Participation in Nutrition Interventions



9

Beneficiary and Local Stakeholder Participation in Community-Based Nutrition Interventions

Rebecca C Robert and Brittany L Feijoo

Conway School of Nursing, The Catholic University of America, Washington, DC, USA

ABSTRACT

Beneficiary and local stakeholder participation is an essential element to the success of community-based nutrition interventions. We sought to define active participation and review the available evidence on beneficiary and local stakeholder participation in community-based nutrition interventions in Africa. From reviewing the literature, we provide a reflective assessment on the process and findings. Participation falls on a continuum of community involvement from passive (no real involvement) to empowerment and community ownership (full active involvement). However, we found a clear gap in the research on defining active participation and identifying what constitutes active participation on behalf of beneficiaries and local stakeholders. However, progress was found; evidence included the use of participatory methods to engage beneficiaries and local stakeholders in the assessment and design phase. Beneficiary and local stakeholder participation in delivering interventions has moved forward with quantitative measures from process evaluation and implementation science. Research has started on the extent of beneficiary engagement (as recipients) and connecting this to outcomes. Evaluation has benefited from qualitative inquiry with insights from participants on engagement itself, and the barriers and facilitators to engagement. Yet questions remain in each study phase around defining and quantifying active participation and in understanding the personal, social, and motivational elements of active participation. We offer a simple framework to stimulate thought and commitment to research on participation in community-based nutrition interventions.

Keywords: participatory research, community participation, nutrition-sensitive agriculture interventions, nutrition-specific interventions, Africa, stakeholders, beneficiaries, maternal child nutrition

© The Author(s) 2022. Published by Oxford University Press on behalf of the American Society for Nutrition. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited. Manuscript received October 1, 2021. Initial review completed August 3, 2022. Revision accepted August 17, 2022. Published online August 29, 2022. The authors reported no external funding for the preparation of this manuscript.

Author disclosures: The authors report no conflicts of interest.

Address correspondence to RCR (e-mail: robert@cua.edu)

Sustainable Development Goal #2 addresses the direct importance of nutrition, stating to "End hunger, achieve food security and improved nutrition, and promote sustainable agriculture" (1). Moreover, it is thought that improved nutrition could impact >12 of the 17 sustainable development goals, signifying its extensive potential impact (1). Addressing nutrition across various sectors and contexts is key to accomplishing these international goals. This recognition has led to investments in nutrition-specific and nutrition-sensitive agriculture interventions that focus on improving community-based nutrition by addressing the direct and underlying causes of malnutrition (2, 3). In 2021, the Lancet published an updated framework on nutrition actions and updates on the evidence for nutrition-specific and nutritionsensitive interventions to improve maternal, child, and adolescent nutrition (4). We assert that active participation of beneficiaries and local stakeholders in community-based nutrition interventions is an essential element in their success-deriving maximum benefits for improved nutrition. The WHO defines participation as a "key driver of health equity" leading to positive health outcomes and well-being (5). But how is active participation defined? What is the available evidence on beneficiary and local stakeholder participation in communitybased nutrition interventions? Moreover, what are the existing gaps and how can this inform future research on active participation and lead to successful outcomes from community-based nutrition interventions?

We began by searching for a general definition of participation in community-based interventions, which led us to global health literature on primary care. There we found authors citing the lack of a precise definition and instead defining participation by a continuum of community involvement from passive (no real involvement) to empowerment and community ownership (full active involvement) (4, 6–11). On this continuum, the ends were fairly well defined, yet the middle areas, which detail stages of increasingly more active participation (e.g., community compliance, consultation, collaboration, and co-learning), were decidedly "gray." This left us without clear guidance as to how to define active participation by beneficiaries (the direct recipients of interventions) or local stakeholders (indirect recipients of interventions, such as family). Moreover, community participation also refers commonly to the delivery of interventions by local stakeholders (e.g., community health workers), which adds to the complexity of what to label as active participation. Beneficiaries and local stakeholders might actively participate

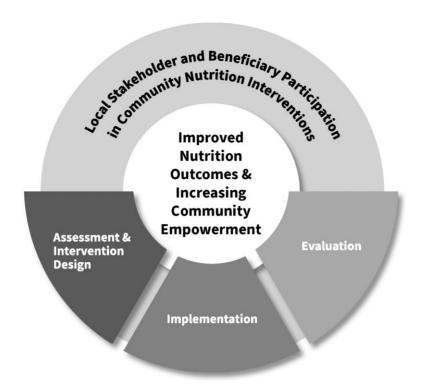


FIGURE 1 Framework for engaging beneficiary and local stakeholder participation.

in other phases of community interventions (e.g., design or evaluation), also meriting consideration.

The continuum of beneficiary and local stakeholder participation in community-based interventions makes clear the importance of participation as a process toward community empowerment—the social transformation of "those without power gaining information, skills, and confidence and thus control over decisions about their lives, and can take place on an individual, organizational, and community level" (11). This reflects the Alma Ata Declaration of Primary Health Care, stating, "The people have the right and duty to participate individually and collectively in the planning and implementation of their health care," and is consistent with the goal of self-reliance and health equity (5, 12).

We turned to the literature to seek clarity on the available evidence of community participation by conducting a thorough search and review of the literature on community-based nutrition interventions in Africa. We developed a search term syntax (e.g., nutrition, community, participation, engagement, stakeholders, intervention, Africa) to capture a wide range of available studies in several databases and screened > 1600 articles from the past 15 y. We selected >100 articles on communitybased nutrition interventions—either nutrition-specific or nutritionsensitive agriculture interventions—including quantitative, qualitative, and mixed methods studies—and categorized them by 3 study phases: assessment and design, implementation, or evaluation (with some studies in overlapping categories).

In the process of reviewing the studies, we found the concept of participation comprised a wide-ranging, diverse, and sometimes overlapping concept. It referred to: 1) beneficiary and local stakeholder engagement in identifying problems, prioritizing solutions, and designing context-specific interventions; 2) involvement in the implementation of

interventions—that is, actually delivering interventions (e.g., by community health workers) or mobilizing beneficiaries to engage with interventions; and/or 3) extent of engagement in terms of receiving interventions, that is, the degree to which beneficiaries and local stakeholders are exposed to, engage with, initially use, or uptake interventions. Participation also included beneficiary and local stakeholder involvement in evaluation through 4) collecting data to monitor community metrics; 5) providing feedback to researchers on interventions (e.g., on satisfaction) and offering perspectives on the barriers and facilitators to engagement and on how to improve interventions. Finally, participation referred to: 6) engaging in the process towards community empowerment, or more commonly women's empowerment, a secondary objective of many nutrition-sensitive agricultural interventions.

The lack of clarity and consensus on what active participation is comprised of and the rather implausible task of organizing and synthesizing the diverse scope of studies reviewed into a cogent framework shifted our focus. Specifically, we adapted our intended state-of-theart review to a reflective assessment of the literature on participation in community-based nutrition interventions. This provided us the opportunity to step back and view the gaps and progress made thus far, offer direction for further studies, and provide a framework to inspire and guide future research on active participation in community-based nutrition interventions.

Most of the studies we reviewed focused either on maternal, infant, and child nutrition or infant and child nutrition specifically. They included nutrition-specific and nutrition sensitive agriculture interventions. A mix of quantitative and mixed methods studies addressed implementation and evaluation most commonly, whereas qualitative studies dominated the assessment and design phase of community-based nutrition interventions. Several studies incorporated known participatory approaches throughout (e.g., participatory-based community research, participatory action research). Studies were reviewed from many African countries including Ghana, Kenya, Malawi, Ethiopia, and Burkina Faso among others, offering a diversity of community contexts.

In the assessment and design phase of community-based nutrition interventions, the use of known participatory methods easily identifies active participation. For example, participatory video (13), photovoice (14), and trials for improved practices—a participatory method engaging beneficiaries to test the feasibility and acceptability of new practices and offer recommendations (15-19). Other studies include participatory workshops in which researchers and local stakeholders discuss and prioritize solutions (20, 21).

However, in some studies, active participation might not be as apparent. For example, focus group discussions as part of formative research might ask the group to identify problems and offer solutions (22-26). Likewise, in focused ethnographic studies, researchers might engage participants in interviews and cognitive mapping exercises (e.g., pile sorts, free listing) to gain deeper understanding of local context and culture, but might not ask for specific solutions (27-29). Are these sufficient to be considered active participation? Does testing or adapting materials with participants in a focus group discussion elevate to participation (30, 31)? These represent the gray or vague areas of what to consider active participation. Regardless, no one would deny the importance and contribution of any of these studies. In other instances, the stage of research could require a deeper understanding of the problem through engaging local stakeholders with in-depth interviews or observations, which again lacks the clear description of active participation

Regarding the implementation phase, implementation science has propelled the field forward with its use of context-specific program impact pathways to convey how nutrition-specific and nutrition-sensitive interventions intend to achieve their outcomes (34). Yet, the very nature of interventions differs, with some inherently more participatory focused. Program impact pathways assist in understanding who is involved in delivery (e.g., participation of local stakeholders such as community health workers) and what they are expected to deliver. Pathways also include the expected participation/engagement by beneficiaries. The detail and complexity within these project-specific pathways varies as does the associated metrics to measure them.

In particular, participation in the delivery of interventions has advanced with the use of standard (more or less) process indicators (e.g., dose delivered, fidelity) applied to the context-specific activities of community-based nutrition interventions (35-40). The number and detail vary by project. What level of participation indicates active participation? For example, is completing 50% compared with 90% of planned activities considered differently in terms of active participation? Should incentivized compared with volunteer local stakeholders be held to the same expectations for active participation? What threshold level of active participation is actually needed to engage beneficiaries and produce change? Beyond objective measures, what do local stakeholders gain from their involvement as active participants in delivering interventions? Qualitative data might better capture additional underlying concepts of what active participation entails (41-43).

On the beneficiary side of participation, the extent of engagement with an intervention is generally measured by the process indicator

"dose received." This is defined as exposure, engagement with, initial use, or uptake of the intervention (35). However, the extent of participatory effort involved in exposure to an intervention (e.g., received a community health worker home visit) can be quite different than taking an action of initial use (e.g., planting vines). Studies use a variety of contextualized indicators of dose received to measure beneficiary participation (44, 45). Researchers can create scales or scores from several indicators of beneficiary participation or engagement to provide for a more complete assessment (20, 46-49). These vary by project, including the methods for creating them and what they represent (e.g., participation level, participation effort, intensity of exposure), making comparisons of active participation across studies challenging. However, including a variable in statistical models to represent different levels of beneficiary participation provides insight on the influence of participation on project outcomes. Questions remain about the best mix of items to capture active participation and how the project context influences this. Qualitative inquiry is also employed to explore better understanding of beneficiary participation (42, 50-52). This type of inquiry is critical to understand the motivational factors underpinning active beneficiary engagement and the personal changes that occur from participation.

The evaluation stage of a study can also actively engage beneficiaries or local stakeholders, seeking opinions on the intervention from their involvement, such as level of satisfaction or perceived value. These measures can be captured through quantitative measures or qualitative exploration but often blend or overlap with what is considered implementation data (44, 50, 53–55). Participants' perceptions on the barriers and facilitators to participation and their perspectives on what drives successful engagement provide valuable feedback for researchers (38, 43, 56, 57). Intervention projects that build in iterative processes for change can benefit from engaging beneficiaries and local stakeholders in making recommendations. But, how do we determine the level of active beneficiary and local stakeholder participation from these varying methods of engagement in evaluation?

Examples of nutrition-sensitive agriculture studies exist that have adopted a community-based participatory research approach—defined as "action oriented and [equitably] community-partnered" (21, 58-61). Such studies aim for researchers, local stakeholders, and beneficiaries to partner in defining, implementing, and evaluating interventions to improve nutrition outcomes and foster the processes of community empowerment. In nutrition-sensitive agriculture interventions, women's empowerment can underlie or form a secondary

We began this article by asking the question, what is the available evidence on beneficiary and local stakeholder participation in community-based nutrition interventions in Africa? What we found was a clear gap in the research on defining active participation and identifying what constitutes active participation on behalf of beneficiaries and local stakeholders. This held true in every study phase of community-based nutrition interventions. Increased and intentional inclusion of active participation throughout study phases will advance our understanding of what, when, and how it can contribute to community-based nutrition interventions and better nutrition outcomes.

We see progress, particularly in the use of participatory methods to engage beneficiaries and local stakeholders in the assessment and

design phase. Beneficiary and local stakeholder participation in delivering interventions has moved forward with quantitative measures from process evaluation and implementation science. Research has started on the extent of beneficiary engagement (as recipients) and connecting this to outcomes. Evaluation has benefited from qualitative inquiry with insights of participants on engagement itself, and the barriers and facilitators to engagement.

More work remains to define and quantify active participation, but also in terms of the personal, social, and motivational elements that individuals and communities may gain from engagement and active participation. The focus on beneficiary and local stakeholder participation is welcome in this supplemental issue and highlights how we can advance research in this area. Further, we recommend focused literature reviews of current research on active participation, for example, of a particular study phase or defined piece of a study phase (e.g., extent of beneficiary engagement), or reviews of similar large-scale projects (e.g., nutrition-sensitive agricultural interventions) in similar or different contexts. Participation is complex and research is needed to unpack this concept, and answer the many questions posed in this article.

We offer a simple framework to stimulate thought and commitment to research on participation in community-based nutrition interventions. Community empowerment sits at the center to remind researchers of how participation in any study phase(s) or context can facilitate movement toward community empowerment alongside nutrition goals (Figure 1). Questions to consider within each intervention phase include who will participate, the purpose of their participation, the process or methods of participation/engagement, the description or measurement of participation, and finally the outcomes of participation (8).

As research begins to define the essential elements of active participation, community-based nutrition interventions can benefit unlocking their potential to improve nutrition globally.

Acknowledgments

The authors' responsibilities were as follows—RCR and BLF: designed the review of research, conducted the review, and wrote the paper; RCR: had primary responsibility for final content; and both authors: read and approved the final manuscript.

Data Availability

Data described in the manuscript, code book, and analytic code will not be made available because this manuscript does not contain original data.

References

- 1. Sustainable Development Goals [Internet]. The Power of Nutrition; 2021 [cited 2022 Aug 26]. Available from: https://www.powerofnutrition.org/nut rition-and-the-sustainable-development-goals/.
- 2. Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. Lancet 2013;382(9890):427-51.

- 3. Hawkes C, Ruel MT, Salm L, Sinclair B, Branca F. Double-duty actions: seizing programme and policy opportunities to address malnutrition in all its forms. Lancet 2020;395(10218):142-55.
- 4. Keats EC, Das JK, Salam RA, Lassi ZS, Imdad A, Black RE, et al. Effective interventions to address maternal and child malnutrition: an update of the evidence. Lancet Child Adolesc Health 2021;5(5):367-84.
- 5. World Health Organization. Participation as a key driver of health equity [Internet]. 2021 [cited 2022 Aug 26] Available from: https://apps.who.int/iris/bitstream/handle/10665/324909/9789289054 126-eng.pdf?sequence=1&isAllowed=v.
- 6. Draper AK, Hewitt G, Rifkin S. Chasing the dragon: developing indicators for the assessment of community participation in health programmes. Soc Sci Med 2010:71(6):1102-9.
- 7. Marston C, Hinton R, Kean S, Baral S, Ahuja A, Costello A, et al. Community participation for transformative action on women's, children's and adolescents' health. Bull World Health Organ 2016;94(5):376-82.
- 8. Ekirapa-Kiracho E, Ghosh U, Brahmachari R, Paina L. Engaging stakeholders: lessons from the use of participatory tools for improving maternal and child care health services. Health Res Policy Syst 2017;15(S2):106.
- 9. Arnstein SR. A ladder of citizen participation. J Am Inst Plann 1969;35(4):216-24.
- 10. Kc NP, Kc A, Sharma N, Malla H, Thapa N, Aryal K, et al. Community participation and mobilization in community-based maternal, newborn and child health programmes in Nepal. J Nepal Health Res Counc 2011;9(2):101-
- 11. Rosato M, Laverack G, Grabman LH, Tripathy P, Nair N, Mwansambo C, et al. Community participation: lessons for maternal, newborn, and child health. Lancet 2008;372(9642):962-71.
- 12. World Health Organization. Toolkit on social participation [Internet]. 2021 [cited 2022 Aug 28]. Available from: https://www.euro.who.int/__data/assets /pdf_file/0003/307452/Toolkit-social-partecipation.pdf.
- 13. Ghadirian M, Marquis G, Dodoo N, Andersson N. Participatory video intervention increased critical nutrition literacy of Ghanaian adolescent girls: a cluster randomized control trial. Curr Dev Nutr 2022;6(Suppl 1): 833.
- 14. Esau D, Ho PT, Blair GK, Duffy D, O'Hara NN, Kapoor V, et al. Engaging youth in rural Uganda in articulating health priorities through photovoice. Glob Health Promot 2017;24(3):59-67.
- 15. Kavle JA, Mehanna S, Saleh G, Fouad MA, Ramzy M, Hamed D, et al. Exploring why junk foods are 'essential' foods and how culturally tailored recommendations improved feeding in Egyptian children. Matern Child Nutr 2015;11(3):346-70.
- 16. Matare CR, Craig HC, Martin SL, Kayanda RA, Chapleau GM, Kerr RB, et al. Barriers and opportunities for improved exclusive breast-feeding practices in Tanzania: household trials with mothers and fathers. Food Nutr Bull 2019;40(3):308-25.
- 17. Bekele H, Turyashemererwa F. Feasibility and acceptability of food-based complementary feeding recommendations using trials of improved practices among poor families in rural Eastern and Western Uganda. Food Sci Nutr 2019;7(4):1311-2.
- 18. Robert RC, Bartolini RM, Creed-Kanashiro HM, Verney Sward A. Using formative research to design context-specific animal source food and multiple micronutrient powder interventions to improve the consumption of micronutrients by infants and young children in Tanzania, Kenya, Bangladesh and Pakistan. Matern Child Nutr 2021;17(2):e13084.
- 19. Martin SL, Matare CR, Kayanda RA, Owoputi I, Kazoba A, Bezner Kerr R, et al. Engaging fathers to improve complementary feeding is acceptable and feasible in the Lake Zone, Tanzania. Matern Child Nutr 2021;17(S1):e13144.
- 20. Bezner Kerr R, Berti PR, Shumba L. Effects of a participatory agriculture and nutrition education project on child growth in northern Malawi. Public Health Nutr 2011;14(8):1466-72.
- 21. Boedecker J, Odhiambo Odour F, Lachat C, Van Damme P, Kennedy G, Termote C. Participatory farm diversification and nutrition education increase dietary diversity in Western Kenya. Matern Child Nutr 2019;15(3):e12803.

- 22. Rujumba J, Ndeezi G, Nankabirwa V, Kwagala M, Mukochi M, Diallo AH, et al. "If I have money, I cannot allow my baby to breastfeed only ..." Barriers and facilitators to scale-up of peer counselling for exclusive breastfeeding in Uganda. Int Breastfeed J 2020;15(1):43.
- 23. Hawkins P, Geza W, Mabhaudhi T, Sutherland C, Queenan K, Dangour A, et al. Dietary and agricultural adaptations to drought among smallholder farmers in South Africa: a qualitative study. Weather Clim Extrem 2022:35:100413
- 24. MacDonald CA, Aubel J, Aidam BA, Girard AW, Grandmothers as change agents: developing a culturally appropriate program to improve maternal and child nutrition in Sierra Leone. Curr Dev Nutr 2020;4(1):nzz14.
- 25. Watson D, Kehoe SH, Erzse A, Compaore A, Debpuur C, Nonterah EA, et al. Community perspectives on maternal and child health during nutrition and economic transition in sub-Saharan Africa. Public Health Nutr 2021;24(12):3710-8.
- 26. Ndiaye M, Siekmans K, Haddad S, Receveur O. Impact of a positive deviance approach to improve the effectiveness of an iron-supplementation program to control nutritional anemia among rural Senegalese pregnant women. Food Nutr Bull 2009;30(2):128-36.
- 27. Zobrist S, Kalra N, Pelto G, Wittenbrink B, Milani P, Diallo AM, et al. Results of applying cultural domain analysis techniques and implications for the design of complementary feeding interventions in Northern Senegal. Food Nutr Bull 2017;38(4):512-27.
- 28. Zobrist S, Kalra N, Pelto G, Wittenbrink B, Milani P, Diallo AM, et al. Using cognitive mapping to understand Senegalese infant and young child feeding decisions. Matern Child Nutr 2018;14(2):e12542.
- 29. Armar-Klemesu M, Osei-Menya S, Zakariah-Akoto S, Tumilowicz A, Lee J, Hotz C. Using ethnography to identify barriers and facilitators to optimal infant and young child feeding in rural Ghana: implications for programs. Food Nutr Bull 2018;39(2):231-45.
- 30. Hromi-Fiedler AJ, Carroll GJ, Tice MR, Sandow A, Aryeetey R, Pérez-Escamilla R. Development and testing of responsive feeding counseling cards to strengthen the UNICEF infant and young child feeding counseling package. Curr Dev Nutr 2020;4(9):nzaa117.
- 31. Isler J, Sawadogo NH, Harling G, Bärnighausen T, Adam M, Kagoné M, et al. Iterative adaptation of a mobile nutrition video-based intervention across countries using human-centered design: qualitative study. JMIR Mhealth Uhealth 2019;7(11):e13604.
- 32. Muraya KW, Jones C, Berkley JA, Molyneux S. If it's issues to do with nutrition... I can decide. Health Policy Plan 2017;32(Suppl 5):v31-9.
- 33. Ahishakiye J, Vaanager L, Brouwer ID, Koelen M. Life course learning experiences and infant feeding practices in rural Rwanda. Matern Child Nutr
- 34. Tumilowicz A, Ruel MT, Pelto G, Pelletier D, Monterrosa EC, Lapping K, et al. Implementation science in nutrition: concepts and frameworks for an emerging field of science and practice. Curr Dev Nutr 2019;3(3): nzy080.
- 35. Steckler A, Linnan L, Process evaluation for public health interventions and research. San Francisco (CA): Jossey-Bass; 2002. (eds).
- 36. Kim SS, Rawat R, Mwangi EM, Tesfaye R, Abebe Y, Baker J, et al. Exposure to large-scale social and behavior change communication interventions is associated with improvements in infant and young child feeding practices in Ethiopia. PLoS One 2016;11(10):e0164800.
- 37. Ruel-Bergeron JC, Hurley KM, Buckland A, Mlambo T, Kang Y, Chirwa E, et al. Process evaluation of a large-scale community-based nutrition program in Malawi. Curr Dev Nutr 2020;4(1):nzz131.
- 38. Nielsen JN, Olney DK, Ouedraogo M, Pedehombga A, Rouamba H, Yago-Wienne F. Process evaluation improves delivery of a nutritionsensitive agriculture programme in Burkina Faso. Matern Child Nutr 2018;14(3):e12573.
- 39. Kim SS, Ali D, Kennedy A, Tesfaye R, Tadesse AW, Abrha TH, et al. Assessing implementation fidelity of a community-based infant and young child feeding intervention in Ethiopia identifies delivery challenges that limit reach to communities: a mixed-method process evaluation study. BMC Public Health 2015;15(1):316.
- 40. D'Agostino A, Ssebiryo F, Murphy H, Cristello A, Nakiwala R, Otim K, et al. Facility- and community-based delivery of micronutrient powders in

- Uganda: opening the black box of implementation using mixed methods. Matern Child Nutr 2019;15(S5):e12798.
- 41. Martin SL, Muhomah T, Thuita F, Bingham A, Mukuria AG. What motivates maternal and child nutrition peer educators? Experiences of fathers and grandmothers in Western Kenya. Soc Sci Med 2015;143:45-53.
- 42. Roche ML, Sako B, Osendarp SJM, Adish AA, Tolossa AL. Community-based grain banks using local foods for improved infant and young child feeding in Ethiopia. Matern Child Nutr 2017;13(2):e12219.
- 43. Butler LM, Kobati GY, Anvidoho NA, Colecraft EK, Marquis GS, Sakvi-Dawson O. Microcredit-nutrition education link: a case study analysis of Ghanaian women's experiences in income generation and family care. Afr J Food Agric Nutr Dev 2012;12(49):5709.
- 44. Kang Y, Cha S, Yeo S, Christian P. Implementation, utilization and influence of a community-based participatory nutrition promotion programme in rural Ethiopia: programme impact pathway analysis. Public Health Nutr 2017:20(11):2004-15.
- 45. Lokonon JHF, Hounkpatin WA, Idohou-Dossou N. Participation in the "Nutrition at the Centre" project through women's group improved exclusive breastfeeding practices, as measured by the deuterium oxide dose-to-mother technique. Int Breastfeed J 2020;15(1):58.
- 46. Dallmann D, Marquis GS, Colecraft EK, Kanlisi R, Aidam BA. Maternal participation level in a nutrition-sensitive agriculture intervention matters for child diet and growth outcomes in rural Ghana. Curr Dev Nutr 2022;6(3):nzac017.
- 47. de Brauw A, Eozenou P, Moursi M. Programme participation intensity and children's nutritional status: evidence from a randomised control trial in Mozambique. J Dev Stud 2015;51(8):996-1015.
- 48. Okello JJ, Bocher T, Low J, Grant F, Cole D, Okuku HS, et al. Effects and drivers of participation in agriculture-nutrition-health interventions: experiences from a biofortified sweetpotato project. Dev Pract 2021;31(5):592-605.
- 49. Brasington A, Abdelmegeid A, Dwivedi V, Kols A, Kim Y, Khadka N, et al. Promoting healthy behaviors among Egyptian mothers: a quasiexperimental study of a health communication package delivered by community organizations. PLoS One 2016;11(3):e0151783.
- 50. Goudet S, Griffiths PL, Wainaina CW, Macharia TN, Wekesah FM, Wanjohi M, et al. Social value of a nutritional counselling and support program for breastfeeding in urban poor settings, Nairobi. BMC Public Health 2018;18(1):424.
- 51. Thuita F, Mukuria A, Muhomah T, Locklear K, Grounds S, Martin SL. Fathers' and grandmothers' experiences participating in nutrition peer dialogue groups in Vihiga County, Kenya. Matern Child Nutr 2021;17(S1):e13184.
- 52. Jilcott SB, Ickes SB, Ammerman AS, Myhre JA. Iterative design, implementation and evaluation of a supplemental feeding program for underweight children ages 6-59 months in Western Uganda. Matern Child HealthJ 2010;14(2):299-306.
- 53. Agbozo F, Colecraft E, Jahn A, Guetterman T. Understanding why child welfare clinic attendance and growth of children in the nutrition surveillance programme is below target: lessons learnt from a mixed methods study in Ghana. BMC Nursing 2018;17(1):25.
- 54. Roschnik N, Diarra H, Dicko Y, Diarra S, Stanley I, Moestue H, et al. Adherence and acceptability of community-based distribution of micronutrient powders in Southern Mali. Matern Child Nutr 2019;15(S5):e12831.
- 55. Amponsah SB, Osei E, Aikins M. Process evaluation of Maternal, Child Health and Nutrition Improvement Project (MCHNP) in the eastern region of Ghana: a case study of selected districts. Biomed Res Int 2020;2020:1259323.
- 56. Ouedraogo O, Doudou MH, Drabo KM, Kiburente M, Cissé D, Mésenge C, et al. Facilitating factors and challenges of the implementation of multisectoral nutrition programmes at the community level to improve optimal infant and young child feeding practices: a qualitative study in Burkina Faso. Public Health Nutr 2021;24(12):3756-67.
- 57. Tumilowicz A, Vossenaar M, Kjaer K, Vettersand J, Possolo E, Pelto GH, et al. Mixed methods evaluation explains bypassing of vouchers in micronutrient powder trial in Mozambique. Matern Child Nutr 2019;15(S5):e12718.

6 Robert and Feijoo

- 58. Havemann K, Pridmore P, Tomkins A, Garn KD. What works and why? Evaluation of a community nutrition programme in Kenya. Public Health Nutr 2013;16(9):1614–21.
- 59. Colecraft EK, Marquis GS, Sakyi-Dawson O, Lartey A, Butler LM, Ahunu B, et al. Planning, design and implementation of the Enhancing Child Nutrition through Animal Source Food Management (ENAM) project. Afr J Food Agric Nutr Dev 2012;12(49):5687.
- 60. Kaliwile C, Arscott SA, Gannon BM, Masi C, Tanumihardjo SA. Community mobilization during biofortified orange maize feeding trials in Zambia. Int J Vitam Nutr Res 2019;90(3-4):257–65.
- 61. Irenso AA, Letta S, Chemeda AS, Asfaw A, Egata G, Assefa N, et al. The facilitators and barriers of adopting amylase-rich flour to enhance complementary foods in the Kersa district community of Eastern Ethiopia. Nutrients 2021;13(3):838.