

March 2023

Enhancing the Conduct of Randomized Control Trials in Rural Sub-Saharan African Communities

By: Jang, C. & Woo, H.

Abstract

Randomized Control Trials (RCTs) are widely regarded as a powerful tool for evaluating the impact of interventions in various settings. In rural Sub-Saharan Africa, where socio-economic disparities and unique contextual factors abound, conducting RCTs presents both challenges and opportunities. This scholarly article explores the key considerations and best practices for designing and implementing RCTs in rural Sub-Saharan African communities. Drawing from existing literature and practical experiences, this paper emphasizes the need for culturally sensitive approaches, community engagement, ethical considerations, and rigorous data collection and analysis. By addressing these factors, researchers can enhance the validity and reliability of RCTs, ultimately contributing to more effective development interventions and policies.

Introduction

Randomized Control Trials (RCTs) have become a gold standard in impact evaluation, providing a robust framework to assess causal relationships between interventions and outcomes. While RCTs have been successfully conducted in various global contexts, conducting RCTs in rural Sub-Saharan African communities presents unique challenges and opportunities. This article explores how to best design and conduct RCTs in this context, emphasizing the importance of cultural sensitivity, community engagement, ethical considerations, and rigorous methodology.

Cultural Sensitivity and Contextual Understanding: Rural Sub-Saharan African communities are characterized by diverse cultural norms, languages, and practices. Researchers must prioritize cultural sensitivity to ensure that interventions are well-received and aligned with local values. Understanding the social dynamics, power structures, and historical context is crucial for designing interventions that resonate with the community. Language barriers should also be addressed through translation and local collaboration to ensure effective communication.

Community Engagement and Participation: Effective community engagement is pivotal for the success of RCTs in rural Sub-Saharan Africa. Community involvement ensures that interventions are relevant, acceptable, and sustainable. Prior to trial initiation, researchers should engage with community leaders, elders, and other key stakeholders to gain their support and insights. Engaging community members in the design, implementation, and monitoring of the trial not only enhances local ownership but also improves data quality and participant retention.

Ethical Considerations and Informed Consent: Ethical considerations are paramount when conducting RCTs in vulnerable communities. Researchers must obtain informed consent from

participants, ensuring that they understand the purpose, risks, and potential benefits of the trial. In rural Sub-Saharan Africa, where literacy rates can vary, obtaining informed consent may require innovative approaches, such as oral consent processes or visual aids. Ethical review boards, both local and international, should oversee the trial to ensure that participants' rights are protected.

Adapting Interventions to Local Realities: Interventions in rural Sub-Saharan African communities should be tailored to the local context. This involves careful consideration of infrastructure, availability of resources, and existing practices. Researchers should collaborate with local partners and communities to design interventions that are feasible and sustainable within the given context. Moreover, interventions should be flexible enough to accommodate unforeseen challenges and adaptations that may arise during the trial.

Rigorous Data Collection and Analysis: High-quality data collection and analysis are fundamental to the success of RCTs. In rural Sub-Saharan Africa, where access to technology and resources may be limited, researchers must employ innovative methods for data collection. Mobile data collection platforms, paper surveys, and face-to-face interviews are some options to consider. Rigorous data management and quality control procedures should be established to ensure the reliability and validity of collected data.

Addressing Attrition and Sample Bias: Attrition rates in rural Sub-Saharan African communities can be relatively high due to mobility, health issues, or other challenges. Researchers should implement strategies to minimize attrition, such as establishing strong relationships with participants, providing incentives, and conducting follow-up visits. Analyzing attrition patterns and potential biases is essential to assess the external validity of trial results.

Building Local Research Capacity: Conducting RCTs in rural Sub-Saharan Africa offers an opportunity to build local research capacity. Collaborative partnerships with local universities, research institutions, and NGOs can empower local researchers to be actively involved in study design, data collection, and analysis. This not only enhances the sustainability of research efforts but also contributes to skill development and knowledge dissemination within the community.

Conclusion

Randomized Control Trials conducted in rural Sub-Saharan African communities hold significant potential for informing effective development interventions. To best conduct RCTs in this context, researchers must prioritize cultural sensitivity, community engagement, ethical considerations, and rigorous methodology. By addressing these key factors, researchers can ensure that interventions are contextually relevant, impactful, and sustainable, ultimately contributing to positive changes in the lives of rural populations in Sub-Saharan Africa.

References

1. Frongillo EA, Nanama S. Development and validation of an experience-based measure of household food insecurity within and across seasons in northern Burkina Faso. *J Nutr.* 2006;136:1409S–1419S.
2. Hoddinott J, Yohannes Y. *Dietary diversity as a household food security indicator*. Washington, D.C: Food and Nutrition Technical Assistance Project, Academy for Educational Development; 2002.
3. Akroyd, S., & Smith, L. (2007). The decline in public spending to agriculture—does it matter? (Briefing Note No. 2). Oxford, England: Oxford Policy Management Institute.

4. Alston, J. M., Wyatt, T. J., Pardey, P. G., Marra, M. C., & Chan-Kang, C. (2000). A meta-analysis of rates of return to agricultural R&D—Ex pede Herculem. Washington, DC: International Food Policy Research Institute.
5. Anderson, J. R. (2007). Agricultural advisory services [Background paper for the World Development Report 2008]. Retrieved from http://siteresources.worldbank.org/INTWDRS/Resources/477365-1327599046334/8394679-1327599874257/Anderson_AdvisoryServices.pdf
6. Berry, W. (1977). *The unsettling of America: Culture and agriculture*. San Francisco, CA: Sierra Club Books.
7. Bogue, E. G., & Aper, J. (2000). *Exploring the heritage of American higher education: The evolution of philosophy and policy*. Westport, CT: Oryx Press.
8. Bowen, H. R. (1977). *Investment in learning: The individual and social value of American higher education*. Baltimore, MD: Johns Hopkins University Press.
9. Calhoun, C. (1998). The public good as a social and cultural project. In W. Powell & E. Clemens (Eds.), *Private action and the public good* (pp. 20–35). New Haven, CT: Yale University Press.
10. Collins, C. S. (2011). *Higher education and global poverty: University partnerships and the World Bank in developing countries*. Amherst, NY: Cambria Press.
11. Collins, C. S. (2012). Land-grant extension as a global endeavor: Connecting knowledge and international development. *The Review of Higher Education*, 36(1), 91–124.
12. Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.
13. Denzin, N. K. (1970). *The research act in sociology: A theoretical introduction to sociological methods*. London, England: Butterworths.
14. Culbertson, M. J., McCole, D. T., & McNamara, P. E. (2014). Practical Challenges and Strategies for Randomized Control Trials in Agricultural Extension and Other Development Programs. *Journal of Development Effectiveness*, 6(3), 284–299. DOI: 10.1080/19439342.2014.919339
15. Douglass, M. (1998). *Developing a concept of extension program evaluation*. Madison, WI: Cooperative Extension.
16. FAO. (2003, September). Statement circulated by H.E. Mr Hartwig de Haen, assistant director-general (Doc. No. WT/MIN(03)/ST/61). Statement circulated at World Trade Organization Ministerial Conference, Fifth Session, Cancún, Mexico.
17. Feder, G., Murgai, R., & Quizon, J. B. (2004). The acquisition and diffusion of knowledge: The case of pest management training in farmer field schools, Indonesia. *Journal of Agricultural Economics*, 55(2), 221–243.
18. Grosh M, Glewwe P. Data Watch: the World Bank's Living Standard Measurement Study household surveys. *Journal of Economic Perspectives*. 1998;12:187–196.
19. James WP, Ferro-Luzzi A, Waterlow JC. Definition of chronic energy deficiency in adults. Report of a working party of the International Dietary Energy Consultative Group. *Eur J Clin Nutr*. 1988;42:969–981.
20. StataCorp. *Stata Statistical Software: Release 13*. College Station, TX: StataCorp LP; 2013.
21. Sack, R. (1997). *Homo geographicus: A framework for action, awareness, and moral concern*. Baltimore, MD: Johns Hopkins University Press.
22. Sack, R. (2001). Place, power, and the good. In P. C. Adams, S. Hoelscher, & K. E. Till (Eds.), *Textures of place: Exploring humanist geographies* (pp. 232–245). Minneapolis: University of Minnesota Press.
23. Sayer, R., & Storper, M. (1997). Ethics unbound: For a normative turn in social theory. *Environment and Planning D: Society and Space*, 15, 11–17.
24. Smith, D. (1977). *Human geography: A welfare approach*. London: Edward Arnold.
25. McCole, D. T., Bobilya, A., Holman, T., Lindley, B. (2019). Benefits of summer camp: What do parents value? *Journal of Outdoor Recreation, Education and Leadership*, 11, 239–247. DOI: 10.18666/JOREL-2019-V11-I3-9672
26. Smith, D. (2000). *Moral geographies: Ethics in a world of difference*. Edinburgh: Edinburgh University Press. Transition Research Network. (n.d.). Experiences of transition research. Retrieved June 4, 2016, from <http://www.transitionresearchnetwork.org/experiences.html>
27. Valentine, G. (2005). Geography and ethics: Moral geographies? Ethical commitment in research and teaching. *Progress in Human Geography*, 29, 483–487.
28. Ocansey, R. T. A., Nyawornota, V. K., Adamba, C., Tay, D. A., Musah, K., Nyanyofio, O. C. N., & McCole, D.T. (2023). Promoting development of entrepreneurial skills of youth in Ghana through a structured sport intervention program. *Frontiers in Education*, 11, 1135084.
29. Vujakovic, P. & Bullard, J. (2001). The ethics minefield: Issues of responsibility in learning and research. *Journal of Geography in Higher Education*, 25, 275–283.
30. Wong, D. (1993). Relativism. In P. Singer (Ed.), *A companion to ethics* (pp. 442–450). Oxford: Blackwell.
31. Zhang, J. J. (2013). Borders on the move: Cross-strait tourists' material moments on 'the other side' in the midst of rapprochement between China and Taiwan. *Geoforum*, 48, 94–101.
32. Malete, L., McCole, D., Tshepang, T., Ocansey, R., Mphela, T., Maro, C., Adamba, C., and Kazi, J. (2019). Effects of a multiport-sport PYD intervention program on life skills and entrepreneurship in youth athletes. *Journal of Sport & Exercise Psychology*, 41(1), 77–88.

33. Rawat R, Faust E, Maluccio JA, Kadiyala S. The impact of a food assistance program on nutritional status, disease progression, and food security among people living with HIV in Uganda. *J Acquir Immune Defic Syndr*. 2014;66:e15–22.
34. Ivers LC, Chang Y, Gregory Jerome J, Freedberg KA. Food assistance is associated with improved body mass index, food security and attendance at clinic in an HIV program in central Haiti: a prospective observational cohort study. *AIDS Res Ther*. 2010;7:33.
35. McCole, D. T., Malete, L., Tshepang, T., Ocansey, R., Mphela, T., Maro, C., Adamba, C., and Kazi, J. (2022). Can youth sport spark job creation in Africa? Using a sport-based intervention to nurture future entrepreneurs. *Gateways: International Journal of Community Research and Engagement*, 15(2).
36. Martinez H, Palar K, Linnemayr S, Smith A, Deroose KP, Ramirez B, et al. Tailored Nutrition Education and Food Assistance Improve Adherence to HIV Antiretroviral Therapy: Evidence from Honduras. *AIDS Behav*. 2014;18 (Suppl 5):566–577
37. Nagata JM, Cohen CR, Young SL, Wamuyu C, Armes MN, Otieno BO, et al. Descriptive characteristics and health outcomes of the food by prescription nutrition supplementation program for adults living with HIV in Nyanza Province, Kenya. *PLoS One*. 2014;9:e91403
38. Weiser SD, Tsai AC, Gupta R, Frongillo EA, Kawuma A, Senkungu J, et al. Food insecurity is associated with morbidity and patterns of healthcare utilization among HIV-infected individuals in a resource-poor setting. *AIDS*. 2012;26:67–75.