

Experiences and Lessons Learned: Implementing the Organizational Network Analysis Method

Background

There is increasing recognition of the importance of systems approaches to sustainable, locally-led development (e.g., the United States Agency for International Development's [USAID] [Local Capacity Strengthening Policy's](#) focus on local systems). Development outcomes cannot be achieved and sustained without the collaborative efforts of multiple, interconnected actors. When an organization is an active part of a network and learns to work within that network of organizations, it can access information, skill sets, and resources better than it can as a standalone organization. Networks that are well coordinated can produce greater synergies, less duplication, cost savings, thorough service delivery, and improved health outcomes (Reynolds, Curran, & Thomas, 2014).

Public health organizations and projects can better understand their network and leverage the resources within it for the benefit of their clients by using the systematic approach known as Organizational Network Analysis (ONA). In ONA, networks can be represented by measures such as density (number of links among organizations as a proportion of all possible links), betweenness centrality (the roles that individual organizations and exchange relationships play within the larger network), reciprocity (the proportion of mutual ties), efficiency (the effectiveness of a network at distributing information and resources to all organizations), in-degree connections (e.g., referrals received) and out-degree connections (e.g., referrals sent).

ONA has been applied in public health in a variety of ways. For example, it was used in the development and implementation of Nepal's multisectoral nutrition plan (MSNP) through examining the levels of engagement and network dynamics among government sectors and development organizations (Ruducha et al., 2021). Similarly, network analysis was used to characterize the intersectoral collaboration between the organizations working on maternal & child health (MCH) and water & sanitation (WASH) in implementing an integrated rural health and development project in Uttar Pradesh, India (Hoe et al., 2019).

This document shares Data for Impact's (D4I) experiences and lessons learned in implementation of ONA in projects in Botswana and Nigeria.

The process of conducting an ONA can be summarized in the following steps:

1. Engaging stakeholders
2. Defining the network and enumerating its members
3. Interviewing organization representatives and clients
4. Mapping the organization locations
5. Analyzing the data using appropriate measures
6. Sharing the findings with the organizations and other stakeholders



Methods

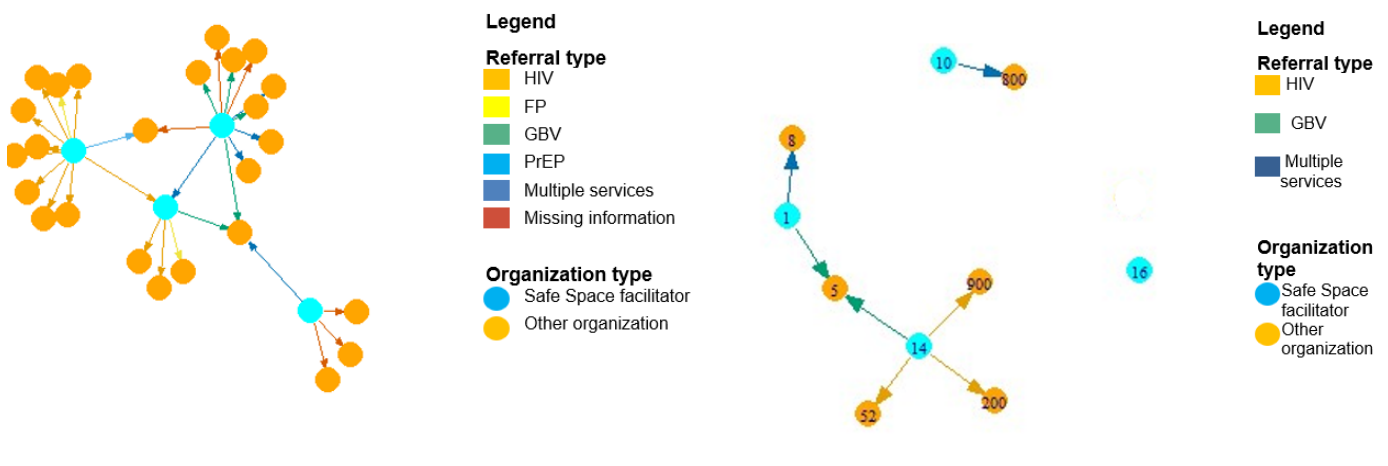
To assess the experiences of D4I in using the ONA approach, D4I reviewed reports on how the project applied the ONA approach in Botswana and Nigeria. D4I also conducted key informant interviews (KII) with two D4I researchers who were involved in data collection or data analysis using ONA for activities in Botswana and Nigeria.

ONA Application in Botswana

D4I conducted a mixed-methods study in the Gaborone and Kweneng East districts of Botswana to learn more about referral networks that provide at-risk adolescent girls and young women (AGYW) with Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS)-related services. This mixed-methods, cross-sectional study involved both a quantitative survey and qualitative research. For the quantitative component, an ONA approach was used to map the referral network in use by DREAMS partners that provided services including HIV and gender-based violence (GBV) prevention, HIV testing, condom distribution and other family planning (FP) services, pre-exposure prophylaxis (PrEP), contraceptive services, post-GBV care services, and socioeconomic interventions. There were 17 service sites surveyed in the ONA, including 6 health facilities and 10 nongovernmental organizations (NGOs). A small qualitative study also explored knowledge and preferences of AGYW about key services including HIV testing, condoms, FP, PrEP, and post-GBV care through two focus group discussions (FGDs) with participatory mapping processes. These two FGDs were held with nineteen women ages 18-24 years who participated in a Safe Space group in the two districts.

Results from the analysis revealed that there was a need for increased connection between organizations in these service areas. The results also identified gaps in provision of PrEP, some contraceptive services, and nonclinical post-GBV services at youth-friendly services (YFS). The findings from this study were to be used to strengthen referral networks for DREAMS services and align service provision with the preferences of AGYW.

Figure 1. Comparison of the sociogram of potential connections in the Safe Spaces network (left) to the sociogram of actual connections in the Safe Spaces Network (right)¹



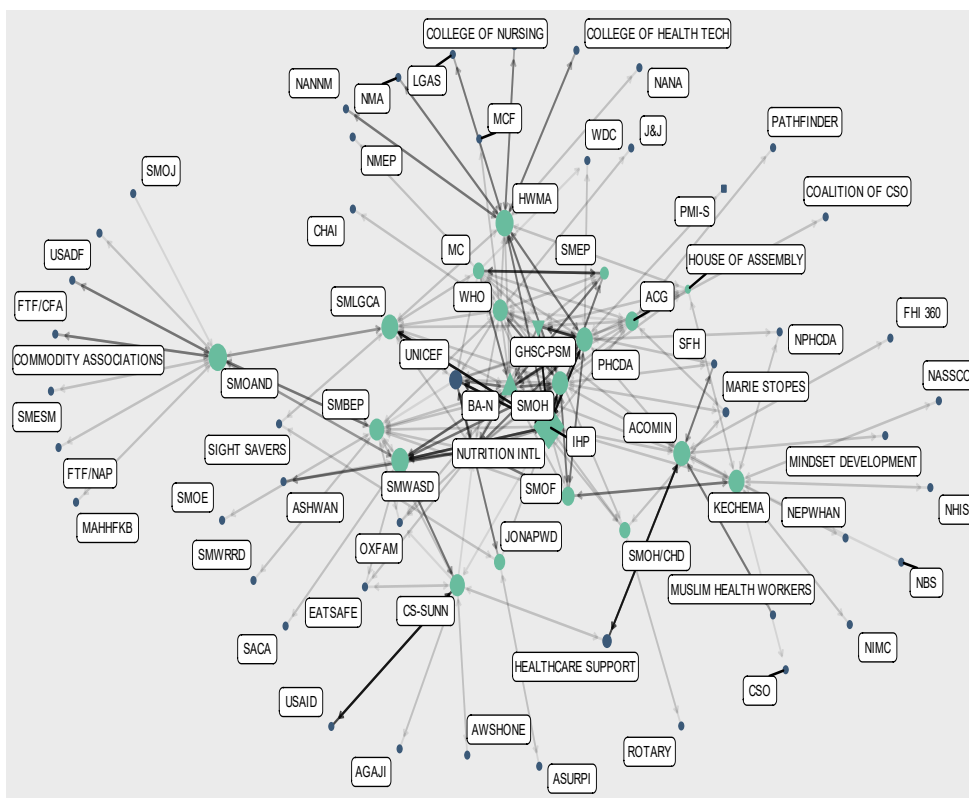
¹ In the two sociograms, safe spaces are shown in blue, and other organizations (e.g., facilities or other service organizations) are shown in orange. The color of the edge (i.e., arrow) depicts the type of referral (potential/actual) for each connection. Placing these two sociograms side-by-side shows that safe spaces are not using the full range of known referral sites.



ONA Application in Nigeria

D4I is conducting a prospective mixed-methods portfolio evaluation of four USAID/Nigeria Health, Population, and Nutrition (HPN) activities, with a focus on comparing an integrated health programming approach with a disease-focused approach (malaria). The evaluation involved conducting an ONA to better understand collaboration and coordination through structural aspects of resource, information, and funding exchange in three states —Ebonyi, Kebbi, and Zamfara— where different combinations of activities are being employed. D4I evaluated the potential effects of the integrated, disease-focused, and combination approaches on three types of sharing networks: nonmonetary resource sharing, information sharing, and funding sharing. Stakeholders representing the Integrated Health Project (IHP), President’s Malaria Initiative for States (PMI-S), Breakthrough ACTION (BA-N), and the Global Health Supply Chain Program – Procurement and Supply Management (GHSC-PSM) in each state were asked to identify up to 10 other organizations with whom they collaborated on their HPM activities. Together, these groups formed the sample for the organizational network survey.

Figure 2: Kebbi resource sharing network²



Analysis of the survey responses revealed that the activity implementing partners play important roles in connecting various organizations in these networks. Additionally, the study found systematic differences between states in terms of their exchange relationships. Overall, these results provide a useful platform for reflection and planning related to coordination and collaboration amongst stakeholders in Nigeria’s multi-activity HPN program.

² From a network perspective, this figure allows us to understand the exchange relationships between organizations in terms of their ability to distribute resources with each other. Green nodes correspond to surveyed organizations and dark blue nodes correspond to organizations that were nominated but not surveyed. Node shape corresponds to HPN activity, and node size corresponds to betweenness centrality—larger nodes are more central. Darker edge lines correspond to edges with higher weights, and arrows show the directionality of the exchange relationship.



Lessons Learned



Photo: A youth-friendly service facility, Kweneng East, Botswana; Photo credit: Emily Weaver, MEASURE Evaluation

D4I learned the following lessons from implementing the ONA method in Botswana and Nigeria:

- The ONA approach provides unique quantitative measures of connections and visual representations related to collaboration and coordination between organizations. For instance, in Botswana, the ONA method helped highlight opportunities for fostering connections between organizations to increase referrals.
- ONA can be useful in obtaining actionable baseline information to improve connections among organizations in the network, and it can also measure and describe how network membership and connections have changed over time.
- The ONA method generated a lot of interest for the stakeholders both in Botswana and Nigeria possibly because it was many stakeholders' first experience with this kind of data. The network visualizations were compelling to stakeholders and spurred conversations around forming new linkages and acting on gaps.
- Both in Botswana and in Nigeria, ONA was conducted alongside a qualitative study, and the two approaches worked well together since the qualitative data helped contextualize the ONA findings. For instance, the ONA in Botswana produced information about the referrals happening across organizations but focus groups with service users revealed the strengths and gaps in service delivery across organizations



Recommendations for Researchers



Decisions about **which organizations to include** as respondents, and **whether to treat the network as bounded or open**, are highly consequential for ONA results. Researchers should **carefully address** these **methodological factors** to minimize selection bias and understand related limitations. **Engaging with network actors** and other local stakeholders as part of this process can help to validate design assumptions.



Exploring each program's results framework in advance can help ONA implementers better understand how effective collaboration and coordination might operate and manifest. This **systems-level approach** can help improve study design. In Nigeria, for example, data on funding networks was ultimately perceived as less instructive and less actionable than data on information and non-financial resource sharing.



Like other assessment methods that involve primary data collected from respondents, network surveys may be subject to response bias due to social desirability, limited information, and other causes. **Response bias can be minimized** through good question design and careful selection of individuals responding on behalf of an organization. One option is to **convene an intraorganizational group** to respond to network questions instead of designating just one person.



Combining ONA with other kinds of data collection can help contextualize and validate results. Network data alone do not tell the whole story about how organizations collaborate and coordinate, so other data (especially qualitative) can help fill in the gaps. However, collecting and synthesizing a large amount of data using multiple methods in multiple locations required a lot of time and expertise for the Nigeria activity.



Many audiences may be largely unfamiliar with the quantitative results generated by network analysis and modeling, requiring targeted communications for effective results dissemination and use. Researchers should **think about alternative ways of expressing and communicating** these results that may be easier for the general audience to grasp.



For dissemination of ONA findings, **stakeholder workshops** are one useful approach. D4I's experience suggest that dedicating an entire workshop or day to discussing only ONA findings may be more beneficial than presenting a lot of information from multiple methods at once.



When organizing a dissemination workshop, it is important to **consider the size of the network** produced by an ONA. Stakeholders will probably need more time to review and interpret the results of a denser network compared to one with fewer organizations.



ONA studies may collect information, such as organizations' contact information or geospatial location data, with high potential for misuse. Local stakeholders should be meaningfully engaged throughout the research process, including in study design and results dissemination, and researchers should ensure **careful attention to ethical standards** even when their activities are not formally designated as human subjects research.



Annotated Bibliography

Cornell, Devin J., Taylor, Tory M., & Curtis, Siân L. (2023) *Collaboration and Coordination in Nigeria's Multi-Activity Program: Findings from an Organizational Network Analysis*. Chapel Hill, NC, USA: Data for Impact. https://www.data4impactproject.org/wp-content/uploads/2023/02/TR-23-510-D4I-ona_report_508c.pdf

This brief presents the methods and findings from an organizational network analysis (ONA) to better understand collaboration and coordination through structural aspects of resource, information, and funding exchange in three states of Nigeria -Ebonyi, Kebbi, and Zamfara- where different combinations of activities were being employed. The ONA was a component of a larger prospective mixed-methods portfolio evaluation of four USAID/Nigeria Health, Population, and Nutrition (HPN) activities, with a focus on comparing an integrated health programming approach with a disease-focused approach. The brief describes the sampling strategy and network modeling approach as part of their method and discusses the network measures that were chosen to understand the exchange relationships between organizations (i.e., density, reciprocity, efficiency, and government centrality). The results and discussion sections of the brief point to the systematic differences in exchange networks across the three states and how these results can provide a useful platform for reflection and planning related to coordination and collaboration in Nigeria's multi-activity HPN program.

Weaver, E., Markiewicz, M., & Wilson, C. (2019) *Organizational Network Analysis of the Adolescent Girls and Young Women Referral Network*. Chapel Hill, NC, USA: Data for Impact. https://www.data4impactproject.org/wp-content/uploads/2020/02/Organizational-Network-Analysis-of-AGYW-Referrals-in-Botswana_TR-19-383_D4I.pdf

This report was prepared by Data for Impact (D4I) to summarize the methods and findings from a mixed-methods study conducted in Gaborone and Kweneng East districts of Botswana to learn more about referral networks that provide adolescent girls and young women (AGYW) with services related to the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program. This report provides important background information on the DREAMS partnership aimed at addressing the structural drivers that increase AGYW's HIV risk, including poverty, gender inequality, GBV, and a lack of education. This report highlights the results and recommendations, with input from stakeholders that provide opportunities for strengthening referral linkages and filling service gaps for DREAMS services. The report also includes an ONA survey instrument in the appendix, which is a helpful resource for future evaluations.



References

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- Ruducha, J., Bhatia, A., Mann, C., & Torlesse, H. (2021). Multisectoral nutrition planning in Nepal: Evidence from an organizational network analysis. *Maternal & Child Nutrition*, *18*(Suppl 1), e13112. <https://doi.org/10.1111/mcn.13112>

For more information

D4I supports countries to realize the power of data as actionable evidence that can improve programs, policies, and—ultimately—health outcomes. We strengthen the technical and organizational capacity of local partners to collect, analyze, and use data to support sustainable development. For more information, visit <https://www.data4impactproject.org/>

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