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Advancing Systems Thinking Through the Healthy Kids Healthy Communities Evaluation:

Commentary for Journal of Public Health Management and Practice Special Issue

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Systems modeling and systems thinking has mainly been an academic exercise in the obesity prevention field.^{1–3} Complex systems models gained prominence in the obesity field through the UK Foresight Report⁴ and US Institute of Medicine report on Accelerating Progress in Obesity Prevention.⁵ Systems thinking, frameworks, and models are widely discussed as they relate to obesity,^{1–3,6} and simulation models are being built, but mainly based on expert input. Building systems models of childhood obesity with quantitative data has not been accomplished to my knowledge, so the application of systems thinking is in its early development in this field. Thus, there are many opportunities to advance the science and application of systems thinking in obesity. In reflecting on the contributions of the Healthy Kids Healthy Communities (HKHC) evaluation to systems thinking, I organized my comments into accomplishments, challenges, and next steps. I draw on the papers in this Special Issue by Brennan et al,⁷ Hoehner et al,⁸ and Brownson et al.⁹

Accomplishments

As described by Brownson et al,⁹ the HKHC multi-component evaluation approach itself appeared to be based on systems thinking. An overarching goal of the evaluation was to understand how the community system was changing as a result of the interventions. The scope of the evaluation was consistent with the complexity of systems models in its use of multiple methods, assessment of numerous actors, and examination of many processes and inter-relationships. The conceptualization of a demanding evaluation seemed well matched to the complexity of the phenomena under study.

A novel approach in the HKHC evaluation was teaching principles of systems thinking to community members so evaluators could learn about the communities' theories of change.⁷ However, a co-benefit of this evaluation technique was that participants learned systems thinking that they could apply to understanding the causes of and solutions to childhood obesity in their own communities. Thus, group-developed systems models became a community self-evaluation and planning tool. The present approach supports the utility of systems models because group model building was introduced as a potential intervention component that expands the applications of systems thinking to new audiences for new purposes, at least within the obesity field.

The HKHC evaluation was a major effort to teach systems thinking and model building to almost 600 people from diverse backgrounds involved in 49 community change efforts.⁸ It is

reasonable to ask whether such an effort to translate a mainly-academic exercise of model building to community groups was feasible. The productivity of the community groups in identifying many causal variables in the causal loop diagrams,⁷ suggests the systems thinking concepts were accessible and the systems “mapping” process was feasible.

Challenges

The comprehensive evaluation plan is commendable and likely to be a model for others, but the logistical challenge of implementing all the evaluation methods in so many communities was matched by the conceptual difficulties of integrating the findings into accessible principles or lessons learned. The HKHC evaluation created “Big Data” with the potential to transform understanding of community-based policy and environment interventions for obesity prevention. However, the diversity of assessment approaches and scale of both quantitative and qualitative information produced requires new ways of summarizing and communicating the evaluation results so they achieve their full potential. Even an entire journal supplement was not sufficient to draw all the useful lessons from the HKHC evaluation.

Next Steps

The specific causal variables and commonly-identified causal relationships from the group model building can serve as hypotheses to be tested in future research. The commonly identified variables suggest generalizable causal variables perceived by community members, and most of them are familiar to researchers. The unique variables may reflect special circumstances or creative interventions being pursued in individual communities. Perhaps the group model building process can help a community identify causes and solutions that are tailored to their communities’ needs and opportunities. Thus, both the common and unique variables generated by the process seem to have value.

Although the HKHC evaluation represented an advance in using systems thinking to guide evaluations of community interventions, further work is needed to develop strategies to integrate findings across methods and effectively communicate the results.

The variety and complexity of systems models generated in the HKHC evaluation indicate community members were highly engaged in the model building process. The causal loop diagrams point to actions and actors that could be targeted for interventions in their communities. The group model building can function as an intervention tool, which raises questions about its effectiveness. A next step would be to learn more about the perceived value of the group model building to the participants themselves, whether and how the causal maps were used in intervention planning, and whether the process resulted in altering intervention approaches or priorities. Thus, the HKHC evaluation may have stimulated a new research agenda on systems modeling as an intervention technique.

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