REVIEW ARTICLE
pISSN09763325 | eISSN22296816
Open Access Article (CC BY-SA)
www.njcmindia.com
DOI: 10.55489/njcm.131220222525

Contribution and Challenges of Community Health Workers in Achieving Sustainable Development Goals

Jyothi Kurapati[1], Anitha Chandanadur Thippaiah[2]

[1]University of Hyderabad, Hyderabad, India
[2]University of Hyderabad, Hyderabad, India

ABSTRACT

Background: Community health workers (CHWs) are a renewed focus in the 2030 SDGs. CHWs support equitable coverage for preventive, promotive, and curative services as healthcare partners. This study aimed to identify the challenges of CHWs in achieving SDGs.

Methods: We searched PubMed, Google Scholar, Science Direct, Web of Science, etc., for the published articles between 2015 to 2022. Twenty publications and WHO documents met the inclusion criteria and were analysed and used in the study.

Results: Findings shows that CHWs are valuable and cost-effective and have the potential to help achieve several SDGs. The top 10 issues faced by CHWs were listed in the research, including Lack of advancement chances, Excessive workload, Insufficient pay, Insufficient staff, Poor management culture, Lack of supervision, Poor interpersonal relationship with supervisors, limited access to technology, A lack of training and Reduced patient care time. The article also proposes critical activities to assist CHWs in achieving the SDGs.

Conclusions: CHWs are essential in health care delivery and help expand preventative, promotive, and curative services. Regular evaluation of CHWs' performance is critical for creating health policy and system support that optimizes the utilization of CHWs for SGDs.

Keywords: Sustainable Development Goals, Community Health Workers, Community health programs, Challenges

INTRODUCTION

2030 is the deadline for achieving the United Nations (UN) Sustainable Development Goals (SDGs). SDG3 includes Universal Health Coverage (UHC) and health for everyone. If trends continue, the UN estimates that one-third of the world's population will not have UHC[1]. The UN General Assembly voted in 2019 to seek measurable acceleration to achieving health-related SDGs by 2030. The UN says that half of the world's population (3.8 billion) lacks essential health services. Eighteen million health workers are needed to accomplish SDGs targets, according to the UN High-Level Commission on Health Employment and Economic Growth[2]. An expansion is unlikely without increased support for community health worker (CHW) activities. Dr. Tedros Adhanom Gebreyesus, WHO Director-General, says, "there will be no UHC without Primary Health Care"[3].

Community health workers (CHWs) are selected, trained, and employed in their home communities. WHO proposed an agreed definition *Community health workers should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers*[4]*.* CHWs encourage health awareness and provide patient-

How to cite this article: Kurapati J, Thippaiah AC. Contribution and Challenges of Community Health Workers in Achieving Sustainable Development Goals. Natl J Community Med 2022;13(12): 896-903. DOI: 10.55489/njcm.131220222525

Financial Support: None declared | **Conflict of Interest:** None declared | **Date of Submission**: 18-10-2022 **Date of Acceptance**: 17-11-2022 **Date of Publication**: 31-12-2022

Correspondence: Jyothi Kurapati (Email: kjyothiuoh@gmail.com)
Copy Right: The Authors retain the copyrights of this article, with first publication rights granted to Medsci Publications.

centred care. CHWs are critical stakeholders in health care delivery. They ensure equitable coverage for preventive, promotive, and curative services relating to reproductive, maternal, neonatal, and child health, communicable diseases, and non-communicable diseases[5]. Workers are crucial to SDG 3's health goals and other SDGs. A two-decade study of medium and low-income nations found that health-sector initiatives account for half of all improvements in child mortality[6].

Health has improved globally. Despite these gains, more work remains. Robust health systems, action on health determinants, and SDGs are needed to reduce avoidable mortality, maternal mortality, and HIV/AIDS prevalence [7]. Nation has pledged to reduce under-5 and new born mortality to 25 and 12 per 1000 live births by 2030. Reduce poverty, strengthen health systems and infrastructure, expand education (especially for girls and women), resolve civil conflicts, and improve governance to meet SDG targets in eight years. SDG 3 requires universal health coverage in the health sector (UHC). UHC requires quality essential healthcare services and enough health workers. The role of health workers in preventing and treating non-communicable diseases (NCDs) is growing as NCDs account for a growing percentage of the global illness burden that cannot be managed alone by the health sector [8]. These show how crucial cross-sectoral enabling aspects are for achieving the SDGs and promoting action on the determinants of health [9]. CHWs are helping to achieve SDGs 1 (end poverty), 2 (end hunger and provide food security), 3 (health and wellbeing), 5 (gender equality), 6 (clean water and sanitation), 10 (reduce disparities), and 17 (reduce inequalities) by focusing on SDG3. However, CHWs face many challenges in contributing their services to SDGs. Hundreds of studies have shown inadequate health worker performance in low- and middle-income countries (LMICs), which cannot improve the country's health. Having a better understanding of CHWs' challenges can improve their performance. This article tries to identify the challenges of community health workers (CHWs) in achieving SDGs, describes the effectiveness of strategies to improve the working conditions of CHWs, and concludes with recommendations on priority actions for further improvements in this area.

METHODS

This study was a narrative review with a systematic search that was conducted in four stages.

Identifying the research question

What are the community health workers' contributions and challenges in achieving Sustainable Development Goals?

Searching strategies for identifying related studies and the procedure to select studies

This article draws on literature searches done by the authors for several publications that reviewed topics of relevance to community health workers. The Cochrane Library was searched for additional systematic reviews, PubMed/Medline using the MeSH terms "community health workers", "lay health workers", "mid-level health workers", "primary health care", "Sustainable Development Goals", "community health worker programs", "Non-communicable diseases", "primary health care", "contribution", "challenges". To address questions of the impact and cost-effectiveness of community health workers in SDGs, we focused on the original research papers, systematic reviews, and authorized documents to provide evidence about factors determining the performance and sustainability of programs for community health workers. There are limited discussions of the impact of the contribution and challenges of CHW in the SDGs context; therefore, we presented this paper as a structured narrative review. We included any paper that described CHWs, their roles, and ways of working; this included published primary research, commentaries, editorials, and review papers. We included studies from any discipline using any study design and methods for primary research. We also included grey literature (unpublished reports and evaluations) if it included descriptions of CHWs or explanations of their roles. We included literature that described CHWs working in any aspect of primary or community healthcare and any disease or health issue. Overall, we included published and unpublished papers reported in English. In contrast, we excluded papers not focused on CHWs or papers that focused on CHWs but lacked a definition or description of CHWs. Furthermore, we excluded papers that are not reported in the English language.

A total of 162 papers were included in the study. Ninety-eight papers were identified through databases of PubMed Embase, and for grey literature, further searches were conducted in Google Scholar, and 64 papers were identified. From the articles retrieved in the first search round, additional references were identified by a manual search among the cited references. Individual papers (e.g., reviews, opinion pieces, and commentaries) were considered for full-text review. A total of 83 papers were accessed for full text (observational studies $n = 18$, interventional studies $n = 24$, review articles $n = 11$, comments/letters/opinion pieces' $n = 4$, conference abstracts $n = 26$), and of them, 20 papers that laid down at least contribution or challenges of community health workers in achieving SDGs and/or platform were abstracted for information and included in the review.

Ethical considerations

The authors took into account the ethical considerations and general standards for publication, including avoiding plagiarism and multiple and simultaneous submissions and respecting the intellectual property rights of the reviewed papers.

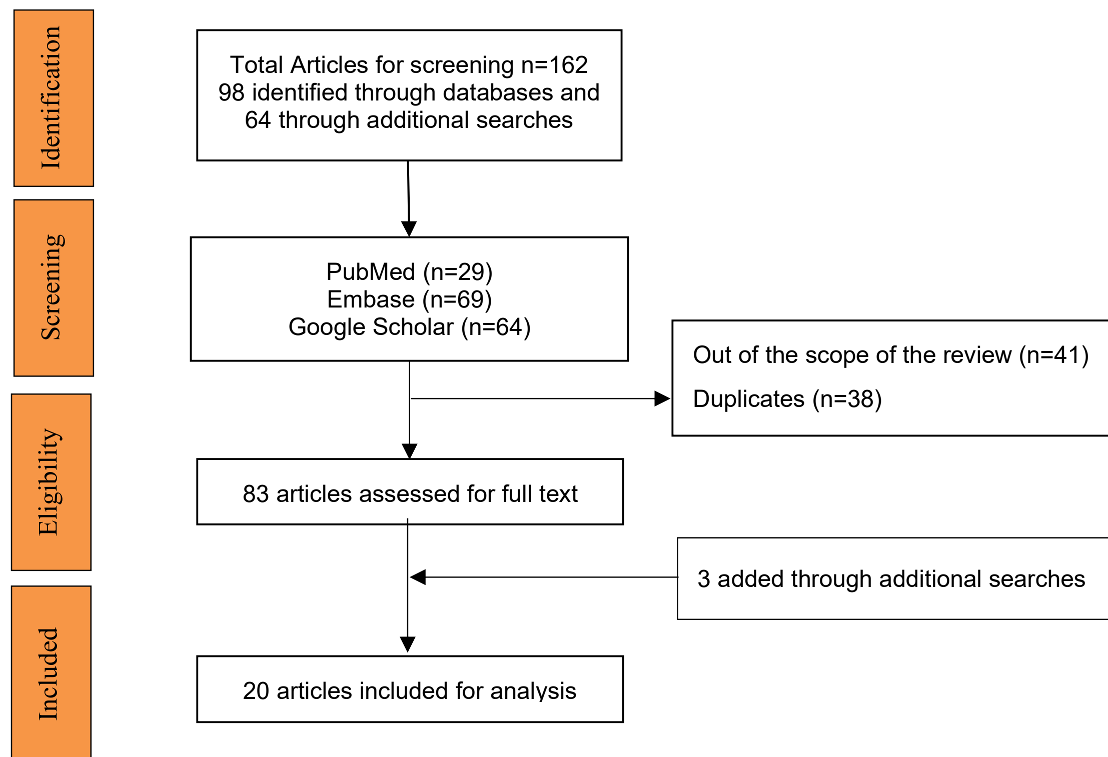

Figure 1: Flow diagram of the review process

Summarizing, extracting, and reporting the data

Having selected the studies from the previous stage, the researchers then carefully studied all the relevant papers and extracted and organized the information they needed for the current study. The results of reviewing the studies led to the extraction of the paper and organization of the content on the CHWs' contributions and challenges in achieving SDGs. Contribution and challenges into three main categories and ten subcategories based on the importance of barriers have been mentioned in the assessed articles.

This review provides an overview of the broad scope of the topic. Moreover, additional references, including characteristic and cornerstone references on CHWs, were added in the introductory parts. However, it is essential to note that the main limitation of narrative reviews lies in the unsystematic search method, which may lead to the subjective selection of articles and consequently add bias to the overall interpretation of findings. Authors considered this limitation in their search strategy, but with limited published evidence, they prioritized the need for an overview of this selected topic.

RESULTS

The Community Health Workers' role in SDGs

Community Health Workers' can discover health issues. They diagnose, treat, and comfort patients. As leaders in community and healthcare, they are reliable in promoting healthy attitudes and behaviours and complete policies that integrate individuals' daily lives with their chances of recovering from sickness. They can bring the need for preventative activities and healthcare coverage difficulties to the attention of officials[10]. They also manage socio-economic determinants of health to improve health equity for people and health workers. The 2030 Agenda of SDGs is to create an organizational environment and capacity for healthcare employees and the healthcare system to participate, operate, and partner with other sectors to accomplish the SDGs [11].

In many circumstances, CHWs are better than health institutions for achieving SDGs' health-related targets. CHWs can be mobilized rapidly. Even if more PHC services and training and mobilizing physicians, midwives, and other health care professionals are needed, this will not speed up improvements in the short term due to the time it takes to train and utilize higher-level employees and build the PHC infrastructure in which they can function[12].

Community-based CHWs reduce geographical availability limits. In many rural parts of low-income nations with dispersed populations, individuals still walk to health care. In such nations, establishing and staffing many additional PHC centers is needed to ensure fair access. In most low- and middle-income countries, it will be impossible to reach 90 percent population coverage utilizing PHC centers and hospitals in the short - to medium-term[13]. Even with a considerable increase in such facilities, attracting and keeping medical and nursing staff in remote low-income nations would be difficult. CHW projects leverage locally accessible resources; enhancing and

expanding the availability of adequately educated CHWs will cost relatively little and result in faster and more critical advances in access to primary care, preventative, and promotional services[14].

Simple community-based therapy can save more lives than PHC or hospital-based therapies. According to current modelling, expanding CHW services might avoid 2.3 million maternal and child deaths annually. Expanding PHC services requiring higher-level staff and hospital-level care saved 0.8 million lives(15). CHWs offering family planning services in the community and at the household level could have an additional impact. Given CHWs' ability to administer family planning services when well-supported and supervised, increasing services reduce unmet contraception requirements, benefiting healthcare and other developmental sectors[16].

Effectiveness of Community health workers

CHWs can play a significant role in screening and managing NCDs like hypertension and diabetes, as well as identifying and following up on patients needing primary and essential surgical care, which is a major global health priority[17]. Increasing health coverage requires job shifting and outside-of-facility care, according to Meara et al., 2015. CHWs, as integral members of PHC teams, can strengthen the PHC system and increase the quality of care by facilitating access to higher-quality healthcare and following up with patients after treatment at a higher-level hospital[18]. To ensure Africa's success in eradicating AIDS as a public health hazard and attaining sustainable health for all of Africa, the Joint United Nations Program on HIV/AIDS (UNAIDS) has urged immediate fresh investments in recruiting, training, and deploying 2 million additional CHWs[19].

Inadequacies in the quality of care delivered by the healthcare system contribute to 5.2 million fatalities per year that may be averted with high-quality care, according to 2018 research. The Commission finds that in resource-constrained situations, improving health system quality is vital[20]. The Commission did not address how health systems can reduce the 3.2 million deaths related to non-use. Poor people are disproportionately harmed by nonusers[21]. Improving the quality of care in the current hospital-centric system will not guarantee universal access or improve population health. In most resource-limited countries, many people live distant from facilities. In low-income communities, access to healthcare services drops drastically after 3 kilometres or 45 minutes of walking[13, 22]. Equity challenges require a focus on access; CHWs are a cost-effective answer. Those who use health facility services are better off monetarily and educationally than the general population[23]; prioritizing capital investment in health facilities, especially hospitals, favours the better-off disproportionately. Persistent gaps in coverage of crucial maternal-child interventions (and other fundamental health services, such as family planning that CHWs can deliver) depending on household wealth call for attention to service quality and access for the poorest parts of society.

CHWs can cure and prevent malaria, postpartum bleeding, neonatal pneumonia, diarrhoea, and acute malnutrition with the proper support [24]. Patients and their families can be guided to appropriate sources of care, accompanied to the hospital, or assisted in other ways. CHWs can increase trust in the healthcare system. Gwatkin et al. found more than 40 years ago that even the best-conceived programs can have little impact on mortality; developing service delivery strategies is as important as determining which services to give[25]. As crucial as high-quality services are simple and vital ones. Improving population-level health outcomes will require improved access, which can be achieved through active CHW efforts.

Community healthcare workers' challenges

Published research on CHWs provides a foundation for creating and conducting studies to support their work. CHWs can play an essential role in PHC and help improve population health [26]. Delegating tasks or responsibilities traditionally handled by physicians or other highly trained professionals to auxiliary health workers and CHWs can make services available to those who experience significant barriers to care [27]. CHWs and health auxiliary programs have provided rural populations with immunization, prenatal and postnatal care, family planning, management of paediatric illness, malaria prevention and treatment, and nutrition-related services. Urbanization, rising education levels, technological innovations (notably the use of cell phones), and an epidemiologic shift toward a proportionally greater burden of non-communicable diseases will continue to evolve the population's needs and optimal strategies to meet those needs[26]. Complementing integrated program's disease control operations.

The optimal contribution of CHWs to achieving the SDGs should be based on five factors. 1) Encouraging research on the role of CHWs in communicable diseases, maternal and child health, and non-communicable diseases; 2) focusing on research on cross-cutting enabling factors, such as education, accreditation and regulation, management and supervision, effective linkage to professional cadres, motivation and remuneration, and provision of essential drugs and commodities. 3) ensuring the sustainability of CHW-supported programs through innovative national planning, governance, legal, and financial processes; 4) emphasizing scientific rigor; and 5) leveraging mixed methodologies research to answer policy concerns beyond a narrow disease- or intervention-specific focus [28, 29].

Table1: According to the Studies, there are ten common Challenges

#	Challenges	Description
1	A lack of opportunities for advancement	According to studies, healthcare workers lacked promotion opportunities in their current or previous jobs. Nurses ranked advancement possibilities lower than other community health workers [30].
2	Work burden.	Every healthcare in the country has a nurse shortage. Work overload was a worry for healthcare professionals; assessments found a serious turnover issue with staff taking on more responsibilities outside their comfort zone. Due to a provider shortage, fewer employees can divide a significant burden, leaving some weary and reducing job satisfaction [31].
3	Insufficient pay.	Healthcare workers complained about low pay. The salary was graded low; this is a problem, as is the company's negative culture. Research shows that building a work atmosphere where employees are encouraged to follow their goals is more important than competitive remuneration[32].
4	Insufficient staff.	Insufficient staff is unsurprising, given the provider shortage. Studies show a one-to-one ratio of job seekers to opportunities[33].
5	Ineffective management.	Culture is influenced by innovation, autonomy, and flexible scheduling[34].
6	Lack of supervision	Healthcare employees believe their firm provides insufficient mentoring; studies show. This implies that mentoring opportunities are misused[35].
7	Poor interpersonal relationships with supervisors	Poor supervisor relations. Studies found that healthcare staff did not like their supervisors. Supervisors outnumbered co-workers [36].
8	Technology is limited.	As healthcare organizations embrace technology, workers may suffer. Healthcare personnel lacked technology [37].
9	Inadequate training.	Insufficiently trained employees may be confused about their jobs. According to studies, nurses are "more concerned with doing their job effectively in a nice atmosphere than with their pay," meaning that training is crucial for enhancing job performance and happiness. In-house skill training was famous for staff who needed other training[38].
10	Reduced patient care time.	According to studies, healthcare workers felt understaffed. Excess administrative or non-clinical assignments may reduce patient time; personnel may feel pressured by too many administrative responsibilities or irritated by a lack of engaging assignments[39].

DISCUSSION

Engage with other sectors

The 2030 SDG Agenda provides convergent, coordinated, and mutually reinforcing policies, allowing health workers to act across sectors. This requires health personnel to embrace new working and learning approaches(40). Education and training for the health workforce must be reframed and reoriented, but is not limited to, policymakers, educators and trainers, and students. Intersectoral planning to reorient the health workforce toward integrated people-centred health services and lifelong learning systems. Implement a socially responsible and revolutionary health workforce education and training strategy incorporating community-based, engaged, and dispersed experiential learning and education[41]. Include social determinants of health education and training in pre-service (undergraduate and postgraduate) curricula, in-service training, and continuous professional development programs [42]. Creating curriculum, monitoring and evaluating it, and measuring its impact on communities and other sectors. Each health worker upgrades their Social Determinants of Health (SDH) knowledge throughout their career. Workplace and CHWs should collaborate and engage with communities and other sectors to make social determinants important to their work. Use their roles within the health system (as clinicians, managers, and employers) and outside (as community leaders) to promote health equity. Advocate at all levels and locales to address health inequities, notably at the national and global levels, through intersectoral action and health-in-all-policy [43, 44].

Future-focused

These CHWs must overcome critical difficulties to realize their full potential. CHWs must be integrated into the formal healthcare system, and their programs must be tailored to culturally and contextually acceptable demands and aims. The statement is unclear about how much CHWs who work long hours but are ostensible "volunteers" should be paid. Without social justice and fair employment for healthcare workers, universal healthcare is a mirage. CHWs should be compensated adequately for regular hours. Before the 1980s, practically all CHW programs followed this norm, and many active CHW programs still do[45]. Greater regard for CHWs as vital PHC team members and recognition of CHW programs as the cornerstone of practical health system function. Long-term, consistent, donor-less funding. CHWs should be paid more. Need for better supervision and logistics. Continuous monitoring, assessment, and academic research aid in development. Allocation of broader CHW roles and tasks that CHWs can competently perform (as determined by a rigorous evaluation), such as surveillance, disease outbreak detection, vital events registration, and care navigation (by accompanying patients to facilities for services), as well as an increase in CHWs to avoid work overload and ensure population coverage. Community collaboration increases program adaptability to local health requirements[46].

To achieve maximum program performance, governments must create strong leadership. The global health community must understand that extending and upgrading CHW programs is crucial for achieving the SDGs and other global health goals, such as "Health for All." Several historical patterns have converged, allowing CHW projects to succeed [47].

CHWs can and can improve community health, as research and national experience from Bangladesh, Brazil, Ethiopia, and Nepal show[24]. Fundamental health system changes are needed to attain present and future global health goals, given discrepancies in health outcomes and service use between and within nations. CHW projects are not a quick fix for low-income regions (i.e., to reduce the disease burden among mothers and children and from communicable diseases). Such activities are crucial to any health system's ability to fulfil its full potential, regardless of location. In middle-income countries like Brazil and high-income nations like the U.S., CHWs are increasingly used. As with the 2013–2016 Ebola outbreak in West Africa, CHWs play a critical role in monitoring, case detection, and frontline response. They will be essential to the COVID-19 vaccination program. National CHW programs are proposed for the UK and US, partly to alleviate the current crisis and to give a permanent new cadre of health workers to address other unmet health needs.

CHW programs need more funding

To achieve all SDGs by 2030, governments must invest an additional 1% of their GDP in developing and strengthening their PHC systems, not just SDG3 [48]. UHC prioritizes "coverage" of healthcare costs. UHC must include preventative, promotive, and curative care for everyone who needs them, especially those with the greatest needs. A significant portion of PHC funds should be allocated to expand national CHW programs, which should provide free services. These services must be geared toward the poor, socially disadvantaged, and rural residents. CHWs reduce health inequities.

Despite evidence that CHWs provide high-impact therapies [24], government investment in such programs is low. In the recent decade, only 2.5% of official development funding for health has directly targeted CHW efforts, with the rest going to HIV/AIDS, malaria, tuberculosis, reproductive health, or family planning[49]. According to the Centre for Accelerating Innovation and Impact and the Financing Alliance for Health, an extra $2 billion per year is needed in Sub-Saharan Africa to build and improve CHW initiatives[50].

National CHW initiatives are finally getting the attention and respect they deserve as part of primary care [51]. The WHO adopted a guideline in 2018 to improve community health worker programs[52, 53]. The World Health Assembly enacted a landmark resolution on CHWs the following year, acknowledging their importance in ensuring UHC and complete health services reach hard-to-reach locations and vulnerable populations. The Assembly asked member states to "optimize" community health worker programs to achieve UHC and SDG3[54].

CONCLUSION

The Alma-Ata Declaration from 1978, for example, was sparked by a series of small, creative, proof-of-concept projects that yielded rich and valuable learning. However, national programs face their unique challenges. As a result, case studies of such programs can be especially relevant and advantageous for national-level policymakers and program managers concerned with service delivery to entire populations, as they provide helpful information about CHW tasks and efficacy, as well as context and system support.

Despite the increased focus on CHW programs in recent years, it is still challenging to provide the right system input for CHWs. After nearly a century, we are still struggling to figure out how to find, train, and keep such health professionals in their positions.

It is now the accountability of governments and UN agencies to include CHWs in official health statistics on par with physicians, nurses, and other allied health professionals; to include CHWs in national human resource planning, including the provision of sufficient numbers of CHWs; and to prioritize supervisory, strategic, and other support for these programs.

Despite the setbacks CHW programs have endured in the past, they appear to have a promising future. If we want to create more effective programs, we will need to seek out alternative funding mechanisms. Better program outcomes and higher CHW morale and retention could be achieved with more professionally trained CHWs, better supervision, logistical support, clearly defined career paths, and (in some situations) linking them to lower-level volunteer workers, each covering a restricted number of homes. No longer are national CHW projects an afterthought with little resources. It is risking millions of people's lives.

Acknowledgement: The authors thank the University of Hyderabad, the Institute of Eminence (IoE), for supporting the study. K. Jyothi is grateful to the University Grants Commission (UGC, India) and the Ministry of Education Government of India for awarding the Senior Research Fellowship.

REFERENCE

1. Assembly U. Resolution adopted by the General Assembly on 10 October 2018: political declaration of the high-level meeting of the General Assembly on the fight against tuberculosis. A/RES/73/3; 2018.
2. Organization WH. Working for health and growth: investing in the health workforce. 2016.

3. Ghebreyesus A. Address by Dr. Tedros Adhanom Ghebreyesus, Director-General. 2019.
4. Lehmann U, Sanders D. Community health workers: what do we know about them. The state of the evidence on programmes, activities, costs and impact on health outcomes of using community health workers Geneva: World Health Organization. 2007:1-42.
5. Swider SM. Outcome effectiveness of community health workers: an integrative literature review. Public Health Nurs. 2002;19(1):11-20.
6. Perry HB, Chowdhury M, Were M, LeBan K, Crigler L, Lewin S, et al. Community health workers at the dawn of a new era: 11. CHWs leading the way to "Health for All". Health Res Policy Syst. 2021;19(3):1-21.
7. Figueiredo K, Gonçalves GA, Batista HM, Akerman M, Pinheiro WR, Nascimento VB. Actions of primary health care professionals to reduce maternal mortality in the Brazilian Northeast. International Journal for Equity in Health. 2018;17(1):1-8.
8. Nugent R, Bertram MY, Jan S, Niessen LW, Sassi F, Jamison DT, et al. Investing in non-communicable disease prevention and management to advance the Sustainable Development Goals. The Lancet. 2018;391(10134):2029-35.
9. Acharya S, Lin V, Dhingra N. The role of health in achieving the sustainable development goals. Bull World Health Organ. 2018;96(9):591.
10. Organization WH. Optimizing the contributions of the nursing and midwifery workforce to achieve universal health coverage and the Sustainable Development Goals through education, research and practice. 2017.
11. Chotchoungchatchai S, Marshall AI, Witthayapipopsakul W, Panichkriangkrai W, Patcharanarumol W, Tangcharoensathien V. Primary health care and sustainable development goals. Bull World Health Organ. 2020;98(11):792.
12. Afzal MM, Pariyo GW, Lassi ZS, Perry HB. Community health workers at the dawn of a new era: 2. Planning, coordination, and partnerships. Health Res Policy Syst. 2021;19(3):1-17.
13. Tanser F, Gijsbertsen B, Herbst K. Modelling and understanding primary health care accessibility and utilization in rural South Africa: an exploration using a geographical information system. Soc Sci Med. 2006;63(3):691-705.
14. Sacks E, Schleiff M, Were M, Chowdhury AM, Perry HB. Communities, universal health coverage and primary health care. Bull World Health Organ. 2020;98(11):773.
15. Black RE, Taylor CE, Arole S, Bang A, Bhutta ZA, Chowdhury AMR, et al. Comprehensive review of the evidence regarding the effectiveness of community–based primary health care in improving maternal, neonatal and child health: 8. summary and recommendations of the Expert Panel. Journal of global health. 2017;7(1).
16. Scott VK, Gottschalk LB, Wright KQ, Twose C, Bohren MA, Schmitt ME, et al. Community health workers' provision of family planning services in low-and middle-income countries: A systematic review of effectiveness. Stud Fam Plann. 2015;46(3):241-61.
17. Mishra SR, Neupane D, Preen D, Kallestrup P, Perry HB. Mitigation of non-communicable diseases in developing countries with community health workers. Globalization and health. 2015;11(1):43.
18. Meara JG, Leather AJ, Hagander L, Alkire BC, Alonso N, Ameh EA, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. The lancet. 2015;386(9993):569-624.
19. UNAIDS W. Global AIDS monitoring. Geneva: UNAIDS. 2017.
20. Kruk ME, Gage AD, Arsenault C, Jordan K, Leslie HH, Roder-DeWan S, et al. High-quality health systems in the Sustainable Development Goals era: time for a revolution. The Lancet global health. 2018;6(11):e1196-e252.
21. Gilson L, Doherty J, Loewenson R, Francis V. Challenging Inequity Through Health Systems. Final Report of the Knowledge Network on Health Systems June 2007. 2007.
22. Wong KL, Benova L, Campbell OM. A look back on how far to walk: systematic review and meta-analysis of physical access to skilled care for childbirth in sub-Saharan Africa. PLoS One. 2017;12(9):e0184432.
23. Barros AJ, Ronsmans C, Axelson H, Loaiza E, Bertoldi AD, França GV, et al. Equity in maternal, newborn, and child health interventions in Countdown to 2015: a retrospective review of survey data from 54 countries. The Lancet. 2012;379(9822):1225-33.
24. Perry HB. Engaging Communities for Improving Mothers' and Children's Health: reviewing the evidence of effectiveness in resource-constrained settings: [distributor] Edinburgh University Global Health Society; 2017.
25. Gwatkin DR, Wilcox JR, Wray JD. Can health and nutrition interventions make a difference. ODC monograph (USA). 1980.
26. Sarin E, Lunsford SS. How female community health workers navigate work challenges and why there are still gaps in their performance: a look at female community health workers in maternal and child health in two Indian districts through a reciprocal determinism framework. Human resources for health. 2017;15(1):1-10.
27. Saprii L, Richards E, Kokho P, Theobald S. Community health workers in rural India: analysing the opportunities and challenges Accredited Social Health Activists (ASHAs) face in realising their multiple roles. Human resources for health. 2015;13(1):95.
28. Mori Junior R, Fien J, Horne R. Implementing the UN SDGs in universities: challenges, opportunities, and lessons learned. Sustainability: The Journal of Record. 2019;12(2):129-33.
29. Maher D, Cometto G. Research on community-based health workers is needed to achieve the sustainable development goals. Bull World Health Organ. 2016;94(11):786.
30. Shanthosh J, Durbach A, Joshi R. Charting the Rights of Community Health Workers in India: The Next Frontier of Universal Health Coverage. Health Hum Rights. 2021;23(2):225.
31. Johnson LJ, Schopp LH, Waggie F, Frantz JM. Challenges experienced by community health workers and their motivation to attend a self-management programme. African Journal of Primary Health Care & Family Medicine. 2022;14(1):9.
32. McConnell M, Mahajan M, Bauhoff S, Croke K, Verguet S, Castro MC, et al. How are health workers paid and does it matter? Conceptualising the potential implications of digitising health worker payments. BMJ Global Health. 2022;7(1):e007344.
33. Manjunath U, Sarala R, Rajendra D, Deepashree M, Chokshi M, Mokashi T. Assessment of Workload of ASHAs: A Multi-stakeholder Perspective Study for Task-sharing and Task-shifting. Journal of Health Management. 2022:09720634221079084.
34. Olaniran A, Madaj B, Bar-Zeev S, Banke-Thomas A, van den Broek N. Factors influencing motivation and job satisfaction of community health workers in Africa and Asia—A multi-country study. The International Journal of Health Planning and Management. 2022;37(1):112-32.
35. Joshi A, Pakhare A. A mixed method study on supportive supervision of Community Health Workers from Central India. 2022.
36. Deussom R, Mwarey D, Bayu M, Abdullah SS, Marcus R. Systematic review of performance-enhancing health worker supervision approaches in low-and middle-income countries. Human resources for health. 2022;20(1):1-12.

37. Siddiqui S, Gonsalves PP, Naslund JA. Scaling up of mental health services in the digital age: The rise of technology and its application to low-and middle-income countries. Mental Health in a Digital World: Elsevier; 2022. p. 459-79.

38. Joshi U, Naslund JA, Anand A, Tugnawat D, Vishwakarma R, Bhan A, et al. Assessing costs of developing a digital program for training community health workers to deliver treatment for depression: A case study in rural India. Psychiatry Res. 2022;307:114299.

39. Scott K, Ummer O, Chamberlain S, Sharma M, Gharai D, Mishra B, et al. At the frontlines of digitisation: a qualitative study on the challenges and opportunities in maintaining accurate, complete and timely digital health records in India's government health system. BMJ open. 2022;12(2):e051193.

40. Schneider H, Zulu JM, Mathias K, Cloete K, Hurtig A-K. The governance of local health systems in the era of Sustainable Development Goals: reflections on collaborative action to address complex health needs in four country contexts. BMJ global health. 2019;4(3):e001645.

41. Lewin S, Lehmann U, Perry HB. Community health workers at the dawn of a new era: 3. Programme governance. Health Res Policy Syst. 2021;19(3):1-12.

42. Pálsdóttir B, Barry J, Bruno A, Barr H, Clithero A, Cobb N, et al. training for impact: the socio-economic impact of a fit for purpose health workforce on communities. Human resources for health. 2016;14(1):1-9.

43. Odugleh-Kolev A, Parrish-Sprowl J. Universal health coverage and community engagement. Bull World Health Organ. 2018;96(9):660.

44. Campbell J. The route to effective coverage is through the health worker: there are no shortcuts. Lancet. 2013;381(9868):725.

45. INTERNATIONAL PS, editor Contribution of Community Health Workers in attainment of the Sustainable Development Goals. The 1st International Symposium on Community Health Workers (CHWs) 2017; Kampala, Uganda: The global online knowledge library and campaign builder.

46. Perry HB, Hodgins S. Health for the people: past, current, and future contributions of national community health worker programs to achieving global health goals. Global Health: Science and Practice. 2021;9(1):1-9.

47. Praveen D, Patel A, Raghu A, Clifford GD, Maulik PK, Abdul AM, et al. SMARTHealth India: development and field evaluation of a mobile clinical decision support system for cardiovascular diseases in rural India. JMIR mHealth and uHealth. 2014;2(4):e54.

48. WHO. Countries must invest at least 1% more of GDP on primary health care to eliminate glaring coverage gaps. News release September. 2019;22.

49. Lu C, Palazuelos D, Luan Y, Sachs SE, Mitnick CD, Rhatigan J, et al. Development assistance for community health workers in 114 low-and middle-income countries, 2007–2017. Bull World Health Organ. 2020;98(1):30.

50. USAID. U.S. Agency for International Development (USAID). Strengthening Primary Health Care though Community Health Workers: Closing the $2 Billion Gap. . 2018.

51. Schneider H, Okello D, Lehmann U. The global pendulum swing towards community health workers in low-and middle-income countries: a scoping review of trends, geographical distribution and programmatic orientations, 2005 to 2014. Human resources for health. 2016;14(1):65.

52. Organization WH. WHO guideline on health policy and system support to optimize community health worker programmes: World Health Organization; 2018.

53. Cometto G, Ford N, Pfaffman-Zambruni J, Akl EA, Lehmann U, McPake B, et al. Health policy and system support to optimise community health worker programmes: an abridged WHO guideline. The Lancet Global Health. 2018;6(12):e1397-e404.

54. Assembly WH. World Health Assembly. Community health workers delivering primary health care: opportunities and challenges. . 2019.