

Developing and Testing Interventions to Improve Obesity-Related Outcomes in Underserved Rural Communities: Lessons from EMPOWER

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Low-income African American (AA) women in rural communities of the US Southeast are at exceptionally high risk for poor outcomes from obesity-related conditions such as type 2 diabetes. AA women in the United States are 70% more likely to have obesity, almost 80% more likely to have diabetes, and at least twice as likely to develop diabetes complications than non-Hispanic white women (1). These rates are even higher among low-income AA women in the rural Southeast.

Yet, it can also be exceptionally difficult to reach and engage this population in interventions. Health care services are often inadequate and geographically inaccessible. Historically, levels of mistrust and perceptions of poor treatment from formal health care providers are high. And many adults face significant resource and financial barriers to participating in sustained interventions.

Lutes et al. address this challenge in their pragmatic EMPOWER trial, which includes AA women with poor glycemic control ($HbA_{1c} > 7.0$) in rural Southeastern communities, the results of which are reported in this issue (2). They compared a “Small Changes” intervention delivered by community health workers (CHWs) in sixteen 20- to 30-minute phone calls over 12 months with a control condition of receiving sixteen educational mailings. The intervention did not improve HbA_{1c} , blood pressure, or psychosocial outcomes more than the control condition, but intervention participants lost, on average, about 1 kg more than the comparison group ($P = 0.046$). In exploratory post hoc analyses among patients not using insulin, the intervention improved HbA_{1c} , blood pressure, and weight more than the control condition.

What might explain the mixed results of their intervention? The effectiveness of any behavioral intervention depends on at least six key features: (1) the treatment approach and/or strategies; (2) who delivers the intervention; (3) the mode of delivery; (4) the intervention dose; (5) the fidelity of delivery; and (6) the level of participant engagement achieved.

On the positive side, their Small Changes strategy appears well suited for participants facing multiple challenges to behavior change; the focus is on supporting patients to set and follow up on their own

goals of making one small change at a time to either nutrition or physical activity (3). Moreover, to deliver the intervention, the researchers employed and trained AA women who were nominated as community champions from these same communities. There is strong evidence of the effectiveness of CHWs in enhancing trust, self-efficacy, motivation, and clinical outcomes among historically underserved populations (4).

The effectiveness of other intervention elements, however, is less clear. First, to circumvent transportation barriers and enhance sustainability, the CHWs delivered the intervention by telephone. Most CHW interventions found effective to date included face-to-face interactions, with CHWs often making home visits. Whether the lack of such in-person outreach and contact impaired the level of trust and support achieved deserves further inquiry. Second, in a population facing significant social risk factors (70% were on food assistance), a more comprehensive assessment and assistance to address these factors, rather than a narrow focus on improving individual behaviors, could be an essential foundation for improving outcomes. Third, 16 phone calls over a 12-month period—about 1 phone call a month—is a very low intervention dose. Most successful CHW and other peer support interventions that employ action planning approaches like Small Changes touch base with participants more frequently to help participants revise and build on weekly action steps. Fourth, as the authors note, they were not able to assess the fidelity of the CHWs in delivering the intervention. While they provided both initial and booster training and supervision, prior research has shown that non-autonomy-supportive lay health workers undermine intervention success (5). Finally, achieved participant engagement in the calls was relatively low, with participants completing only about 60% of the planned intervention dose (9.6 of 16 phone calls over 12 months). As the authors note—and their post hoc analyses of participants not on insulin suggest—their tested intervention that focused on diet and physical activity may be better suited for adults with less resistant diabetes. This hypothesis is worth testing in future interventions.


The EMPOWER trial provides important lessons and insights that will help guide further efforts to improve health behaviors and outcomes among low-income adults in underserved rural communities. There is

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a critical need for this type of flexible, low-cost intervention that circumvents access barriers in these communities to improve health behaviors and outcomes, as well to help sustain achieved gains. Lutes et al. are to be commended for this important contribution. 

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