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Fostering community human resources for health: The story of the community influencers engagement in the CORE group partners project, India☆

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ABSTRACT

Introduction: This paper looks at the enduring working relationships forged at the community level for polio eradication, utilized to bolster routine immunization and COVID-19 vaccination through the experience of Community Influencers (CIs), a cadre of community health volunteers.
Background: CORE Group Partners Project (CGPP) has been working since 1999 across thirteen countries. One of the key strategies for eliminating polio in India was utilization of CIs. They were subsequently deployed for routine vaccination and the COVID-19 response.
Methods: We conducted thematic analysis of in-depth interviews with 36 CIs, 18 CGPP field staff, nine project managers and two representatives from other stakeholders across six study districts of Uttar Pradesh.
Findings: The CIs' working relationships with other community health workers cadres provided a source of support, capacity building and motivation. Building these working relationships is an important part of systems strengthening.
Discussion: Successful working relationships contribute to program success in eliminating polio, increasing coverage of routine and COVID-19 vaccination, and strengthening community health systems.
Conclusions: Our findings suggest that socially anchored high-status community health volunteers are an effective complement to more institutionally anchored program- and government community health workers.

1. Introduction

A cadre of community health volunteers (CHVs) known as Community Influencers (CIs) were deployed by the USAID-funded CORE Group Partners Project (CGPP). Their purpose was to foster trust and improve communication between the health system and historically marginalised and neglected groups. This was part of more comprehensive social mobilisation campaigns, first for polio eradication and subsequently for routine immunisation and later COVID vaccination. Now, the CGPP CIs have been in operation for as long as 20 years. *The Community Influencer Approach* and CIs have a proven track record of increasing community trust in vaccinations and decreasing disparities in vaccine coverage and outreach. Understanding how the CIs were used as part of a systematic effort and how their work complemented that of other Community Health Workers (CHWs) is necessary to leverage "lessons learned" from the success of the project, for other geographies and health areas.

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Despite the acknowledgement that collaboration between different CHW types is key to achieving health system goals, there is little research that identifies how to best support these processes and relationships (Glandon et al., 2023; Franklin et al., 2015). This paper examines how the CIs in India worked in complement with other CHWs such as Accredited Health Activists (ASHAs), Anganwadi Workers (AWWs) and Auxiliary Nurse Midwives (ANMs) as well as CGPP project staff to improve health system resilience and responsiveness (Mirzoev and Kane, 2017). These working relationships are a health system asset. Sarriot et al. (2021) compares the advantages of *institutionally anchored* community health workers, who have a job description and are paid (in India ANMs, ASHAs, and AWWs), with *socially anchored* community health volunteers, such as the CIs – who work on a voluntary basis (Sarriot et al., 2021). Current debate sometimes positions dual CHW programs as exploitative (Community Health Impact Coalition n,d; Ballard et al., 2023), Our research does not directly address this point, but nevertheless it helps to illustrate the distinct and complementary value of a volunteer health worker cadre. While the program inputs of the CIs and the complementarity of their role with other community-based cadres was overwhelmingly positive, there are some risks in this approach, which are described. These risks need to be considered in future program planning. Another paper from this study describes the factors that led to the CIs sustained motivation and engagement over time (Schurmann et al., 2024).

1.1. Program background

Funded by the United States Agency for International Development (USAID), CGPP has been working to eradicate polio in several countries since 1999. The 25-year history of the CGPP in India came to an end in September 2024. Three international non-governmental organisations (INGOs)—Catholic Relief Services (CRS), Adventist Development and Relief Agency (ADRA), and Project Concern International (PCI)—as well as six local non-governmental organisations (NGOs), carried out the CGPP operations in India. By organising communities for polio and other routine vaccines and preserving population immunity, these organisations supported the CGPP's goal of eradicating polio in 52 blocks spanning 12 districts of Uttar Pradesh and two districts each in Haryana and Assam. In Uttar Pradesh, alone, the CGPP has directly impacted about 3.8 million people. District Mobilisation Coordinators (DMCs), Block Mobilisation Coordinators (BMCs), and Community Mobilisation Coordinators (CMCs) carried out management and administration roles at different levels of the health system. In addition, there were the CIs, the focus of this paper. Table 1 maps the cadres from both the CGPP and the Government of India concerned with polio elimination and routine vaccination. This paper is primarily concerned with the cadres at the community level.

To combat vaccine resistance, the CGPP implemented a long-term, multifaceted, community-focused approach. All houses were mapped by CGPP CMCs, who also monitored children under five for polio and other regular immunisations and urged parents to vaccinate their children. Periodically, CGPP employees set up information booths to provide vaccination-related information. Additionally, strategic communication events were organised to disseminate information about vaccination, including demonstrations, street plays, and one-on-one and group meetings. The project designed and implemented community engagement interventions that integrated recommendations from the community, CIs, and project staff (Larson et al., 2022).

CIs were typically high-status individuals who were selected for their pre-existing influence within vaccine-hesitant communities. From the community mapping, vaccine-resistant families identified and based on the nature of their resistance, suitable *influencers* were then recruited to obtain vaccination for their children. Using CIs to build trust between the health system and communities was a key strategy for overcoming vaccine hesitancy and eliminating polio in India – part of the government's larger social mobilization strategy. (Deloitte 2014) Happily, the CIs are a success story nested in other successes: vaccines are a global public health success story saving 2–3 million lives a year; polio elimination in India is a success; and the *Community Influencer Approach* is one of the program mechanisms that made elimination possible.

Table 1
Program and government cadres involved with polio elimination and routine vaccination.

Implementation level	CORE Group Partners Project	Government of India: Ministry of Health and Family Welfare & Ministry of Women and Child Development
National	Secretariat*	National Immunization Nodal Officer*
State	State Program Coordinator*	State Immunization Nodal Officer*
District	District Mobilization Coordinator (DMC)*	District Immunization Nodal Officer *
Block	Block Mobilization Coordinator (BMC)*	Block Immunization Nodal Officer*
Community	Community Mobilization Coordinator (CMC)*	Auxiliary Nurse Midwife (ANM)* & Anganwadi Worker (AWW)+
	Community Influencers (CIs)ˆ	Accreditated Social Health Activist (ASHA) §

+ Paid an honorarium (Ministry of Women and Child Development) (formally employed)
§ Paid a stipend
ˆ Volunteer Cadre (episodic engagement)
* Paid a salary (formally employed)

2. Methods

2.1. Research questions and study design

The questions that guided the analysis for this paper were:

- How did the CIs work alongside other community health workers?
- How did the CIs contribute to strengthening the health system at the community level?

To address these questions, a qualitative design was adopted informed by a narrative approach, to leverage the ways in which interview participants talk about their lives and experiences in the context of the CGPP CIs (Larson et al., 2022).

2.2. Participant characteristics

Six districts were purposively selected to ensure representation from different implementation partners, geographies and economic status (out of 12 CGPP districts in Uttar Pradesh). Data from project records in these sample districts indicate that most of the CIs were male (86 %), married (96 %), and belonging to Muslim religious groups (52 %), versus 19 % of Muslims in the general population. The median age of the CIs was 42 years with 50 % of them having completed higher secondary education. Common primary job roles for the CIs included village councillors (Panchayat Raj members) (12 %); teachers and other government workers (11 %); local private medical practitioners (9 %); ration shop owners[1] (8 %); and religious leaders (6 %). This profile likely reflects the profile of the influencer population across all program districts.

[1] A ration shop (or fair price shop) sells grain, sugar and oil at subsidized rates, as part of a food security scheme under the Public Distribution System (PDS), run by state governments within India. Some ration shops are run by individuals, others are run by panchayats, self-help groups or co-operative societies.

2.3. Participant selection

Districts were selected to represent a variety of project partners' work, geographies and socio-economic scenarios. The sample of participants was purposively selected through an actor mapping exercise consisting of stakeholders representing project roles and capabilities as well as CIs spread across all selected six districts with a sample profile in alignment with the general profile of CIs (as described above). The completed sample consisted of 36 CIs; 18 program staff; 3 CGPP India secretariat members; 6 members of private voluntary organizations (INGOs); 1 World Health Organization (WHO) official, and 1 district immunization officer.

2.4. Data collection procedures

We developed interview guides in a collaborative manner with the research team, first in English. We then pretested them, translated them into Hindi and piloted them, making adjustments for flow. The interviewers were native Hindi speakers from the same region as the data collection (BKY, PM, SD, AD). They were experienced researchers but were given training in the specific protocol by the principal investigators (AS & AD). All interviews were conducted by a primary interviewer with the support of a note-taker. The interviews covered the nature of vaccine hesitation, the history of the program over time, the relationship with the health system and factors that maintained motivation and engagement. The interviews were conducted in the selected six study districts in late 2022 and early 2023. While the interviews were conducted at a single point in time, but covered a long period of program activity. All participants were provided protective measures for COVID-19 prevention; interviewers and the note-takers were provided with N95 masks, sanitizers, and face-shields. Throughout the interview, and it was mandatory to wear a mask and maintain proper physical distancing.

2.5. Data analysis

During field work, the principal investigators (AS, AD) conducted regular debriefing sessions with the data collection team (BKY, PM, SD) to identify preliminary key themes and discuss any field-based challenges. This constituted the first phase of data analysis. All interviews were recorded, then transcribed and translated from Hindi into English by a third-party provider. They were then quality-checked for clarity before being uploaded for analysis with NVivo (International, 2023). A thematic content analysis was conducted according to the conceptual framework focussed on motivation and engagement and summarized in narrative format. Emergent themes were also identified through extensive notations and memos, and then summarized. The findings of this article are based on emergent (inductive) themes. The conceptual framework is described in a separate article, and included in the appendix here. [7]

2.6. Positionality of the authorship team

The authors come from a variety of backgrounds. The research was conducted by an independent research team based in Lucknow, Delhi and Bangalore (AS, AD, BKY, PM, SD). Program staff are at state, national and international levels of the CGPP were involved in the initial conceptualization, the district and participant selection, and some field logistics (PR, JA, MC, KVS, HT). They were also given regular updates. All authors worked collaboratively with a commitment to diversity, inclusion and representation.

2.7. Research ethics

All interviews were conducted only after obtaining written informed consent and all precautions regarding confidentiality and data protection were maintained. Institutional review board (IRB) ethics approval was received from Sigma Research and Consulting, Pvt Ltd. (Ref: 10064/IRB-22–23).

2.8. Findings

The findings presented here cover several emergent themes focused on the working relationships between CIs and other CHW cadres. These include an overview of the need for the CIs, the nature of vaccine hesitancy, the recruitment of CIs, working partnerships, CI strategies, working relationships as motivation, impact through motivation and scope and future vision.

2.9. The need for the CIs

At the outset, we wanted to understand the perceived need for the CI cadre, which was primarily to build trust between the health system and excluded communities. The CGPP staff saw their role as going beyond mobilizing communities for vaccination to strengthening health services in general. They described their role as mobilizing the health system *as well as* the communities. One program staff person said; *"We have to take care of both the community and the health system and get them on same page…both were sluggish."* Thus, in addition to the polio drops, the staff also worked to provide medicines, diagnoses, and counselling for other diseases through health camps. When needed, program staff would also solve problems unrelated to project goals to build goodwill (such as getting ration cards and organizing pension payments).

Despite these ambitious efforts, the program encountered a lack of trust within the community. Frontline workers and program staff were considered outsiders who were mistrusted *because they were being paid* to promote vaccination. As one DMC explains, "*The [community] people used to think that you [program staff] will go away after sharing that information. If our child has any problem, then whom will we tell?"*.

Many of the program staff (especially the Community Mobilization Coordinators) and government community health workers (ASHAs, ANMs and AWWs) were women (sometimes young and unmarried), and in a traditional and patriarchal context they had limited influence on the key decision makers within families and communities. Research participants were very frank about community resistance to female community health workers. For example, one male CI said: *"In the beginning ladies have some issues, like in the local area people don't like ladies so they (the CMCs) come to me saying that 'we are facing problems because people are not listening to us.'"*

2.10. Vaccine hesitancy

The particular form that mistrust between the health system and communities took was resistance to vaccines. The purpose of the CIs was to address this, a significant barrier to CGPP success. In Uttar Pradesh, vaccine resistance evolved over time and took on a variety of overlapping forms. At first, mistrust of the government and particular religious communities—mostly Muslims—were the main causes of opposition to the polio vaccine. Subsequently, opposition to routine vaccination became increasingly widespread and focused on opposing the government's development objectives, namely the preference for polio vaccination over more locally relevant necessities like roads, power, and food rations.

2.11. Recruitment of CIs

Program staff aimed to get over this mistrust by enlisting local community leaders as CIs. Instead of using the official program channels of communication such as going door to door, CIs could use their everyday encounters as members of the community to help disseminate accurate information, dispel rumours, and allay worries.

Identifying and deploying the right individuals to be CIs was essential to the success of the cadre. Local workers first mapped the local

communities and vaccine resistance hotspots to identify possible CIs before starting house-to-house outreach in a given geography. (a process called *microplanning* (WHO, 2009)). Staff would then interact with community members to identify individuals with existing influence in the community. They also approached community leaders such as the elected village panchayat head (*Pradhan*) or religious leaders such as the local priest or *imam* to recruit them as allies of the program. As one CMC explained, "*Everywhere there is one person to whom everyone listens, so we meet him and take his support."* CIs could be ration-shop owners, teachers, informal healthcare providers, or members of local associations such as the weavers' association (see the description of the CI population in the methodology). CIs were selected because of their existing status and influence, which CGPP was able to build upon. In addition to the strategic efforts of the program staff to identify those with pre-existing influence, CIs were also identified opportunistically through the course of routine advocacy among communities. As one DMC explains,

2.12. Working partnerships

The CGPP staff supported community CIs at each step to ensure their effectiveness. Since CIs were usually lay people who were not necessarily knowledgeable about health, the CGPP invested time and resources in their capacity-building through regular meetings and formal training sessions. As mentioned earlier, some were initially opposed to vaccines and had to be convinced of their benefit to their community. As this DMC said;

CGPP's BMCs and CMCs would provide content such as pamphlets, posters and banners that were used by the CIs to mobilise community members. The CGPP also connected CIs with local government community health worker cadres, the Ministry of Health's Accredited Social Health Activists (ASHA) or the Ministry of Women and Child Development's Anganwadi Workers (AWW) to help map the kinds of vaccines being given and provide lists of vaccinated children and resistant families. Whenever health camps, meetings or vaccination booths were to be set-up, CGPP staff (DMCs, BMCs, CMCs) would work closely with the CIs who were treated as part of the team.

Over the years of engagement, CGPP staff and CIs became close, with one participant describing their relationship as being like family. The strong interpersonal relationships that sustained the program were clear across all participant types. The CIs appreciated the transparent and egalitarian communication between the CGPP staff and the CIs. The CIs repeatedly praised the sustained efforts of the program to ensure that government entitlements were availed by appropriate beneficiaries. They were grateful for these sustained inputs to their communities. As one CI explained:

2.13. CI strategies

In the context of mistrust between communities and the health system, the CIs took different approaches to their positioning *vis a vis* the government. Some created distance to build trust with the community, positioning the program as a WHO and donor effort, as per this quote: *"I tell them that it is not our government which is doing it, it is being done by WHO and other such organizations and they are trying to eliminate this virus.*" Others positioned themselves as "agents" of the government, increasing their status through alignment with a government program. Vaccination then was described in almost patriotic terms - an effort on the part of the government to make the country strong, akin to defence spending.

One of the strategies deployed by the CGPP to build trust was to make sure all members in the community had access to the government entitlements, such as pensions or ration cards. By facilitating this, the CIs carefully positioned themselves as bearers of government largesse and defended the government's good intentions to other community members. They were then able to barter this influence to convince people to also participate in vaccination programs:

Most often, CIs relied on gentle persuasion, speaking "sweetly", "kindly" and "with love" as well as providing correct information to persuade community members to vaccinate their families. However, the data also indicate that some CIs employed more forceful tactics that, while not condoned or promoted by CGPP, had a basis in cultural norms and were sometimes used within the health system as a whole. For example, a few CIs reported compelling people to get vaccinated, sometimes with threats. These forceful methods were also pushed by the government during polio eradication. Officials, fearing transfer from their posts if vaccination rates did not improve, pushed communities hard by threatening to confiscate their ration card and using the authority of police or senior government officials to force families to vaccinate their children. CGPP did not condone or train CIs to use such approaches, yet some CIs adopted these strategies. One CI justified the use of forceful tactics thus, *"People say that sometimes to get something good done, we have to take support of the falsehood also then you should take it, so I also took that support"* One CI said:

While this practice was not the norm, it was also not uncommon. While several reports from research participants about forceful methods suggest that it was a well-established practice, the findings also suggest that it was not consistently the norm. Often, findings revealed that the CIs relied on gentle persuasion, speaking "sweetly", "kindly" and "with love".

Outreach strengthened the CIs influence, raising their profile as well as providing concrete incentives to people who may otherwise not have participated in the vaccination programs. During the COVID-19 pandemic, CIs demonstrated their commitment to their communities by proactively helping arrange water and soap distribution, distributing masks and sanitisers, maintaining social distancing, and enforcing government guidelines. This increased their recognition as leaders in the community and built their social capital.

2.14. Working relationships as motivation

A key element of the program was that it was embedded in close working relationships with the government and other partners, such as the WHO and Rotary International. The sense of urgency around eliminating polio fostered a culture of cooperation and mutual respect. One CGPP secretariat member described it as follows:

Cooperation with the government and official agencies was a source of motivation and common purpose for all stakeholders.

Aside from community wellbeing, motivation was also described in terms of working relationships and shared challenges. One described the increased enjoyment after overcoming early challenges.

> *"They (CIs) can be anyone - from a ration-shop owner to a local barber where people from the community go anyway and have general conversations. Things those people say will go a long way in shaping the community's mindset."*
>
> **A CGPP India Staff Person**

> *"A Kotedar (person responsible for distributing rations under the public distribution system) does not know what polio is or how to prevent it. We must impart that knowledge. He has influence – we identified him and then armed him with knowledge to help with our cause."*
>
> **A CGPP India Staff Person**

> *"…The thing that I found best amongst all of this was that the organisation did not hide anything from me, and the organisation made sure that in our ward, whatever government scheme (that was available) reached us and (CGPP) worked hard for it and the public benefited from it."*
>
> **A Community Influencer**

> *"There are people who have not received ration from Kotedar, benefits of Janani Suraksha Yojana [stipend for mothers of newborns], or scholarships for children, so we … get it done. We help people who have not received the benefits of government scheme, we help them; like we are also helping in getting the Ayushman Bharat [national health insurance] card which is available."*
>
> **A Community Influencer**

Instead of economic incentives, the CIs derived their motivation from social and moral incentives, from the social capital and respect accumulated through their work. While they were selected for their existing influence and status, their role in the program was reported as becoming part of their identity in the community. The success in eliminating polio became the CIs' success. This manifested tangibly through expanded political platforms, more profitable businesses, and more visibility in the community: *"There is no monetary return, but people know us and this itself is enough."* CIs also describe their own increased authority, with families more willing to listen to them now.

Program success did not just enhance the motivation of the CIs – but improved community engagement more generally. One CGPP staff member described initial challenges in mobilization, with enthusiasm and momentum increasing over time:

2.15. Impact through working relationships

The overall success of the CGPP is visible in terms of eliminating polio and achieving high levels of vaccine coverage. Study participants report that at the height of elimination efforts, (2003–2005) the challenges were such that they thought polio would never be eliminated. Pride in this unanticipated success came through in many of the interviews, felt more acutely because of the challenges that preceded it. Study participants described visible differences in communities' health status; whereas once child deaths and disability were common, now it is rare. This is a source of satisfaction and pride for the CIs. As one described it: "*It's just that it brought me peace. The biggest thing is that I have peace in my heart."*

Another of the CIs' contributions was building the CGPP staff's (CMCs and BMCs) operational knowledge of local community engagement. This occurred through making introductions within communities, as well as providing local knowledge, community updates, and general moral support (as per the quotes below). Examples include where to locate vaccination sites and when to schedule meetings. Because of the support and presence of the CIs, the CGPP staff (CMCs and BMCs) themselves were more likely to be listened to, believed, and welcomed within the communities. One CGPP staff member described the support of the CIs helping her know who lived where, as fundamental to getting

> *"Yes, he said that if you do not get a vaccine then your name will be cut from the ration list. And we have explained this to the dealer also, if any women come and ask you then you also say the same thing…People are not getting vaccinated, so we placed banners and said to them that first vaccine then ration."*
>
> **A Community Influencer**

> *"The government was absolutely cooperative. We were part of the whole, you know, the whole working group of the government. I don't think we - the NGOs, the CBOs - have ever been so well treated and so well represented and listened to because it was a do or die situation."*

> *"We initially faced a lot of problems with Pulse Polio vaccination, so after going through all of that, now we enjoy our work more. We have tolerated so much so at least now people are happy. We do that work now and we like it."*
>
> **A Community Influencer**

> *Previously, in community meetings, if we would invite 40 people only 20 would appear and the rest would think of it as not so important. Nowadays, when we organize community meetings, we see a crowd of people voluntarily joining. People now know about the importance of immunization and want to know more.*
>
> **A CGPP India Staff Person**

her work done. Working with the CIs also provided a level of security, protecting the CGPP staff from abuse.

2.16. Scope and future vision

There was a keen sense reported among most participants, including the CIs themselves, that the CIs are an asset for the health system that should be sustained beyond the life of the CGPP project. The working relationships between CIs and different government functionaries became well-established and effective. Our research findings indicate CIs are now being deployed for other health goals, including male involvement in family planning, nutrition, and tuberculosis. This was on an *ad-hoc* basis, at the initiative of local officials rather than through any systematic initiative. Sometimes, this was because of their earlier role as a CI, and other times, it was because of their position as a ward member (Pradhan) or other leadership role. While some CIs described their various social welfare outreach efforts as ongoing, most CIs suggested that organizational structure and knowledge inputs were required for their continued effectiveness.

In many communities where the CIs work, there are no functional community health governance mechanisms such as the Village Health Sanitation and Nutrition Committees. However, during the COVID-19 pandemic, the CGPP established Community Action Groups (CAGs) to act as a focal point for all response activities at the community level. These structures provided a community-level governance mechanism to oversee and coordinate the work of the CIs.

3. Discussion

Several areas emerge from the findings that warrant further examination. Here we discuss the working relationships at the community level that helped overcome vaccine hesitancy, and the way these strengthen the health system. Finally, we describe some of the limitations of the study.

3.1. Working relationships in the community

Building vaccine confidence requires a multi-stakeholder community-based approach. It is important to note that these CIs were supported by an ecosystem of actors beginning with the CGPP staff, the local government frontline workers including ASHAs, AWWs and ANMs as well as other actors such as media organisations, schools, doctors and local police. This alignment of interests and support across the system was critical to overcoming mistrust and building a long-term relationship with the community. This speaks to the importance of partnerships, which have been key to vaccination program success (UNICEF, 2023). More specifically, successful working relationships between CHWs and government officials has been identified as a factor in motivation, perceived legitimacy, and retention of CHWs (World Health Organization (WHO), 2020).

The ASHAs and the ANMs (both from the Ministry of Health and Family Welfare) and the AWWs (from the Ministry of Women and Child Development) already represent a model of intersectoral coordination across different government departments (see Table 1 (Glandon et al., 2023)). They are paid a stipend (sometimes incentive based, sometimes flat), a salary and an honorarium, respectively. As paid workers, they are expected to deliver a comprehensive package of health and nutrition services. However, their availability, coverage, and performance vary across the country. Several evaluations have found that the ASHAs do not reach the most vulnerable community members (Scott et al., 2021). One of the most enduring challenges with the government CHW cadres is insufficient supervisory and mentoring support (both in India and globally). Some ANMs, especially those who are unmarried, have reported security problems such as harassment (World Health Organization (WHO), 2020; Scott et al., 2021). Our research finds that, in the context of coverage gaps and low density of health professionals, the CIs extend the reach of government CHW cadres, with better access to male decision makers and to communities that may have been neglected by the CHWs. They also provide moral support, guidance, and a sense of security. In this way, the CIs address some of the gaps in the existing government CHW programs.

In particular, the experience of CI working alongside ASHAs, ANMs and AWWs suggests there is scope for CHWs who are institutionally anchored (with defined job roles and salary) to work alongside those who are more socially anchored, such as the CIs, in a "dual-cadre model." (Sarriot et al., 2021) Both CHW-types have clear limits. In the first instance, the CIs were engaged in part because communities were resistant to household visits from female community health workers. The legitimacy of CHWs who work for money was also called into question by communities, with a perception that working for pay undermined the veracity of the message. In the case of CIs (who are socially anchored "Community Health Volunteers"), it's likely that engaging people with existing positions of power and influence leverages but also reinforces local caste and socio-economic hierarchies. An example of how this plays out in practice is the forceful approaches sometimes used by the CIs to mobilize people for vaccines, as described above, and in other accounts of polio elimination in India.(Bhattacharya and Dasgupta 2009; Rentmeester et al., 2014) While vaccine programs

> *…We are paid workers, they [CIs] are not getting any payment. But they used to come ahead and support us. So, our motivation increased…It felt so good to work with them.*
>
> **A CGPP India Staff Person**
>
> *With their support, my work went well. And I have a good hold on the field because of them. When you go to a new place, it seems a little difficult. And with their support my hold was good and most of the people got vaccinated. Children's vaccinations, including for polio, also went well. What I could not do alone became possible with their cooperation.*
>
> **A CGPP India Staff Person**

> *"If the CGPP closes-out, then it doesn't affect me because I connected with people and people recognise me. Now people agree with me…But it is possible that we need the support of the people connected with the health department…Support from the heads of the program and their staff is necessary."*
>
> **A Community Influencer**

in many different health system contexts (Australia, Britain, the US) include elements of coercion (McCoy, 2019), it is an implicitly top-down approach contrary to the principle of community empowerment on which many public health programs are based. Potential adverse impacts of using socially embedded influential volunteers must always be carefully considered in program planning.

CIs had progressive effects around gender. While the need for the CIs emerged due to local resistance to female CHWs, there were several ways in which the *Community Influencer approach* was gender transformative. In the first instance, there were some female CIs who found the role empowering and it increased their status. In addition, the CI built confidence and capacity of the female CGPP staff (CMCs and BMCs) and female government CHW cadres (ASHAs, ANMS and AWWs) through increasing their local credibility - by accompanying them in their work, backing up their advice, and building their knowledge of community dynamics.

3.2. Strengthening the Health System

While the CIs have been the product of a vertically focused vaccination program, there is potential for them to contribute to other health goals. The CIs are effective for both immediate response and long-term engagement of marginalized communities. They can now be considered as a health system asset, built by CGPP and parallel efforts by UNICEF, with the potential to support, among other goals, global efforts towards the global Immunization Agenda 2030. Furthermore, by strengthening integration of vaccine delivery into a robust primary healthcare system (UNICEF, 2023). the CIs' have the potential to become a permanent part of the health system (Sarriot et al., 2021).

Globally, there is recognition that the strategies and infrastructure deployed to eliminate polio have broader utility for health systems (Global Polio Eradication Initiative Investment, 2022). The programmatic infrastructure has served in many contexts as the default epidemic and emergency response component of the health system (World Health Organization, 2024). Partnerships, health workers and systems for polio eradication have helped to combat other vaccine-preventable diseases, contain Ebola, mitigate the effects of COVID-19, distribute malaria prevention commodities and vitamin A supplements, and improve disease surveillance (World Health Organization, 2024).

Conceptualizations of health systems (such as the WHO 6 Building Blocks) (World Health Organization, 2007a) have sometimes omitted the importance of demand-side factors, community engagement, and community-based service delivery. Nevertheless, recent alternative models have made explicit the role community engagement plays in improving health outcomes and health system resilience (Sarriot et al., 2021; Van Olmen et al., 2012; Sacks et al., 2019; Mounier-Jack et al., 2014; Witter et al., 2019). The CIs provide a good case for this.

The CIs emerged out of a vertical program; however, our findings illustrate the health systems impact of the CI approach across several health system "building blocks." (World Health Organization, 2007b) The CIs increase the health systems' perceived legitimacy by building trust and increasing its reach. This approach also builds human resource capacity, through the engagement of the CIs themselves and in their contributions to improving the effectiveness of CGPP staff (CMCs and BMCs) and CHWs, as well as motivating community members to be more engaged in health-related activities.

Through extending the reach of health systems the *Community Influencer approach* can also correct existing social exclusions, for example, the distrust some communities (composed mostly of minorities and scheduled castes) had in the government and the work the CIs did to convince them to participate. In this way, they can be seen as an important mechanism for improving equity, a crucial element of achieving universal health coverage.

The work of the CIs paid off over time, with increasing acceptance of vaccines. Their convening power, local knowledge, established relationships, and commitment are now a robust and sustainable health systems asset. The CIs are already being deployed on an *adhoc* basis at the local level for other health systems goals such as male family planning (vasectomy), TB and nutrition. It will be important to always remember the voluntary status of the CIs, and ensure they are not overburdened. During the COVID-19 pandemic response; while countries across the globe struggled with increased vaccine hesitancy (Larson et al., 2022), in the communities covered by the CGPP, the COVID-19 vaccines were embraced, with approximately 75 % of the population receiving a second dose in Uttar Pradesh as of July 2022 (Agarwal and Naha, 2023).

3.3. Limitations

The study has several limitations. In the first instance, there was a possibility of selection bias; all the districts and respondents were purposively selected. While the demographic profile of the sample matched the profile of the larger population of CIs in the six districts, it is possible that the selected CIs' opinions did not match those of the larger population.

Secondly, there was the possibility of social desirability bias; several of the CIs saw participating in the study as an honour and a gesture of recognition. Many positioned themselves in a kind of ambassadorial role and provided accounts of the program, themselves and their communities which were highly positive and self-congratulatory. Speaking to several different program actors helped us achieve a more well-rounded impression.

The third limitation was the possibility of recall bias. The CGPP has been ongoing for two decades and CIs' association with the program occurred at various times during this period, on an ad hoc basis. Despite probing, we sometimes struggled to get a sense of a linear narrative with dates or clear program milestones that would serve as a social history of the program, especially in interviews with the CIs themselves.

4. Conclusions

Partnerships are acknowledged as fundamental to vaccine program success (IA2030, 2023). Such partnerships need to be forged across various levels of the health system including at the community level (Dhaliwal et al., 2023). This paper looks at the complementarity of different CHW types, using data from research into CIs (a community health volunteer cadre) who were deployed for polio eradication. Our findings suggest that *socially anchored* high-status community health volunteers are an effective complement to more *institutionally anchored* paid CGPP and government community health workers. The role of CIs in fostering working partnerships with CHWs and with communities is important for improving the resilience and responsiveness of health systems. In particular, it may be useful to deploy a volunteer cadre such as the CIs in contexts where existing CHWs (ASHAs) have limited reach (such as urban areas), or where there is distrust between the government and specific communities.

5. Disclaimer

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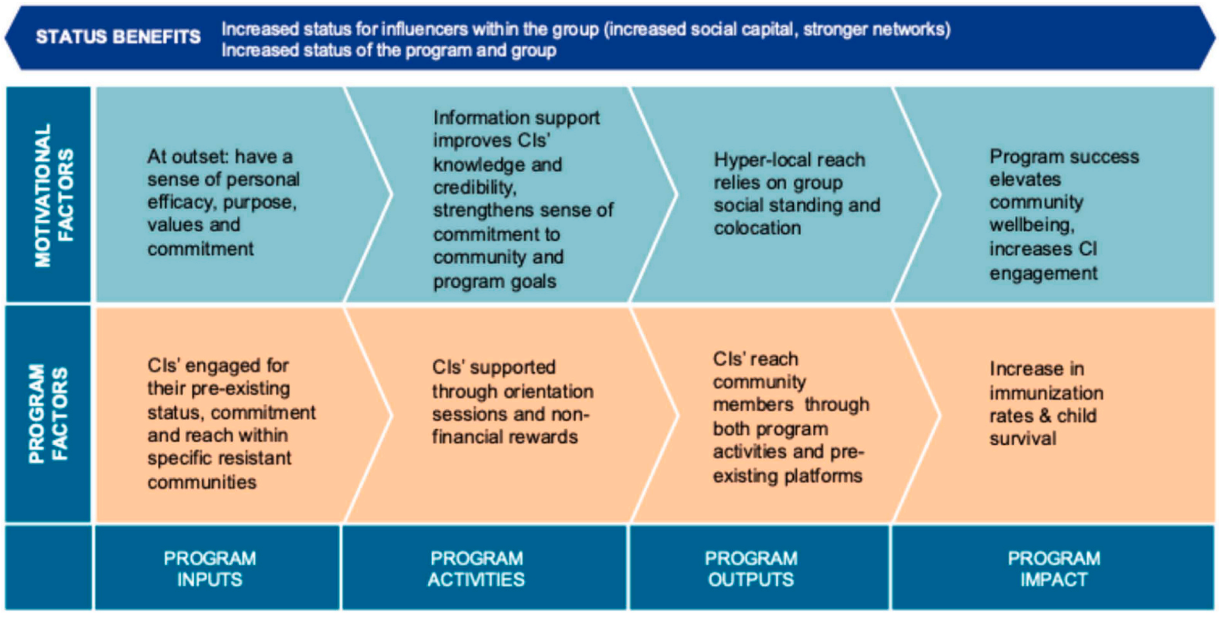
CRediT authorship contribution statement

Jitendra Awale: Writing – review & editing, Supervision, Conceptualization. **Parul Ratna:** Writing – review & editing, Supervision, Project administration, Conceptualization. **Balkrishna Yadav:** Writing – review & editing, Project administration, Investigation. **Pankaj Mishra:** Writing – review & editing, Project administration, Investigation. **Henry Perry:** Writing – review & editing, Methodology, Conceptualization. **Hibret A. Tilahun:** Writing – review & editing, Supervision, Resources, Conceptualization. **Kathy Vassos Stamidis:** Writing – review & editing, Resources, Project administration, Conceptualization. **Manojkumar Choudhary:** Writing – review & editing, Supervision, Project administration, Conceptualization. **Sanjna Sinha:** Writing – review & editing, Supervision, Project administration, Investigation, Conceptualization. **Arup Kumar Das:** Writing – review & editing, Supervision, Methodology, Investigation, Conceptualization. **Anna Schurmann:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Appendix 1. : Conceptual Model of Factors Influencing the Engagement of Cis



References

Agarwal, S.K., Naha, M., 2023. COVID-19 Vaccine Coverage in India: A District-Level Analysis. Vaccines 11 (5). https://doi.org/10.3390/vaccines11050948.

Ballard, M., Olaniran, A., Iberico, M.M., et al., 2023. Labour conditions in dual-cadre community health worker programmes: a systematic review. Lancet Glob. Health 11 (10), e1598–e1608. https://doi.org/10.1016/S2214-109X(23)00357-1.

Bhattacharya, S., Dasgupta, R., 2009. Smallpox eradication's lessons for the antipolio campaign in India. Am. J. Public Health 99 (7), 1176–1184. https://doi.org/10.2105/AJPH.2008.135624.

Community Health Impact Coalition; Women in Global Health; UN Women. Are dual cadre CHW programmes exploitation by another name? ⟨https://apolitical.co/solution-articles/en/are-dual-cadre-chw-programmes-exploitation-another-name⟩.n,d.

Deloitte, 2014. Evaluation of Social Mobilization Network (SMNet)-Final Report Main Section.

Dhaliwal, B.K., Seth, R., Thankachen, B., et al., 2023. Leading from the frontlines: community-oriented approaches for strengthening vaccine delivery and acceptance. BMC Proc. 17. https://doi.org/10.1186/s12919-023-00259-w.

Franklin, C.M., Bernhardt, J.M., Lopez, R.P., Long-Middleton, E.R., Davis, S., 2015. Interprofessional Teamwork and Collaboration Between Community Health Workers and Healthcare Teams: An Integrative Review. Health Serv. Res Manag Epidemiol. 2, 1–9. https://doi.org/10.1177/2333392815573312.

Glandon, D., Hasan, M.Z., Mann, M., et al., 2023. All my co-workers are good people, but': collaboration dynamics between frontline workers in rural Uttar Pradesh, India. Health Policy Plan. Published online, pp. 655–664.

Global Polio Eradication Initiative Investment. GPEI-Investment-Case-2022-2026-Investing in the Promise of a Polio-Free World. Published online 2022.

IA2030. *Immunization Agenda 2030*. Accessed December 22, 2023. ⟨https://www.who.int/docs/default-source/immunization/strategy/ia2030/ia2030-document-en.pdf⟩.

Q.S.R. International. NVivo 14. Preprint posted online 2023.

Larson, H.J., Gakidou, E., Murray, C.J.L., 2022. The Vaccine-Hesitant Moment. N. Engl. J. Med. 387 (1), 58–65. https://doi.org/10.1056/nejmra2106441.

McCoy, C.A., 2019. Adapting coercion: How three industrialized nations manufacture vaccination compliance. J. Health Polit. Policy Law 44 (6), 823–854. https://doi.org/10.1215/03616878-7785775.

Mirzoev, T., Kane, S., 2017. What is health systems responsiveness? Review of existing knowledge and proposed conceptual framework. BMJ Glob. Health 2 (4). https://doi.org/10.1136/bmjgh-2017-000486.

Mounier-Jack, S., Griffiths, U.K., Closser, S., Burchett, H., Marchal, B., 2014. Measuring the health systems impact of disease control programmes: A critical reflection on the WHO building blocks framework. BMC Public Health BioMed. Cent. Ltd 14 (1). https://doi.org/10.1186/1471-2458-14-278.

Rentmeester, C.A., Dasgupta, R., Feemster, K.A., Packard, R.M., 2014. Coercion and polio eradication efforts in Moradabad. Hum. Vaccin Immunother. Landes Biosci. 10 (4), 1122–1125. https://doi.org/10.4161/hv.27667.

Sacks, E., Morrow, M., Story, W.T., et al., 2019. Beyond the building blocks: integrating community roles into health systems frameworks to achieve health for all. BMJ Glob. Health 3 (3), e001384. https://doi.org/10.1136/bmjgh-2018-001384.

Sarriot E., Davis T., Morrow M., Kabore T., Perry H. *Motivation and Performance of Community Health Workers: Nothing New Under the Sun, and Yet.*; 2021. ⟨www.ghspjournal.org⟩.

Schurmann, A., Ratna, P., Awale, J., Manojkumar, C., 2024. Eradicating Polio Fight. COVID India. Community Influ. ' Motiv. Engagem. Time N. p. Prepr. Post. Online.

Scott, Kerry, Glandon, Douglas, Adhikeri, Binita, Ummer, Osama, Javadi, Dena, Gergen, Jessica, 2021. India's Auxiliary Nurse-Midwife, Anganwadi Worker, and Accredited Social Health Activist Programs. In: Perry HB, ed. Health for the People. Natl. Community Health Work. Prog. Afghan. Zimb. 113–134.

UNICEF. *State of the World's Children 2023: For Every Child, Vaccination.*; 2023.

Van Olmen, J., Marchal, B., Van Damme, W., Kegels, G., Hill, P.S., 2012. Health systems frameworks in their political context: Framing divergent agendas. BMC Public Health 12 (1). https://doi.org/10.1186/1471-2458-12-774.

Witter, S., Palmer, N., Balabanova, D., et al., 2019. Evid. Rev. What Works Health Syst. Strength. Where When.

World Health Organization. *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes: WHO's Framework for Action.*; 2007a.

World Health Organization. *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes: WHO's Frmaework for Action.* World Health Organization; 2007b.

World Health Organization. *Microplanning for Immunization Service Delivery Using the Reaching Every District (RED) Strategy.*; 2009. ⟨www.who.int/vaccines-documents/⟩.

World Health Organization. *Global Polio Eradication Initiative: Investing in the Promise of a Polio Free World 2022-2026.*; 2022. Accessed August 26, 2024. ⟨https://polioeradication.org/wp-content/uploads/2022/04/GPEI-Investment-Case-2022-2026-Web-EN.pdf⟩.

World Health Organization (WHO). *What Do We Know about Community Health Workers: A Systematic Review of Existing Reviews. Human Resources for Health Obsserver Series Number 19.*; 2020.