Strengthening primary health care through community health workers in South Asia

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Summary

The growing health challenges in South Asia require further adaptations of community health worker (CHW) programs as a key element of primary health care (PHC). This paper provides a comparative analysis of CHW programs in five countries (Bangladesh, India, Nepal, Pakistan, and Sri Lanka), examines successes and challenges, and suggests reforms to better ensure highly performing CHW programs. To examine CHW programs in the region, we conducted a narrative review of the peer-reviewed and grey literatures, as well as eliciting opinions from experts. Common roles of CHWs include health education, community mobilization, and community-based services, particularly related to reproductive, maternal, neonatal, and child health. Some countries utilize CHWs for non-communicable diseases and other emerging health issues. To maximize the potential contribution of CHWs to achieving Universal Health Coverage, we recommend future research and policy focus on strengthening existing health systems to support the expansion of CHWs roles and better integrating of CHWs into national PHC systems. This is Paper 4 in the Series on Primary Health Care in South Asia, addressing areas that have the potential to revitalize health systems in South Asian countries.

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Keywords: Primary health care; South Asia; Community health worker; Health systems

Introduction

South Asia has a rich history of using community health workers (CHWs) to bring health care closer to communities. The first community-based female health worker cadre was introduced in Sri Lanka in the 1920s.[1] CHWs were once viewed as a transitory solution to mitigate health workforce shortages in resource-constrained settings.[2] However, with the commitment, in Astana in 2018, to revitalize primary health care (PHC), CHWs are recognized by governments and the public health community as essential for delivering PHC services to achieve Universal Health Coverage.[3,4] Today, all South Asian countries have active cadres of CHWs (Box 1) constituting a substantial proportion of the healthcare workforce: nearly half of the total health workforce in Pakistan (43%), 46% in India, and 42% in Bangladesh.[7,8] In Nepal, there are almost three times as many Female Community Health Volunteers (FCHVs) as physicians, nurses, and midwives, combined.[8] The number of the CHWs deployed in South Asia is over two million, making them among the largest CHW programs in the world.[9–12] CHWs in the region have been lauded for their contribution to improving access to health services and for community education and mobilization of underserved and resource-limited communities.

CHWs in South Asia are engaged in a variety of roles in relation to PHC services. Their responsibilities include health promotion and prevention of diseases, disease surveillance in their community, supporting disease-

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Box 1.
Definitions of CHWs.

Who do we consider to be CHWs?

There is no universally accepted definition of CHWs. Their definitions vary by country and programs, with their roles and scope of work expanding over time. A commonly used definition from Scott et al. describes CHWs as "health workers based in communities (i.e., conducting outreach from their homes and beyond primary health care facilities or based at peripheral health posts that are not staffed by doctors or nurses), who are either paid or volunteer, who are not professionals, and who have fewer than two years training but at least some training, if only for a few hours."[5] Another definition by Olaniran et al., 2017 includes multiple levels of CHWs based on their competencies and qualifications. The highest level of CHWs is described as "level 2" paraprofessionals having formal training lasting more than a year.[6] Although these definitions conform to many past programs, they do not fully capture contemporary conceptions of CHWs as some of them are now in salaried positions, required to have a professional license, stationed in the health facility, and receive a longer duration of training.

specific services, providing limited curative care, and linking their communities with the larger health system.[4,13] Yet, CHW programs in the region face many challenges.[14] In some countries, they have been expected to take on unrealistically broad roles and responsibilities and are inadequately compensated and poorly integrated within the health system.[15,16] Changing demographics and epidemiology in South Asia pose additional challenges to CHW programs. The rising prevalence of non-communicable diseases (NCDs), aging populations, and rapid urbanization, in particular, place new demands on CHWs. The ability of CHW programs to accommodate these diverse challenges will determine the extent to which South Asian countries can continue to improve the health of their populations. This is Paper 4 in the Series on Primary Health Care in South Asia, which seeks to investigate approaches to revitalizing health systems in the region.

We provide an overview of CHW programs in South Asia and how they could be further developed to strengthen PHC and better address current and future health challenges. First, the paper provides a comparative analysis of current CHW programs in the region. Second, it examines key successes achieved and challenges faced by these programs. Third, the study draws lessons from available evidence on CHW programs in South Asia to offer guidance for future roles and directions and identify areas for further research.

Methods

We conducted a narrative review, extracting data from both peer-reviewed and grey literatures, and informal interviews with expert opinions to deepen our understanding of CHW programs in five countries: Bangladesh, India, Nepal, Pakistan, and Sri Lanka (Appendix 1). Although we extracted data about all major CHW programs in the five countries (Box 2), the synthesis of the results presented in this paper focuses only on major public sector CHW cadres, with the exception

Box 2.
Terms for CHWs used as the search query, by country.

Country	Terms
Bangladesh	• Family Welfare Assistant • Health Assistant • Community Health Care Provider • Shasthya Shebika • Shasthya Karmi
India	• Accredited Social Health Activist • Multi-Purpose Health Worker- Female (Auxiliary Nurse Midwife) • Anganwadi Worker
Nepal	• Female Community Health Volunteer • Auxiliary Nurse Midwife • Auxiliary Health Worker • Health Assistant
Pakistan	• Lady Health Worker • Marvi Worker • Community Midwives • Traditional Birth Attendant • Reproductive Health Volunteer
Sri Lanka	• Public Health Midwife • Public Health Inspector • Public Health Nursing Sister • Health Volunteer • Health Assistant

of a program implemented by the non-governmental organization (NGO), BRAC,[17–23] in Bangladesh. These programs were chosen given their long histories, large scales, close interactions with the community at the household level, and the volume of available literature. The public-sector CHW programs selected included: India's Accredited Social Health Activists (ASHA), Nepal's Female Community Health Volunteers (FCHVs), Pakistan's Lady Health Workers (LHWs), Sri Lanka's Public Health Midwives (PHMs), and Bangladesh's Family Welfare Assistants (FWAs) and Health Assistants (HAs) (Table 1). We also included BRAC's Shasthya Shebikas and Shasthya Kormis, in Bangladesh (Table 1). The paper is organized based on key themes from the CHW-health system interface framework, developed by Scott et al., which provides a comprehensive framework for analyzing CHW programs within health systems.[24] This framework was further adapted through discussion between co-authors and using themes from systematic reviews.[5,6,25,26] We used the following key themes to frame our discussion in this paper:

a) CHW capacities;
b) Empowerment of CHWs;
c) CHW performance and motivation; and
d) Sustainability.

In our review we have also focused on successes, challenges, implications for future development, and knowledge gaps to be closed with additional research.

Cadre	Year of commencement	Total workforce	Number of household (HH)/populations per CHW (pop)	Areas of work	Roles
Bangladesh					
Family Welfare Assistant (FWA)	1976[17]	17,308[9]	1000–1700 HH/Rural 5500 Pop[9]	Family planning, Maternal care (ANC/PNC), Newborn care Sick childcare Birth registration	Register couples and pregnant women in database; provide counseling on contraceptive methods to couples (pills, condoms, depo); health counseling and education for pregnant women during ANC and PNC visits; promote immunization; provision of ORS for sick children; record births
Health Assistant (HA)	1960s[17]	15,420[9]	1000–1700 HH/Rural 6500 Pop[9]	Immunization Sick childcare NCDs Birth and death registration	Organize immunization campaign and outreach EPI centers; immunize children, pregnant women and adolescent girls; provide Vitamin A capsule to children; manage non-severe childhood illnesses (ARI, diarrhea); register births and deaths in local government systems
Shasthya Shebika (SS)	1992[a]	42,000	Rural 2500 Pop	Family planning MNCH Nutrition Immunization Tuberculosis, Malaria Hygiene and sanitation NCDs Eye Care	Health promotion and education and community mobilization on the specified issues; treating common ailments (fever, cold, anemia, diarrhea and dysentery, deworming, scabies, ARI); early diagnosis, referral and drug administration for malaria; identify presumptive TB cases and provide DOTS; identify pregnant women and refer for ANC, identify and referral of childhood and newborn illness; check near-sighted vision and provide reading glasses; sale of drugs and health commodities
Shasthya Kormi (SK)	2005[17]	4000[9]	Rural 25,000 Pop	Maternal care (ANC/PNC) Newborn care Child health Adolescent health Nutrition Menstrual hygiene Malaria NCD	Health promotion and counseling on specified issues; provide ANC and PNC services including nutrition counseling; provide essential newborn care; referral of MNCH related complications to higher health facilities; Organize targeted health education for adolescent girls; sell drugs and health commodities (micronutrient powder for children; sanitary napkins); supervise activities of SSs
India					
Accredited Social Health Activist (ASHA)	Rural: 2005 Urban: 2013	Total: 1,003,790 Rural: 923,869 Urban: 79,921[18]	Rural: 200 HH/1000 Pop Urban: 400 HH/ 2000–2500 slum Pop[18]	Maternal care (ANC/PNC) Newborn care Family planning Nutrition Hygiene and sanitation Adolescent health Malaria, tuberculosis and other infectious diseases NCDs including hypertension; diabetes and oral, breast and cervical cancer	Three roles: Healthcare facilitator, service provider, and health activist: creating awareness and providing information to a community on available health and family welfare services; counseling women on various health topics; mobilizing and facilitating access to health services; escorting pregnant women and children to treatment facilities; providing primary medical care for minor ailments; acting as a depot holder for essential items; and reporting births, death,; and unusual health problems in the village.[19]
Nepal					
Female Community Health Volunteer (FCHV)	1988[20]	Total: 51,416 Rural: 46,088 Urban: 5328[21]	125 HH/500 Pop[20]	Family planning, Maternal care Newborn care Childhood illness Immunization Nutrition Infectious diseases Hygiene and sanitation	Health counseling and education on these topics. Treatment and referral of children with pneumonia and diarrhea; delivering counseling and advising during pregnancy regarding nutrition, antenatal care, immunization, and postpartum visit; delivering essential newborn care including safe cord clamping, cord stump care, early breast feeding, and prevention of hypothermia.
Pakistan					
Lady Health Worker (LHW)	1994	89,282[22]	100–150 HH/ 1000–1500 Pop[22]	Family planning Maternal care Nutrition Infectious diseases Birth and death registration Treatment of minor ailments	Health counseling and education on these topics. Maintaining records of all married couples, pregnant women, births and deaths in their catchment; providing care for ANC and PNC women; monitoring child growth; treating minor ailments and injuries; and making referrals to primary healthcare facilities
Sri Lanka					
Public Health Midwife (PHM)	1926	5746 (2017)[23]	Rural: 3000 Pop Urban: 5000 Pop[23]	Family planning Maternal care (ANC/PNC) Newborn care Nutrition Sick childcare Immunization	Provision of MCH care at clinic and domiciliary, collecting MCH information from field areas, health education, counseling, childhood immunization,

ANC, Antenatal care; ARI, Acute respiratory infection; DOTS, Directly Observed Therapy, Short Course; ECD, Early Childhood Development; EPI, Expanded program on immunization; MCH, Maternal and child health; MNCH, Maternal, Newborn, and Child Health; NCDs, Non-communicable diseases; ORS, Oral rehydration salt; PNC, Postnatal Care; SRHR, Sexual and Reproductive Health and Rights. [a]Early iterations began from mid-1970s.[17]

Table 1: **Overview of CHW programs in the five South Asian countries: program commencement, total workforce, coverage, areas of work, and specific roles by CHW cadre and country.**

CHW capacities

The primary roles and responsibilities of CHWs in the region include community mobilization, facilitation of health service utilization, and provision of community-based services (Table 1). In the 1980s, CHWs primarily provided services related to family planning, immunization, pregnancy and newborn care, childhood illness, tuberculosis, and malaria.[19,25–29] However, CHWs' roles have evolved over the years in South Asia, as health system priorities have changed from health promotion to management of maternal and child health, communicable diseases and NCDs and referral to health facilities.[3,12,30–32] In all the South Asian CHW programs reviewed in this paper, CHWs are involved in family planning counseling and providing oral pills and condoms. However, in maternal health, responsibilities vary across these programs. While the roles of PHMs in Sri Lanka include provision of antenatal (ANC) and postnatal care (PNC), FWAs in Bangladesh, ASHAs in India, FCHVs in Nepal, and LHWs in Pakistan are responsible for pregnancy identification, ANC and PNC counseling, and referral to health centers and, in some cases, escorting their clients (Table 1). However, in recent times, Bangladesh's FWAs have seen their role expanded from counseling to providing ANC and PNC, based in Community Clinics. Across all 5 countries, CHWs are involved in the identification, treatment, and referral of childhood illnesses, although Nepal no longer allows FCHVs to provide antibiotics for acute respiratory infections.[33] In Bangladesh, BRAC CHWs are responsible for identification of presumptive tuberculosis cases and provision of directly observed therapy short course (DOTS), which is an exception in the region.[34] CHWs in India and Bangladesh are actively engaged in malaria case management. CHWs in all 5 countries played a critical role during the COVID-19 pandemic. For example, in Bangladesh CHWs took part actively in COVID-19 control efforts, including conducting surveys and disseminating health messages to community members.[35]

As we have pointed out, CHWs in South Asia have focused on reproductive, maternal, neonatal, and child health services, but in recent years, their roles have expanded to include NCD management; in Sri Lanka, this began earlier, from 1996.[12,30–32,36] Studies in Nepal and Bangladesh suggested that CHWs have the potential to effectively screen, counsel, and promote drug adherence for common NCDs[30,31]; however, evidence from these studies has yet to be translated into large-scale programs. By contrast, across India ASHAs are now conducting risk assessments for hypertension, diabetes, oral and breast cancer, with referral of suspected cases for further screening at health sub-centers.[37] Similarly, PHMs in Sri Lanka are now referring suspected adult cases for NCD screening and, specifically among women over 35 years of age, for cancer screening. On a limited scale, in Bangladesh, BRAC CHWs are now conducting early screening for diabetes and hypertension. Government CHWs in Bangladesh are responsible for registering births and deaths and notifying local governments (Table 2). With this expanded range of services, CHWs face challenges due to unclear job descriptions, lack of training and supervision, and increased work burden.[12,30,31,44] The gradual expansion of the CHWs' scope of responsibility has also led to concerns about their capacity and realistic workload.

Urbanization in South Asia also places new demands on CHW programs, which have been designed for rural communities. CHWs from government-run programs in India and Sri Lanka are involved in linking the urban poor with health services.[45,46] Importantly, the urban PHC programs have largely been transplants of rural models and focus on low-income populations.[47] However, because urban areas have different characteristics and types of health service organizations, urban CHW models need to be designed differently. In Bangladesh, only the NGO-run CHW programs are evident in the urban slums; BRAC's Shasthya Shebika and Shasthya Kormi models have been contextualized and adapted to the conditions of urban slums.[48] Their immense contribution to maternal and newborn care has been possible because of well-supported community structures, social networks, and robust referral systems (Box 3). Yet, to inform future strategy, there is a need for more research in urban settings on the CHW work environment, capacities, and methods of community engagement, including defined roles and responsibilities for urban CHWs. Further, it is crucial to better understand the perceptions of CHWs, their beneficiaries, and other key stakeholders on CHWs' roles and responsibilities in both rural and urban areas.

Training and educational requirements of CHWs vary across South Asia in content and length. All CHWs receive foundational training followed by refresher and specialized training (Table 2).[12,6] Training is usually contextualized, participatory, and interactive, including real and simulated cases.[33] The training for BRAC's CHWs uses a practical field-based approach focused on developing CHWs' ability to execute their tasks. BRAC also provides short-specialized trainings to address emerging issues, such as the management of birth asphyxia, to build BRAC Shasthya Shebikas' skills to support neonates for home births they attend.

CHWs need high-quality, contextualized, and individually-tailored pre-service and in-service training adapted based on their level of education and work experience.[44] Studies from India and Nepal report that the level of CHW education was not necessarily correlated with knowledge, suggesting that high-quality training can achieve a high level of knowledge even with limited schooling.[51] To improve CHWs' performance, regular, hands-on in-service training, including on with interpersonal communication skills, is important.[52] CHWs themselves have demanded better training

Cadre	Years of schooling	Training duration	Content of training
Bangladesh			
Family Welfare Assistant (FWA)	12 (10 years acceptable in hard-to-reach areas)	Introductory: 43 Days[38] Refresher: 5 days refresher every three years Additional: 5 days on each specific new issue (ECD, SRHR)	• Roles & responsibilities • Family planning • Maternal & child health • Early childhood development (ECD), child rights • Primary healthcare • First aid • Communicable diseases • Nutrition • Expanded Programme on Immunization (EPI) • Field practice[38]
Health Assistant (HA)	12	Introductory: 21 Days[39] Additional: 5 days 'team training' with FWAs and Community Health Care Providers (CHCPs); 5 days training on specific issues	• On-the-job skills, roles & responsibilities • EPI[38] • Social Behavior Change Communication (SBCC) • Emergency first aid • Health education and personal hygiene • Primary health care • Nutrition • Family planning • Sexual and reproductive health • Safe motherhood, danger signs, & ANC • Gender & violence against women • Communicable illnesses identification • WASH (water, sanitation, and hygiene) • ECD
Shasthya Shebika (SS)	8 (Flexible)	Introductory: 21–28 Days[17] Refresher: One day monthly Special: 1–3 days on newer issues	• Role & responsibilities • Field operations • Maternal and newborn health: health education on pregnancy related care, childbirth, newborn care; danger signs; pregnancy identification and referral; iron-folic acid distribution • Child health: health education on promotion of child healthcare and prevention of childhood illnesses; basic treatment of childhood illnesses and referral • Immunization: health education on EPI for children and vaccines for pregnant women and adolescent girls • Family planning: counseling and promotion of contraceptive methods; distribution of pills and condoms • Basic curative care for common illnesses • Maternal and child nutrition: counseling on maternal nutrition and iron supplements; early initiation of breastfeeding (BF); exclusive BF and continuation of BF and complimentary feeding • WASH: health education on hygiene and sanitation • Reading glasses: identification of nearsighted vision loss and provision of reading glasses • Communicable diseases control: identification of presumptive TB cases and referral and Directly Observed Treatment (DOT) for TB Short Course; malaria identification, mosquito net promotion, and follow up of malaria cases
Shasthya Kormi (SK)	10	Introductory: 21–28 Days[17] Refresher: 1 day monthly[17] Special: 1–3 days on newer issues	• Role & responsibilities • Field operations • Maternal health: theoretical and practical training on routine ANC and PNC services including how to organize ANC session at community and households, and PNC at home; counseling on birth preparedness, danger signs of pregnancy, and childbirth-and pregnancy-related complications; referral to health facilities; basic management of PPH and eclampsia • Newborn care: counseling on essential newborn care and service provision of ENC; care for low birthweight babies; detection of neonatal complications and referral to facilities • Child health: counseling on child health and presentation of childhood illnesses • Adolescent health: physical and mental health and development, iron-folic acid, and deworming • Maternal nutrition and infant and young child feeding practices (IYCF): counseling on maternal healthy diets and iron supplements; early initiation of breastfeeding (BF); exclusive BF and continuation of BF and complementary feeding • Menstrual hygiene: promotion of hygienic practices including sanitary napkin use • Malaria: rapid test for malaria and its treatment in malaria-endemic districts • NCDs: Diabetes and hypertension screening, referral to facilities, and follow up

(Table 2 continues on next page)

and refreshers to improve their skills.[51,53] In most government programs, except in Sri Lanka, refresher training for CHWs is offered only infrequently. Furthermore, supervision is often lacking. These weaknesses negatively affect the performance and confidence of newly recruited CHWs. In Sri Lanka, PHMs have requested training in digital and technological skills to enhance their ability to document their work and upload field data into the digital health information system.[36] In Bangladesh, a digitized system

Cadre	Years of schooling	Training duration	Content of training
(Continued from previous page)			
India			
Accredited Social Health Activists (ASHA)	8	Introductory: 33 days: 8 days of induction training + 20 days of skills-based training in module 6 and 7 + 5 days training on NCDs[40] Refresher: at least 15 days annually[19]	• Induction training to orient her to her roles and responsibilities, provide the skills of community rapport building and leadership, and an understanding of the health system and a rights-based approach to health. • Skill based training on module 6 and 7 (20 days) for key competencies in women and children's health and nutrition[19] • Training on NCDs (5 days) for additional skills of active facilitation of population empanelment, community-based risk assessment for chronic diseases, health promotion, lifestyle and health risk modification for management of common NCDs • Training in newer services: community-level care provision for eye-ENT care, elderly care, mental health, emergency care, oral health.[21]
Nepal			
Female Community Health Volunteers (FCHV)	Females who are literate	Introductory: 18 days, which is to be conducted in two sessions at a two-month interval. Refresher: 5 days every five years[41]	• Health promotional activities of mothers and children • Promotion of utilization of available health services and raise awareness on health. • Family planning • Safe motherhood • Newborn care, Immunization, nutrition, communicable and epidemic diseases, acute respiratory diseases and diarrheal diseases control, environmental sanitation, health education and other national programs • Provision of recommended services such as drug distribution and diseases management as directed by the government • Other health programs also might involve FCHV through their guidelines.[21]
Pakistan			
Lady Health Workers (LHWs)	Minimum 8	Introductory: 15 months (3-month classroom + 12-month field) Refresher: 15 days annually	• The initial training includes an understanding of healthcare system at community level and role of LHW in the community • The 3-month classroom training schedule includes community engagement and rapport building, health education and promotion, preventive care, MNCH including immunization, adolescent health, and other common illnesses • The 12-month field training schedule includes home visits and counselling, Immunization campaign, family planning services, referral system and collaboration, monitoring and reporting, DHIS training, child health, common diseases (polio, TB) and communication skills[42]
Sri Lanka			
Public Health Midwives (PHMs)	12	Introductory: 18 months Refresher: monthly in-service programs include half day sessions by senior staff	• ANC and PNC • Breastfeeding and infant and young child feeding • Basics in common childhood illnesses • Basics in advising on NCD prevention • Family planning • Immunization • Information collection on MCH from field and compilation • Screening of breast cancer • Basics in advising on NCD prevention[43]

ANC, Antenatal care; ECD, Early Childhood Development; EPI, Expanded program on immunization; MCH, Maternal and child health; MNCH, Maternal, Newborn, and Child Health; NCDs, Non-communicable diseases; ORS, Oral rehydration salt; PNC, Postnatal Care; SRHR, Sexual and Reproductive Health and Rights.

Table 2: **Types of training that CHWs receive by CHW cadre and country.**

has been incorporated into the health systems at the CHW level, but to date training and supervision of CHWs and maintenance of technology has been inadequate.

There are important areas where further research is needed on what is required to support CHW capabilities. Although CHWs' training, typically, is based on disease priorities and uses practical, participatory, and needs-based approaches reinforced by refresher and special training, there is a need to better understand the quality and outcomes of CHW training. Moreover, CHWs training often still uses less effective formal didactic methods. Incorporating innovations, such as remote learning, the use of blended learning modalities including the use of recorded sessions, live streaming through YouTube channels, Artificial Intelligence (AI)-mediated learning, and other media have potential to enhance CHW training effectiveness. Modern technology offers promising opportunities. This is particularly relevant considering the increasing availability of reliable digital infrastructure in most South Asian countries.

In some South Asian countries, CHW remuneration has transitioned from voluntary or pay-for-performance-based models to largely salary-based models. In Sri Lanka, Pakistan, and Bangladesh, state-employed CHWs receive monthly salary and other benefits from the government budget (Table 3). However, this is not the case for ASHAs in India, FCHVs in Nepal, and BRAC SSs in Bangladesh (Table 3). In Sri Lanka, from the inception of the program 100 years ago, PHMs were recruited as government employees (Box 4). The

Box 3.

***Manoshi*: an innovation in maternal and newborn care in the urban slums of Bangladesh.**

Rapid urbanization poses unprecedented health challenges in Bangladesh. The poor and disadvantaged populations arriving in cities for better economic opportunities settle mostly in slums or shanties. Despite the presence of innumerable private health facilities and some public hospitals in cities, healthcare access and utilization are low among the poor slum populations. Born in 2007, the BRAC *Manoshi* project provided community-based MNCH care for 6.9 million urban slum dwellers in Bangladesh. The rural CHW model was adapted by recruiting SKs (younger and educated) and SSs (entrepreneurial) who were trained to engage and mobilize the community and offer ANC and PNC and essential newborn care at home. The CHWs were part of the social network linking the community with facilities. The CHWs were all connected with the BRAC Delivery Center (BDC)–birthing center that offered safe, culturally appropriate care to women by maintaining their privacy and dignity. Within four years, the percentage of women received four or more ANC visits increased from 25% to 52% and facility-based deliveries increased from 15% to 59%.[49] In addition, the neonatal mortality rate and stillbirth rate also declined in *Manoshi* areas.[50] Recognizing the needs and demands, BDCs were gradually upgraded to BRAC Maternity Centers (with trained midwives and paramedics) to provide basic emergency obstetric care and to reduce unnecessary referrals to hospitals. Some features of *Manoshi* were: the bridging role of CHWs, robust referral systems with a network of hospitals, and strong partnerships with local government bodies including slum influentials in localities. In the context of the vulnerability of slum populations, *Manoshi* is an example of an urban CHW program at scale that has been able to provide effective and culturally appropriate MNCH care by budling trust between the health system and the community.

sustainability of this program and its important contribution to improving the health of their communities can be attributed in part to the policy of engaging them as state employees, though there are many unresolved issues relating to career development and low salaries. Insufficient remuneration has been a major challenge for CHW programs across South Asia.[30,61,62] For example, in the state of Chattishgarh in India, the average hourly compensation of CHWs works out to 60% and 53% of the legal minimum wage in rural and urban areas, respectively.[63] Low remuneration of CHWs undermines their motivation and their ability to achieve targets.[64] CHWs have explored other opportunities for generating income, and this has affected retention and program performance.[62,65] Across the region there have been numerous CHW programs in Sri Lanka based on project funding that have not been sustained after funding ended. Finding optimal remuneration policies could be guided by learning from other regions.

CHWs have generally had limited career progression opportunities, undermining motivation, and ultimately in many cases contributing to high attrition.[66–71] In Sri Lanka, PHM remuneration is low given their workload, and career opportunities are limited.[36] There is still a dearth of research on and policies addressing CHWs career and professional development, in South Asia, despite notable financial investments that have been made in continued technical skill development.[72] BRAC has tried to create a career ladder for their Shasthya Kormis, offering those with suitable educational backgrounds the opportunity to be trained as professional midwives through a four-year midwifery diploma provided by the Midwifery Education Program at BRAC University. A few Shasthya Kormis have received this training, but to date positions have not yet been created for them in BRAC's service delivery system. It is critical to develop career paths for CHWs by expanding their skills and roles and offering a satisfying career.

Empowerment of CHWs

CHWs have generally been expected to be members of the community they serve.[5] In many South Asian countries, CHWs are viewed as agents of community change who empower communities by enhancing knowledge and awareness of health issues and healthcare. In Nepal, FCHVs have been perceived by members of their community as agents of change as they are able to influence health knowledge and practices in their communities.[73] Similarly, LHWs in Pakistan have been seen as community leaders in a context where women have otherwise been given minimal space in local civic and political life.[57] However, there are several factors that have limited the empowerment of CHWs and their role as change agents. An overwhelming majority of the CHWs in South Asia are women, commonly facing gender-related biases in the patriarchal societies of South Asia. Having a vast majority of a severely underpaid female workforce perpetuates gender inequities in these countries.[64] CHWs also face biases within the health system itself. CHWs are paid less than fair wages and have virtually no career paths for professional advancement.[66,67,74] Moreover, the lack of health system supports disempowers CHWs. For example, studies in Bangladesh and Nepal have documented community dissatisfaction and mistrust of CHWs due to the inadequate supply of medicines.[30,35,68] Furthermore, a variety of societal issues, such as caste, economic status, and education have undermined trust in CHWs' ability to provide services.[26,61,69,70]

Across South Asia, CHWs have been demanding better recognition within national health systems. In India, Nepal, and Pakistan, demands have emerged from CHW unions and associations calling for recognition of CHWs as public health workers.[71] They have demanded a voice in decision-making, occupational safety and health protection, dignity at work, rights to health care, and a people-centered healthcare system.[71] In Sri Lanka, PHMs have unionized, demanding better wages and facilities. Similarly, Community Health

Cadre	Remuneration	Supplies	Supervisor	# CHWs per supervisor/ frequency of follow-up
Bangladesh				
Family Welfare Assistant (FWA)	Salary: USD 150–320 per month and incentives (salary including incentives)	Contraceptives (regular and emergency contraceptive pills, condoms), misoprostol, ORS[3]	Family Planning Inspectors	3–6/twice monthly[3]
Health Assistant (HA)	Salary: USD 180–400 per month (salary including incentives)	Vaccines for routine immunization, Vitamin A capsule for children, ORS[3]	Assistant Health Inspectors	3/twice monthly[3]
Shasthya Shebika (SS)	Income: USD 25 per month[17] Performance-based incentives, drug-selling and tests	Paracetamol, vitamins, antihistamines, iron-folic acid, ORS, deworming tablets, antacids, iodized salt, sanitary napkins, condoms, contraceptive pills, pregnancy kits, safe delivery kits, kits for blood sugar test, reading glasses	Shasthya Kormi	8–12/2–3 times per month[17]
Shasthya Kormi (SK)	Salary: USD 50 per month[17] and performance-based incentives	Equipment for ANC, PNC & newborn care, multiple micronutrient nutrient powder, sanitary napkins	BRAC Program Officers, medical doctors[17]	5/twice per month.
India				
Accredited Social Health Activist (ASHA)	Performance-based incentives: USD 24 per month incentives for routine and recurrent activities: Task-based incentives for over 70 defined tasks[54]	Iron/folic acid tables, paracetamol tablet and syrup, ORS, zinc tablets, antibiotics, pregnancy testing kits, testing kit and slides for malaria, sanitary napkins, contraceptives.[19]	ASHA facilitator	20/20 days per month[19]
Nepal				
Female Community Health Volunteer (FCHV)	Volunteers (no salary) Dress allowance: USD 30 per year[55]	Oral contraceptives, condoms, vitamin A capsule, iron/folic acid tablets, ORS, acetaminophen, antiseptics, cotton roll, bandages, and scissors, ward register, flip charts, birth preparedness package[41]	Village Health Worker, Maternal and Child Health Worker	Not available/ monthly
Pakistan				
Lady Health Worker (LHW)	Salary: USD 173 per month[56]	Contraceptives, iron/folic acid tablets, ORS, and medicines	Lady Health Supervisors	20–25/at least once a month[57,58]
Sri Lanka				
Public Health Midwife (PHM)	Salary: USD 153–293 per month	Oral contraceptive pills, condoms, nutrition supplements for mothers and children, supplies for post-partum domiciliary care kit	Public Health Nursing Sister, Medical Officer of Health[36]	At least monthly by Public Health Nursing Sister

ANC, Antenatal care; ORS, Oral rehydration salt; MMNP, Multiple micronutrient powder; PNC, Post-natal Care.

Table 3: **Remuneration, supplies, and supervision.**

Care Providers in Bangladesh held a three-day hunger strike in 2018 demanding salary increases, better facilities, and integration of their jobs under the government's revenue budget. Governments should be supportive of fully integrating CHWs within the health system, acknowledging their value in health promotion and PHC service delivery. This will strengthen their position in the health systems and empower them to play a more effective role as change agents in their communities.

CHW performance and motivation

CHWs have contributed significantly to improving health service coverage in South Asia.[45,61] They have been credited with improving community knowledge and service coverage of ANC, PNC, immunization, family planning, iron-folate and multiple micronutrient supplement use by pregnant and post-partum women, breastfeeding, and complementary feeding.[51,75,76–79] In Bangladesh's urban slums, BRAC's CHWs have contributed to improving maternal and newborn care practices and outcomes by supporting women during pregnancy and childbirth.[80] ASHAs' use of a digital health platform has been found to increase reporting of complications during pregnancy and after delivery.[81] Yet, the presence of CHWs does not guarantee high coverage. For example, an average of 11% of pregnant women were not reached at all by ASHAs in India, with as many as 45%–58% missed in some districts.[51]

While traditionally CHWs in South Asia have focused on maternal and child health services, they have also had important roles in increasing coverage of other types of services. In Sri Lanka and Nepal, PHMs and FCHVs have contributed to community acceptance of newer services such as screening for depression and suicidal ideation, visceral leishmaniosis elimination, COVID-19 messaging and surveillance activities, and screening for autism.[27,82–86] PHM have also contributed to reducing the prevalence of risk factors of cardiovascular diseases.[87] In a pilot study in Nepal, FCHVs were found to be effective in screening for high blood pressure and diabetes, as well as in promoting cervical cancer screening.[88,89] A remarkable example was noted in eyecare in Bangladesh where BRAC CHWs have been

Box 4.

Continuing for a century: Sri Lanka's case of Public Health Midwives (PHMs).

Sri Lanka provides a unique example of a government-operated CHW model that has existed for a century. Initially, institutionally based midwifery services were supplemented by field-based midwifery services after establishing the Health Unit system in 1926. Public Health Midwives (PHMs) were allocated to defined geographical areas. At the onset, their role was to provide pregnancy and childcare to reduce mortality and morbidity. Their scope expanded gradually with the addition of new competencies to their training and specialized functions in MCH care. The maternal mortality ratio (MMR) improved from 1990 per 100,000 live births in 1937 to 1060 in 1947. During the same period, the infant mortality rate (IMR) improved from 170 per 1000 live births to 80.[59] MMR and IMR in 2020 were 29.5 per 100,000 live births and 8.9 per 1000 live births, respectively.[60] The PHMs' role in this achievement is widely recognized. PHMs have been involved in family planning services from the beginning and immunization since the launch of the Expanded Program on Immunization in 1978. Currently, PHMs are the mainstay of childhood immunization service provision in field clinics. Currently, PHMs provide health education; adolescent and pre-pregnancy counseling; nutritional interventions, as well as, in women over 35 years of age screening for NCDs and cancer. This provides expanding services to screen NCDs beyond hospital settings to preventive and promotive health services. Particularly, when the females generally slip from the health system following MCH services. In addition, PHMs are increasingly engaged in educating adults of both sexes to attend Healthy Lifestyle Clinics for NCD screening. The government's involvement in creating and sustaining a successful CHW program under the health department has prevented the need for NGO sector involvement in MCH services at the field level in Sri Lanka. However, the future of PHMs depends on the ability of the health department to re-orient PHM training, scope of work and career advancement to make it an attractive option for the next generation of healthcare workers.

effective in detecting near-vision impairment among older adults and providing them reading eyeglasses.

CHW's performance in contributing to improved coverage of health services has been influenced by a range of factors. CHWs' proximity to communities and their recognized leadership role have helped improve healthcare-seeking behavior, service utilization, and better health outcomes in the community.[90–94] Furthermore, the embeddedness of CHWs within their communities heightens community trust, resulting in their support for maintaining CHW programs, which in turn has helped secure long-term political backing.[57,72,73,95–97] On the other hand, health system factors have also impaired CHWs' performance: inadequate hands-on-training, weak supervision, poorly resourced and staffed health facilities to which they make referrals, negative attitudes of other healthcare providers, and poor referral links with health providers at the next level of care.[42,62,65,70,98–100] The many factors that can affect CHW performance need to be further examined and addressed.

Motivation is critical for CHWs to carry out their assigned tasks. CHWs' commitment to their communities and the trust and respect that members of communities have for them are among the most important motivating factors.[30,35,51,90,91,101,102] National surveys of CHWs in Nepal have found high levels of satisfaction among FCHVs and low attrition rates, with the overwhelming majority indicating a desire to continue in this role.[103,104] Enabling work environments, community appreciation, supportive families and supervisors, and respectful treatment by other health workers have contributed to high FCHV satisfaction with their work.[103,104] ASHAs in India have indicated that a better financial package and better security in government jobs would be key motivating factors for them.[51] Other factors that CHWs have indicated are important to them include opportunities for progression to other healthcare roles.[80,91,102]

Countries in the region have taken steps to improve CHW motivation.[102] In Bangladesh, flexible scheduling allowed BRAC CHWs to balance their work and family responsibilities and to obtain stronger support from their families.[80,102] On the other hand, CHWs' level of motivation is undermined by increased work burden related to administrative tasks, low salary, and delayed salary payment.[12,35,61,103,105] Other factors affecting CHW motivation and credibility in their community include inadequate or lack of supportive supervision and on-the-job mentoring, lack of drugs and supplies, and weak backup referral network at health facilities.[12] In sum, key factors important for CHW motivation include: community respect and trust, financial compensation, support from health systems, and career opportunities.

Sustainability of CHW programs

CHW programs in South Asia are sustained largely through government financing. However, BRAC NGO model in Bangladesh has used an innovative entrepreneurship model designed to maximize sustainability by recovering some of the costs while also delivering low-cost care to marginalized communities.[17] BRAC sells commodities to the Shasthya Shebikas at a small markup price, and they, in turn, sell them to community members at another small markup.

There is every reason to hope that current levels of government support for CHW programs will continue in the future. However, because CHWs in several South Asian countries are paid on an incentive basis related to specific activities, within time-limited programs, there is a real concern about maintaining steady compensation. Despite the continuation of ASHAs in India and FCHVs in Nepal, some uncertainties remain in sustaining the programs or retaining CHWs due to the precariousness of current funding. Moreover, CHWs projects initiated by NGOs generally depend on time-limited external

funding. CHW programs in Sri Lanka, India, Nepal, and Bangladesh have continued for a substantial period due to consistent government support for the CHW programs (Table 1; Box 4). In Bangladesh, BRAC has sustained its CHW program with continued funding from its resources it generates using a cost-recovery model, which partially supports CHWs' remuneration. Establishing or supporting CHW programs with innovative funding mechanisms or under government budget lines, at least partially, will help ensure their sustainability.

Bangladesh offers an interesting and unique example of how financial and non-financial incentives can be combined to sustain CHW programs. The country has the world's largest network of non-government-run CHW cadres, with a current NGO CHW workforce of around 46,000 (Table 1). All BRAC Shasthya Shebikas who are part-time unsalaried workers are selected from local communities and most of them are members of Village Organizations supported by BRAC's Microfinance Program, which provide them opportunities for economic and social empowerment. BRAC has created a revolving fund from which BRAC Shasthya Shebikas take interest-free loans to buy essential medicines and health commodities from BRAC, which retains a small markup to cover their costs.[17] Their modest income comes from selling health commodities and essential medicines (after another small markup), providing DOTS support to tuberculosis patients, and charging small fees for checking blood pressure, and doing urine tests for sugar and pregnancy tests. Despite challenges of income, motivation, and attrition, many Shasthya Shebikas have been working with BRAC since the 1990s. The BRAC CHW program creates avenues for Shasthya Shebikas to earn respect in their community, including engagements beyond health. For example, some Shasthya Shebikas have been elected as members of the local government. Many are well positioned as a community voice and change-makers. BRAC's lessons could be adopted and contextualized in other settings, especially for NGOs, but also for government-supported CHW programs.

Way forward

South Asia has been a global leader in large-scale CHW programs. They have helped extend PHC into underserved areas, which has saved lives and improved health for hundreds of millions of people. In the process, hundreds of thousands of CHWs—especially poor women—have gained agency and a new sense of self-worth in the process, providing further benefits for themselves, their families, and their communities.

As research is a critical input to transformed PHC systems, it will be important to revisit CHWs' role and position in PHC. Issues of empowerment, performance, and sustainability also need to be reviewed to identify gaps at the country level that need to be addressed. Some of the important issues that warrant attention include:

i. The roles and position of CHWs in PHC: There is a dearth of literature on how current roles and responsibilities, training, remuneration, and career growth influence CHW performance in PHC and their contribution to achieving Universal Health Coverage. Given this, current and future roles of CHWs in NCDs and urban health should be investigated comprehensively to understand how best to position and train CHWs in the PHC system to promote health and manage emerging diseases and disabilities. Innovative interventions are needed to address urgent necessities. Furthermore, with expanding roles and responsibilities, we need better understanding of career progression for CHWs.
ii. CHWs in health systems: Responsibilities given to CHWs, training, quality, and costs need to be better characterized. Task allocation among members of the PHC team, including CHWs needs to be better understood; how can this be done to ensure fair distribution of tasks, good quality of care and better health outcomes. In addition, community expectations of the role of CHWs in health systems warrant further exploration.
iii. Gender and empowerment of CHWs: Little is known about how gender influences the CHW role. Most CHWs in South Asia are women and they are subject to systems-induced gender biases. It is important to understand in what ways male CHWs confront gender-stereotyping issues in their work environment and community. We need a better understanding of how CHWs, as women and as men, interact with health systems and the community, given emerging health priorities and expanded scope of work. CHW warrants further exploration, with rich qualitative studies that will shed light on and provide future directions to their position within health systems.
iv. Impact and cost-effectiveness of CHW program: Hardly any impact and cost-effectiveness data are available to understand the costs of the CHW program and their impact on service quality and health outcomes. A study on costing across CHW programs among South Asia countries can yield useful comparative insights and inform policy advocacy. WHO, UNICEF, and other organizations can play a pivotal role supporting harmonized CHW-related cost data, drawing attention to strategic investment. Expanding rigorous implementation research about CHW program effectiveness and capturing the emerging capabilities of the digital revolution will help to improve CHW programs enabling them to contribute to more effective health systems in South Asia. In

addition, well-designed impact-level studies (both quantitative and qualitative) and economic evaluation should be considered for newly designed interventions for CHWs in South Asia.

v. Sustainability: Major CHW programs that have evolved over the last four decades in the region are largely sustained and supported by the government (or NGOs, in some cases). But how do we generate evidence and knowledge on CHW program sustainability? This research question needs to be explored to create global evidence on CHW programs for knowledge sharing and learning. All major CHW programs in South Asia should be assessed and documented using a transdisciplinary approach.

Building on the experience of major CHW programs across South Asia, we now have an opportunity to create next-generation CHW programs characterized by: (1) services for the control of NCDs, especially for hypertension, diabetes, mental health, and cancer screening; (2) disease surveillance and vital events registration; (3) expanded contact with all households on a regular basis; (4) stronger integration within the PHC system; (5) active and effective role in urban settings and, especially, in informal (slum) settings; and, finally, (6) better CHW remuneration, career development, and work satisfaction.

CHWs in South Asia have progressively been takin on broader roles due to the epidemiological and demographic transition. It is becoming increasingly apparent that CHWs will continue to have much to offer—from the promotion of healthier lifestyles to the prevention of many NCDs to the detection and management of these conditions. CHWs can play an important role assisting the burgeoning elderly population in South Asia with their special health and social needs.

As is well known and well documented, CHWs in South Asia played a heroic role in the mitigation of the COVID-19 pandemic. The strengthening of early warning systems for disease outbreaks in the community is critical. In many parts of South Asia, disease surveillance and vital events registration systems are woefully incomplete, hampering the quality of many government programs. By building programs in which CHWs regularly visit all homes, disease surveillance and vital events reporting can offer immense value to population health and socioeconomic development. The continued revolution in information technology and digital health will help facilitate such a role.

Routine systematic home visitation is a powerful way to build trust in the health system and has many health and social benefits. Despite challenges, strategies should be developed to support routine home visitation.

CHWs need to be recognized as integral members of the PHC workforce. In many of South Asia's major programs, CHWs have insufficient contact with the health teams working at a higher level in PHC centers. Linking with the PHC systems will make it possible for CHWs to work more closely with the health staff at PHC centers and to effectively address the health needs in their communities. This can help enable CHWs to better contribute to community health education, community empowerment, and effective action addressing the social determinants of health, using multi-sectoral approaches.

Although notable exceptions exist, CHW programs in the region are mostly rural-focused. One reason for this is that most national ministries of health in South Asia have authority over health programs in rural areas whereas local governments play a more central role in managing PHC services in urban areas. However, the explosion of urban populations, particularly in informal and slum settlements, calls for a massive expansion of CHW programs to provide needed services in these settings. New approaches, including public-private partnerships, can support strong urban CHW programs.

CHWs in South Asia are overworked and underpaid, as are CHWs in other parts of the world. Volunteerism is still a vital component of CHW programs in some countries. Nevertheless, CHWs should be remunerated appropriately. Full-time CHWs should be paid a salary and given suitable benefits. CHWs deserve a reasonable workload that can be carried out within the allocated time, and with adequate support including training, supervision, and logistic supplies. High CHW turnover and reluctance of women to become CHWs undermine potential impact of CHW programs. Therefore, creating professional and satisfying work environments with opportunities for career advancement can meaningfully strengthen CHW programs.

Conclusion

As the countries of South Asia continue their dynamic economic growth, it will be incumbent upon governments and civil society to meet their obligations to improve the health of their people and achieve Universal Health Coverage, and therefore for policymakers and other decision-makers to sustain the momentum for stronger CHW programs. The limitations of hospitals and even PHC centers for reaching those most in need of basic and essential services needs to be more fully recognized. Stronger CHW programs are the best bet for improving population health while also reducing the need for more expensive, higher-level healthcare services. As economies in South Asia grow, necessary funds will be available to support the strengthening of CHW programs. Investments in CHW programs will need to grow at a rate at least on par with if not greater than, the growth of investments in PHC centers and hospitals. Even as facility-based PHC services become more accessible and of higher quality, strong CHW programming will be essential for strong health systems and effective mobilization and health promotion. Forming CHW program communities of practice across South Asia composed of politicians, academics, researchers,

government authorities, NGOs, CHWs, and community members would be one practical step toward achieving these goals.

Contributors

Study conception and design: KDR, KA, DN, MCW Data curation: PS, KA, HJ, NR, ZM, NK, SK, SM, SB, MCW, YI, DN Formal analysis: PS, KA, HJ, NR, ZM, NK, SK, SM, YI, MCW, DN Original draft writing: PS, DN, MCW, KA Critical revisions: KA, KDR; Writing-review and edit; KA, KDR, HP, AS Approval of final manuscript: PS, KA, HJ, NR, ZM, NK, SK, SM, SB, YI, SH, AS, HP, KDR, MCW, DN Supervision: KDR, KA, Fund acquisition: KDR.

Declaration of interests

The authors declare no conflict of interest in writing this manuscript.

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Appendix A. Supplementary data

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