43].

The integrated management of cases of infectious diseases such as malaria and tuberculosis, and preexisting chronic conditions such as hypertension, diabetes, HIV, epilepsy, and disabilities, have been recorded in the literature, many of which are risk factors for the aggravation of Covid-19[20,22,23,28,31,33,36,43,44]. In this sense, home delivery of medicines has become a practice of CHWs in some countries, minimizing the travel of these groups to services and the risk of contracting the new coronavirus[23,27,28,31,43].

Monitoring and support in mental health for those who suffer from substance abuse disorders, depression, anxiety, and distress due to bereavement involved actions such as facilitating prescription renewal, scheduling appointments with primary care and mental health providers, such as home visits, telephone monitoring, and traditional healing, in the case of indigenous communities[21,23-25,34,36,40,41,46].

Home or peridomiciliary visits to monitor patients were interpreted as a dilemma, with some countries maintaining them, others reducing or interrupting them, replacing them with telemonitoring[21,23,31,32,34]. Diagnostic support interventions with temperature, blood pressure, and oximetry measurements were suggested in England[25], discussing a proposal to implement CHWs in its health system. Although such practices are foreseen in Brazil, they will only be implemented through training, availability of Personal Protective Equipment (PPE), and equipment[23].

Regarding introducing vaccines and any treatments that may arise for Covid-19, the literature recommends that CHWs contribute to the preparation of health systems and communities[20,23,33,44]. Health surveillance involved carrying out contact tracing, isolation, quarantine, and curfews, based on tribal mandates[20-23,25,26,28,29,33,36,41-43,45,47], besides monitoring patients and caregivers for the clinical deterioration of Covid-19[20,22-25,33,38,40,44]. CHWs performing tests were not reported in any study. Environmental surveillance, using single health approaches[21], was recommended, with reports of jaundice screening, advice on drinking water, and distribution of chlorine solution[43], besides support for disinfecting surfaces in

communities[20,22,44] and working in sanitary barriers[41].

Several studies also mentioned the role of CHWs in data collection to understand the pandemic's impact[21,23,25,43,46,47], which suggests the huge local and national importance of these workers for diagnoses closer to reality. Another important role is related to health education and communication on signs, symptoms, and transmission routes of the virus[20,22,23,28,33,34,39,42,43,46,47], acting as a bridge to access to the formal health system and telemedicine[20,22,23,33,36,38,46,47].

In social communication, many studies mentioned the importance of combating misinformation, fake news, fear, stigma towards sick people, and distrust vis-à-vis the health system and vaccines[20,23,33,36,42-44,47]. Strategies were developed in urban and rural areas, including printing educational leaflets and making them available in places of permanent circulation, writing hand hygiene instructions to fix on the walls, postings on social networks, disseminating information on bicycles or sound cars, radios, and community newspapers[23,36,43].

A different role in the communicative dimension concerns the linguistic and cultural translation of health protocols and their role as interpreters for doctors in countries with large numbers of immigrants[36,38,41,47], or huge diversity of dialects[31]. Internally to the PHC services, they organized service flows to avoid crowding[23]. Many studies have described the role of intersectoral actions and social mobilization, such as the delivery of food, cleaning supplies, PPE, and social support for access to income, housing, and employment[20,22-25,33,36,38,39,41,42,43-45].

Identifying and articulating support in domestic violence situations was also recorded in the reviewed studies since, commonly, CHWs are the first contact in cases of domestic harassment[36,40,43]. In the U.S., they linked clients with legal assistance, including advisory services to regularize their immigration status and explain complex eligibility requirements for various government programs, highlighting advocacy as an essential practice of CHWs[36,38].

Table 2. Practices developed by CHW in the Covid-19 pandemic, 2020

Practices	
Care	**Country/Backdrop**
1. Restoration of programs to support maternal and child health and sexual and reproductive health[9,20,33,34,36,42,43]	Brazil (33), U.S. (36), India (42, 43), Peru (34)
2. Integrated management of communicable diseases and care for chronic conditions[20,22-24,28,33,36,43,44]	South Africa (28), Brazil (23, 33), U.S. (24, 36), India (43), Liberia (44)
3. Home delivery of medications[27,23,28,31,43]	South Africa (27, 28), Brazil (23), India (43), Zambia (31)
4. Monitoring and support in Mental Health and to bereaved community members[21,23-25,36,40,41,45,46]	Brazil (23), U.S. (24, 36, 40, 41), Philippines (46), England (25), Vietnam (45)
5. Home or peridomiciliary visits to monitor patients[21,23,31,32,34,35,40]	U.S. (40), Zambia (31), Peru (34), Brazil (19, 23)
6. Assessment of temperature, blood pressure, and oximetry[23,25]	Brazil (23), England (25)
7. Support for the introduction of vaccines and Covid-19 treatments[20,23,33,44]	Brazil (33), Liberia (44)
Health surveillance	**Country/Backdrop**
8. Support for testing, contact tracking, isolation, and quarantine[20-23,25,26,28,29,33,36,41-43,45,47]	South Africa (28, 29), Brazil (23, 33), U.S. (36, 41), India (42, 43), England (25), Vietnam (45)

Table 2. (cont.)

Practices	
9. Monitoring of patients and caregivers for clinical deterioration of Covid-19 and support for referrals[20,22-25,33,38,40,44]	Brazil (23, 33), U.S. (24, 38, 40), England (25), Liberia (44)
10. Environmental surveillance with unique health approaches and surface disinfection[20-22,43,44]	India (43), Liberia (44)
11. Engagement in sanitary barriers and curfews[41]	U.S. (41)
12. Data collection to understand the impact of the pandemic[21,23,25,43,46,47]	Brazil (23), Philippines (46), India (43), England (25)
Health Education and Communication	**Country/Backdrop**
13. Education of at-risk communities and populations about signs, symptoms, and transmission routes[20,22,23,28,33,34,39,42,43,46 47]	South Africa (28), Brazil (23, 33), U.S. (39), Philippines (46), India (42, 43), Peru (34)
14. Engagement as a bridge to access the formal health system and telemedicine[20,22,23,33,36,38,46,47]	Brazil (23, 33), U.S. (36, 38, 47), Philippines (46)
15. Organization of hand hygiene posts[20,44]	Liberia (44)
16. Fight against misinformation, fear, and mistrust[20,23,33,36,42-44,47]	Brazil (23, 33), U.S. (36, 47), India (42, 43), Liberia (44)
17. Development of different communication strategies[23,36,43]	Brazil (23), U.S. (36), India (43)
18. Engagement as linguistic and cultural translator[31,36,38,41,47]	U.S. (36, 38, 41, 47), Zambia (31)
Administrative	**Country/Backdrop**
19. Organization of the PHC service flow[23]	Brazil (23)
Intersectoral Articulation and Social Mobilization	**Country/Backdrop**
20. Delivery of food and cleaning supplies and provision of social support to patients who tested positive and their families[20,22-25,33,36,38,39,41-45]	Brazil (23, 33), U.S. (24, 36, 38, 39, 41), India (42, 43), England (25), Liberia (44), Vietnam (45)
21. Identification and coordination of support in domestic violence situations[36,40,43]	U.S. (36, 40), India (43)
22. Facilitation of access to legal advice[36,38,45]	U.S. (36, 38), Vietnam (45)

Source: Own elaboration.

Professional qualification for new socio-sanitary needs

Nine studies recommended training to qualify the performance of CHWs in the Covid-19 pandemic[19-25,45,46], 16 mention concrete qualification experiences carried out in different countries[26,27,30-37,40-44,47], while four studies did not mention any training offer[28,29,38,39] (*table 3*).

One study suggests continuous training, information sharing, and updates through different means, considering frequent changes in protocols during the pandemic[20]. In-service training involved PHC professionals in India, Brazil, and Peru[33,34,43], and local and national instructors in Vietnam[45]. The offer of courses by educational institutions specialized in the field was recommended in England[25] and conducted by the University of New Mexico in the U.S.[37]. Most studies suggest using distance learning[20,25,37,42] as an alternative, mentioning the Indian experience of a new Integrated Government Platform for online training[42].

The reviewed literature presents objectives and content to be considered, such as acquiring knowledge and skills to prevent, detect, and control coronavirus infection[20,22,31,34,36,46,47];

use of the Internet and applications[23]; assessments of cognitive, physical, and emotional impairments in older adults post-hospitalized due to Covid-19[24]; first aid and emergency assessment[25]; myths and truths around testing and treatment for Covid-19[36,37]; and proper use of PPE[37].

A significant issue is the lack of minimum standardization regarding these workers' previous and general training. In Philadelphia, U.S., a high school diploma, and an empathetic personality are required, besides offering a month of training in skills such as motivational interviewing[40]. Indiana, U.S., has a nine-month course to become a CHW, followed by certification[36]. In the Navajo Nation, U.S., all nursing assistants are certified trained as CHWs in the New Mexico Department of Health[41].

Notably, the lack of training was identified as a significant barrier to the provision of effective services in other epidemics[21], which seems to be repeated in the current pandemic. In Brazil, only 9% of CHWs have allegedly received training after four months of the pandemic[32]. In Nigeria, an assessment of knowledge and practices related to Covid-19 revealed gaps that suggest negligence in the qualification of these professionals[30].

Work conditions in the Covid-19 pandemic

We identified five studies (*table 3*) that mention the substandard working conditions of CHWs in the pandemic[20,26,32,34,42], including insufficient PPE[20,26,32,34,42], low wages[32], or even delayed payment, prejudice, high workload, and lack of psychosocial care[42]. Consequently, attention is drawn to the fact that many CHWs may not be willing or unable to take on additional tasks during the pandemic[46].

In India and Africa, experiences revealed a lack of infrastructure and insufficient basic supplies for the CHWs to work satisfactorily in the pandemic, harming the safety of these professionals and making them vulnerable to contagion[26,42]. On the other hand, the experiences of Vietnam[31] and Liberia[44] reveal that their CHWs had access to adequate PPE[31,44] and training in its use[44].

The payment mode worldwide ranged from scholarship holders[39], salaries[42], pay-per-performance[20], to volunteering[19,21]. The literature suggests that remuneration should be implemented[19,35] and that other benefits should be considered, such as providing housing subsidies, training[21], transport to remote areas[21,30], and CHWs should be flexible to meet their personal needs and receive paid time off[35].

Women's poor working conditions were also described and analyzed as a preexisting and escalated issue. As it is a feminized category, it is subject to a greater volume of domestic work in the pandemic and gender-based violence[21,30,42], such as kidnappings and rapes recorded in rural Nigeria[30], and other gender prejudice in India[42].

CHWs' global institutionalization varies and is unspecific per the results of this review and may be linked to Non-Governmental Organizations (NGOs) in South Africa[29], hospitals, clinics, community organizations, indigenous health services in the U.S.[36,38,40,41], or local or national health systems in South Africa[28], Brazil[33], India[43], and Vietnam[45].

The work process can be multidisciplinary in a hospital[38] or PHC setting[33,47]. CHWs can follow-up households ranging from 40 in Zambia[31], 60-100 in India[43], to 250 households in South Africa[27]. The coordination or supervision of these professionals can be conducted by local tribal leaders[41], nurses[27-29,33,44], or social workers[39,40].

Legitimacy before communities, health teams, and national and international authorities

Trust in CHWs' work and practice in territories, communities, and in their dialogue with

national, subnational systems and health services was the main characteristic of legitimacy evidenced in the studies[21,22,26,35,36,38,42,44,47], which makes CHWs important workers in building coping strategies for Covid-19, especially in socially vulnerable regions[22,26,47] (*table 3*).

However, challenges are identified in the legitimacy of CHWs in contexts of the political opposition of national authorities to WHO recommendations, as is the case of the Brazilian Republic President[32]. Moreover, there are records of assaults on CHWs in South Africa due to the growing lack of income and food insecurity of the population[29].

We also identified fears that health professionals may be spreading Covid-19[26,42] and other social stigmas as limited knowledge of CHWs in Zambia[31]. In India, health authorities recognize these workers, either with public congratulations or with the approval of legislation against acts of violence against health professionals and anti-stigma campaigns[42].

Another aspect that interferes with the legitimacy of CHWs concerns their different belief systems, including indigenous, rural, and immigrant population care settings[30,31,34,36,39,41], which suggests considering a previous cultural identity when selecting and qualifying professionals for better acceptability in the community. In high-income countries, with increasing immigration, as in the U.S., the importance of mastering the language and the ethnic origin of CHWs is evident, with cases of greater trust and bond with CHWs who master Spanish and recognize the immigration issues of the Latino population served[36,39].

In March 2020, a global coalition of 16 organizations working with governments in Haiti, Mali, and Nepal issued a stance and technical resource offer document to guide governments to involve CHWs in combating Covid-19[44]. Converging on what appears to be a global movement, U.S. senators have proposed the creation of a National Health Force to recruit, train, and employ hundreds of thousands of CHWs[40]. In England, the feasibility of implementing a program whose estimated cost would be £2.2 billion a year for 100,000 CHWs[25] is being discussed.

Table 3. Characteristics of training, working conditions, and legitimacy of CHW in the Covid-19 pandemic, 2020

Training	
Responsible for training	**Country/Backdrop**
Primary Health Care professionals, with local and national instructors[33,34,43,45]	India (43), Brazil (33), Peru (34), Vietnam (45)
Specialized Education Institutions[25,37]	England (25), U.S. (37)
Teaching Mode	**Country/Backdrop**
Distance Learning Mode[20,25,37,42]	England (25), U.S. (37), India (42)
Objectives and Contents	**Country/Backdrop**
Knowledge and skills to prevent, detect, and control coronavirus infection[20,22,31,34,46]	Peru (34), Zambia (31)
Use of Internet and apps[23]	Brazil (23)
Assessments and interventions in cognitive, physical, and emotional impairments in post-hospitalization older adults[24]	U.S. (24)
First aid or assessment of medical emergencies[25]	England (25)
Myths and truths about Covid-19 testing and treatment[37]	U.S. (37)
PPE adequate use[37]	U.S. (37)

Table 3. (cont.)

Training	
Work Conditions	
Insufficient PPE[20,26,32,34,42]	Brazil (32), India (42), Africa (26), Peru (34)
Low wages, late payment, high workload, and lack of psychosocial care[32,42]	Brazil (32), India (42)
Payment through scholarships, salary, performance, or volunteering[19-21,39,42]	U.S. (39), India (42)
Links with NGOs, community organizations, hospitals, clinics, and local and national health systems[28,29,33,36,38,40,41,43,45]	South Africa (29, 28), Brazil (33), U.S. (36, 38, 40, 41), India (43), Vietnam (45)
Multidisciplinary work process in a hospital or Primary Health Care[33,38,47]	Brazil (33), U.S. (38, 47)
Coordination or supervision by nurses, doctors, social workers, pharmacists, or tribal leaders[25,27-29,33,39-41,44]	South Africa (27, 28, 29), Brazil (33), U.S. (39, 40, 41), England (25), Liberia (44)
Legitimacy	
Low Legitimacy Indicator	**Country/Backdrop**
Assaults, kidnappings, rapes, gender prejudice, and low professional training[29-31,42]	South Africa (29), India (42), Nigeria (30), Zambia (31)
Fears that professionals are spreading Covid-19[26,42]	India (42), Africa (26)
Increased Legitimacy Indicator	**Country/Backdrop**
Recommendations for strengthening or implementing national CHW programs[19,25,36,40,44]	U.S. (36, 40), England (25)
Public praise, legislation to fight violence against health professionals, and anti-stigma campaigns by authorities[42]	India (42)
Recognition of the different belief systems of the populations served by the CHW[30,34,36,39,41,44]	U.S. (36, 39, 41), Nigeria (30), Peru (34), Liberia (44)

Source: Own elaboration.

Discussion

The studies in this review had different approaches, practices, characteristics, and challenges of CHWs in the Covid-19 pandemic. However, the results highlight the high scientific production in the U.S., while low and middle-income countries, with a great tradition of CHWs programs[15], barely published or did not publish at all, denoting a structural inequality in scientific and educational development between countries.

The pandemic re-presented the importance of CHWs in ensuring a comprehensive, community-based PHC integrated with active surveillance and comprehensive social protection while revealing the distance between the ideal and the actual. This situation is expressed in the large number of attributions that interprofessional teams should perform, not always guaranteed by the health systems, and the substandard work relationships, which reveals that the CHWs are part of a selective PHC strategy[48].

In this review, attention is drawn to the lack of specificity of the studies concerning testing for Covid-19, temperature measurement, and oximetry by CHWs, reaffirming

the centrality of their practices in non-biomedical care based on education, health promotion, intra, and intersectoral articulation.

Although some studies mention data collection as a CHW practice, they do not reflect on the professional capacity to process and interpret them to intelligently conduct the next step of active and participatory surveillance in the communities. CHWs' relocation to administrative activities within the services or sanitary barriers outside their coverage territory requires critical reflection. They presuppose decreasing the relationship with the community when more significant contact and empathy are expected, generating trust and legitimacy.

Health education and communication practices were challenged to respond to the context of infodemics and fake news[49], besides inequalities in the access to information technologies in different countries, highlighting the pandemics of this century and CHWs' need to develop new skills.

Few studies in this review presented the role of CHWs in facilitating access to vaccines against Covid-19 or specific training to better act in the face of anti-vaccine movements, which is justified by the study period that did not cover the vaccination phase of the world population, started in December 2020 in the U.K. Likewise, the approach to post- Covid sequelae and mental illness requires further investigation, especially on how CHWs can carry them out.

The number of intersectoral articulation and community mobilization experiences developed by the CHWs in coping with the health-disease process determinants is notorious, which leads us to reflect on charitable solidarity and the importance of establishing short, medium, and long-term public policies on food security and universal basic income in national states and international organizations. In this regard, we highlight the advocacy activity undertaken by CHWs in some countries, which can be better investigated as an analytical category in other comparative studies.

Unlike the paths of other health categories, in general, the work of CHWs did not move towards professionalization, which significantly collides with low definition regarding the curricula of their general education[8]. While the health crisis is an opportunity for a more significant opening for such investments, the reviewed literature brought few elements regarding the training processes offered, lacking further studies to understand the character and impact of the training developed in the pandemic responses.

Furthermore, the popular origin, feminization, and poor working conditions are hallmarks of CHWs in many contexts, reflecting the reality of the communities where they are inserted, on the one hand, and, on the other, the frequent social and sexual division of work in the health sector in many countries[50]. This reality points to the relevance of combining political struggles for better community living conditions with struggles for better working conditions, especially in pandemic contexts.

Final considerations

The findings of this review are presented as a subsidy for formulators and implementers of health policies and workers who require evidence to better support their negotiation agendas. It is also relevant to researchers in the field, as it points out gaps that must be better explored in future research projects.

A limitation of this study was the poor historical contextualization of CHWs' institutionalization and the pandemic backdrop in each country, given the coverage. The authors suggest conducting evaluative studies on the efficacy and effectiveness of CHWs, which could better support decision-makers for allegedly frequent pandemic settings.

Ultimately, we emphasize that CHWs' future is nested in the dispute throughout the health care model in each country and the scope of social protection systems, insofar as the effectiveness of their actions depends on economic, social, and political support through broad and general struggles within society.

Collaborators

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