Commentary

A Social Network Lens to Community Health Worker Influence and Impact

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Abstract

Community Health Workers (CHWs) are members of healthcare teams that are integrated in, and often share language, beliefs, and lived experiences with their communities. They use their formal and informal social networks to promote healthy behavior, to connect community members to resources, and to build more resilient community networks. We propose a framework to conceptualize CHW interventions aiming to operationalize and optimize CHW social relations and networks. CHW-mediated network interventions can focus on the dissemination and diffusion of health messages, using the channels of trust and formal and informal relations, as well as, engaging communities to enhance the cascade of spreading/diffusion. Network interventions can also focus on network-building and community dialog, relying on the role of CHWs in bringing the community members together in facilitating conversation, promoting social justice and inclusion, and mobilizing the community in collective action. In addition, the network interventions can aim for boundary-spanning and bridging activities, to facilitate the community's access to health services and external resources, as well as bringing the community voice to health systems to influence priorities and policies. Similar to any other complex interventions, CHW network interventions should be fine-tuned and adapted to local and community needs, capacities, and network structures, and actively involve community members in the conceptualization, delivery, and evaluation.

Keywords

community health workers, social networks, network interventions, boundary-spanners, dissemination

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Social Embeddedness of Community Health Workers

Community Health Workers (CHWs) are members of healthcare teams that are integrated and in close communication with their communities. They use their formal and informal social relations to serve as agents of change and to promote healthy behavior.[1] CHW model has an extensive history in public health, contributing to equitable access and delivery of health services and linking patients to community resources. CHWs typically share language, beliefs, and lived experiences with their communities. They have deep knowledge of needs and resources,[2,3] and can engage meaningfully with diverse communities that may harbor reservations toward healthcare systems.[4] They can provide health education, help address adverse social drivers of health (SDoH),[5] and provide assistance with care navigation and follow-up.[6] CHW interventions have been shown to enhance adherence to evidence-based care,[7] facilitate health behavior change, and improve health outcomes for vulnerable patients.[8]

CHWs can build on their existing social relations to disseminate evidence-based interventions and influence, contextualize, and adapt interventions through a bi-directional dialog with communities, and also deliberately expand and enhance new relations. Because of their community-embedded social position, CHWs can provide various types of social support, including instrumental (eg, assisting with transportation to health care centers, or providing needed nutrients), informational (providing evidence and advice),

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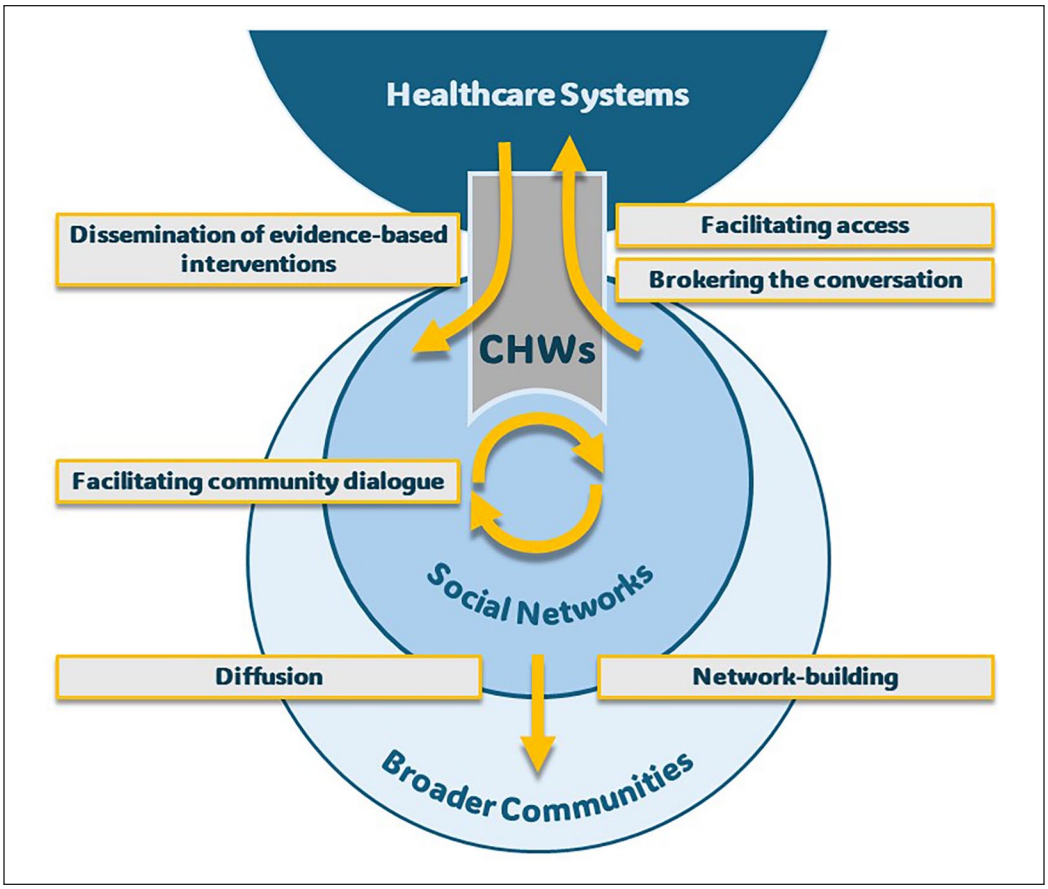

Figure 1. Community health workers in social networks.

emotional (eg, listening to clients or supporting them at the time of distress), and appraisal support (eg, reflecting on clients' achievements).[9,10]

Despite the critical role of social relations in the CHW practice model and impact, the role of social networks as channels of communication and influence and as indicators of success has been widely unexplored in CHW research. Here, we propose a framework to conceptualize and study CHW interventions aiming to operationalize and optimize the connectivity and influence of CHWs in their social networks, as explained in the following sections and summarized in Figure 1.

Dissemination and Diffusion

Dissemination of health information is a critical aspect of CHWs' roles. CHWs are naturally positioned to influence their clients and peers when health messages are conveyed in the context of mutual trust, empathy, and recognition of one's autonomy and self-efficacy. Oliver et al,[11] in a systematic review of the CHWs' role in disseminating COVID-19 information, identified several barriers and facilitators for the disseminating role of CHWs that are generalizable to other contexts. Trusted relationships with the communities (facilitated through shared culture and life experience, community-embeddedness, and perception of their roles as clinicians and experts) and CHWs' responsiveness to the needs and dedication to helping the community were among the facilitators of dissemination.[11] Barriers to effective dissemination included potential stigma (and lack of trust in healthcare in general), CHW burn-out, and inadequate communication by the health systems to properly adapt health messages.[11]

Purposeful and effective strategies are needed to promote and support the dissemination of health information to the intended audience.[12] These strategies include the intentional engagement and activation of sources (eg, endorsement by influential community members), development and tailoring of the contents, and identification and adaptation of proper communication channels.[13-15] Lack of attention to the complexity of dissemination processes and systematic development of strategies may explain the heterogeneous effectiveness of current dissemination efforts.[15,16]

While CHWs are naturally the agents of change, effectively engaging with one's social network to promote

behavior change requires skills to socialize and persuade,[17] and to facilitate and motivate.[18,19] Purposeful and systematic dissemination is essential in the uptake, spread, and use of health innovations, as the drastic gap in the translation of research findings into practice and policy is partially linked to ineffective and inadequate dissemination.[15,16]

The targeted and active dissemination efforts often activate complex and non-linear process of knowledge diffusion within social networks, by which the community members talk about the health message and share personalized narratives (which may differ from the originally intended message) with their family, friends, and neighbors.[14] Depending on the nature of the message, its interaction with the norms and cultures, the characteristics of champions and early adopters, the social network structure, and the success of reinforcement strategies, some diffusion pathways may die early, some may be siloed in specific cultural or racial clusters, and some invoke cascades of spread to the broader communities, which might be out of reach from the initial seeds.[20] Given their community embeddedness, CHWs are likely to know the local influencers and opinion leaders, who could be religious and spiritual figures, social media celebrities, and socially active citizens. Onboarding local opinion leaders in behavior change interventions is an effective implementation strategy that can enhance CHWs' social influence.[21]

Studies should focus on the social processes and outcomes of dissemination efforts by the CHWs. Some important research questions include:

- **How do CHWs use personal social networks to disseminate health messages?** The role of structural characteristics of networks (eg, size, clustering) and adaptation of messages based on different network roles (eg, clients, family members, or influencial actors).
- **What are the barriers and facilitators of effective dissemination of health messages by CHWs?** The role of CHW personal characteristics and training in communication and behavior change skills, their shared experience and trustworthiness by the communities, their relationship with health systems, the nature of the message, and the communication channels.
- **How do the dissemination activities invoke broader diffusion in social networks?** The role of early targets and initial seeds, the nature of the message and individuals' threshold for adoption, community opinion leaders and bridges, and the impact of multi-component dissemination/diffusion campaigns and boosters.

Network building and community dialog. Creating a sense of community and belonging can be a powerful driver of engagement in behavior change. CHWs can facilitate the formation of peer support networks focused on specific health challenges. These networks provide a platform for individuals to share experiences, provide mutual support, and collectively work toward behavior change goals.[22,23] In a study by Saint Onge et al,[24] CHWs emphasized the importance of creating more extensive networks of trust, utilizing a client's family and friends to enhance adherence to health messages.

CHWs can initiate and promote dialog about sensitive issues. Samsamshariat et al[25] engaged CHWs in the Peruvian Amazon in community-based participatory research activities to engage vulnerable Indigenous communities in conversation about strategies to remain resilient after the collapse of the Peruvian healthcare system after the COVID-19 pandemic. Studies have also assessed the role of CHWs in building community resilience in response to disasters or in the face of the pandemic.[26] CHWs can strengthen the community's social capital through outreach and networking, serving as peer listeners, identifying and promoting local assets and resources, and facilitating access to health services and external resources.[27]

An important determinant of CHW success in community activation and dialog is the atmosphere of trust in the community toward CHWs and development of safe space for building relationships to the formal health systems.[28] This could be facilitated through the involvement of communities in nomination and selection of CHWs, and their active involvement in the CHW work to respond to local needs.[29,30] CHWs have been shown to have a role in creating a community-based health registry by collecting household health data.[31] If successfully integrated into and recognized by the communities, CHWs can help the formation of community health boards that can facilitate community engagement and communication toward health promotion through community events.[28] CHWs should be keenly attuned to the nuances of their particular community and adapt their engagement methods accordingly. This means understanding local customs, cultural sensitivities, and the prevailing socioeconomic conditions.

Some key research questions related to the network-building role of CHWs include:

- **What systemic strategies are effective in the identification of socially influential CHWs, and positioning them to enhance connectivity and influence?** The role of community engagement and leadership in the processes of nomination, onboarding, and training of CHWs.
- **What strategies can the CHWs use to facilitate community dialog, connection, and collective action on health topics that matter to the community?** The impact of motivational interviewing[32,33] and CBPR models and techniques, the role of the physical environment and places of gathering, and the normative value of conversation and dialog.

Facilitating access and navigation and brokering back to health systems. With ties to both communities and healthcare systems, CHWs play a bridging role,[34] facilitating the community-clinical linkage through referral by healthcare providers or their outreach efforts to connect patients in need to relevant healthcare services by cultivating trust within the communities and providers.[35-37] By connecting individuals and communities to healthcare systems, CHWs can serve as bridges,[24,34] and "community boundary spanners."[38]

The bridging channel of CHWs is not a 1-way path. CHWs can facilitate the dialog in communities and brokering their voice to inform health system priorities and adaptation of health care programs to the community needs and expectations. Berini et al,[39] in a systematic review, showed that the integration of CHWs into formal care teams resulted in better access of US rural residents to community services, acting as an important facilitator toward equitable access to care in rural settings.[39] This connection to care usually happens through education, counseling, care navigation, addressing access barriers (such as scheduling, transport, and financial concerns), and culturally sensitive translation of healthcare communications, which has been shown to improve access to care and service utilization in under-served communities,[7] including Latinos.[40]

An important requirement for this bridging role is the successful integration of CHWs into care teams and care navigation training programs. These training programs may include clinical education, screening, communication skills, motivational interviewing, knowledge of existing resources, and role clarification within health systems.[41,42] Health systems should clearly define CHW roles, provide enough financial and leadership support to their integration and recognition by the healthcare cadre, and facilitate continuous training and supervision.[28]

Despite some recent improvements, the role of CHWs as patient navigators has been under-recognized, and there is no consensus on capacity building and workforce development strategies to support and promote care navigation by CHWs.[43]

Key research questions related to the bridging role of CHWs include:

- **How can the CHWs create effective and equitable channels of access to health services?** The role of health systems and delivery models, the integration of CHWs in care processes, training and competency development, and community needs.
- **How does the bridging role of CHWs transform health services into culturally and contextually responsive care?** The role of CHWs' lived experience, position in the community and health system networks, and feedback and evaluation processes.
- **How can CHWs lead and mediate the process of feedback and dialog between communities and health systems?** The role of institutional infrastructure and engagement strategies, CHW individual boundary-spanning capabilities, and the nature of community needs and expectations.

Network Analysis to Inform and Evaluate Interventions

While leveraging the power of social connections and network does not necessarily require the use of social network analysis, it can be very helpful to inform social network interventions and assess their success in restructuring personal and community social networks.

Individuals gain a better impression of their personal support and influence networks if they engage in reflective activities to describe and map their social networks. The exercise of "network diagnostics" can involve mapping one's social network using network charts, assisted by a facilitator.[44] The value of personal network mapping to provide insight about existing social resources and opportunities for strengthening social relationships have been shown in different contexts.[45-48]

By visually representing their social networks, CHWs can gain valuable insights into the structure and dynamics of their relationships, which enables them to make informed decisions about how to leverage these connections effectively. Moreover, network mapping uncovers opportunities for strengthening social relationships. It allows CHWs to reflect on both strong social connections (eg, friends and family), as well as those with whom their connections may be underdeveloped. Recognizing these weaker social ties presents a valuable chance to nurture and activate these connections, thereby expanding the reach and impact of the CHW's efforts.

Personal and sociocentric (whole) network analysis can also illuminate the overall social structure, the dynamics of social connections, social clusters and structural holes, and the evolution of social networks during the intervention. Therefore, social network analysis is a powerful tool for informing implementation planning and strategy development.[49,50]

Conclusion

CHWs are effective agents of change and connectors of health systems with communities. They rely on their informal and day-to-day social connections to promote healthy behavior, better disseminate and implement health interventions, and promote individual and community resilience. Network-informed interventions are potentially influential in situating CHWs more effectively in their social networks, and facilitating their efforts to mobilize community

resources, improve social capital, and bridge between communities and health systems. We summarized these interventions into 3 main categories:

- Dissemination and diffusion efforts focus on framing health messages, identifying communication channels, identifying initial targets, and engaging communities in further spreading/diffusion of health messages and behaviors.
- Network-building and community dialog, which rely on the role of CHWs in bringing the community members together to facilitate conversation, promote social justice and inclusion, and mobilize the community in collective action and resilience.
- Boundary-spanning and bridging activities, which facilitate the community access to health services and external resources, as well as bringing the community voice to health systems to influence priorities and policies.

To be successful in delivering network-informed interventions, special attention should be paid to the CHW characteristics and competencies, systemic infrastructure and resources, community needs and norms, and embedding CHWs in the communities and health systems. Similar to other complex interventions, network-informed interventions should be fine-tuned and adapted to local and community needs, capacities, and network structures. Therefore, any network intervention mediated by CHWs should be revisited and evaluated regularly, with the communities' input at the core. This participatory approach not only engages individuals but also ensures that interventions are responsive to the emerging needs and preferences of the community. Informing these interventions with insights gained by the formal analysis of social networks can strengthen their design and delivery.

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