Translating clinical evidence to the community: a synopsis and comment on “Community wide interventions for increasing physical activity”

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Abstract

The third column on Evidence-Based Behavioral Medicine is focused on the Baker et al. Cochrane Review entitled “Community wide interventions for increasing physical activity.” We provide a synopsis of the review as well as a comment on the future direction of community-wide physical activity interventions.

Keywords

Physical activity, Community, Translational research, Evidence-based practice

The third column on Evidence-Based Behavioral Medicine (EBBM) presents a synopsis of the Cochrane Collaboration systematic review by Baker, Francis, Soares, Weightman, and Foster [1] on community-wide physical activity interventions. A synopsis is a very brief description of an original article or review, which conveys findings in an efficient format. Synopses illustrate the secondary, synthesized infrastructure of evidence-based practice that makes pre-appraised primary research findings accessible to a broad audience of end users [3].

Engaging in regular exercise results in fewer and less severe chronic diseases, lower risk for other medical conditions, and an overall improvement in cardiovascular health [4]. Yet only a minority of the public meets physical activity guidelines, and communities with low socioeconomic status (SES) engage in the least physical activity. Although physical activity interventions are usually targeted to individuals or small group, community-wide interventions have the potential to reach more people. Baker et al. [1] synthesized the primary research evidence on whether community-wide, multi-strategic interventions produce population level improvements in physical activity.

Question—For a free-living population in a geographically defined community, does a multistrategy physical activity intervention designed to make outreach to diverse sectors of the community, as compared to no intervention, increase physical activity at 6-month follow-up?

Search strategy—Databases included the Cochrane Library, MEDLINE, PsycINFO, ERIC, SPORT-Discus, and websites including Health-Evidence.ca,

Implications

Researchers: This column helps researchers to understand methodological issues in community-wide physical activity interventions in order to inform future interventions.

Practitioners: This column illustrates that there is a large need for physical activity interventions in the community that are effective and resource sensitive.

Policy makers: This column documents that a lack of infrastructure, training, and resources has contributed to the difficulty in increasing physical activity in a community setting.

the International Union for Health Promotion and Education, and the EU Platform on Diet, Physical Activity and Health. The search strategy included contacting physical activity researchers and hand-searching six relevant journals for content published through November 2009.

Study designs—The study designs were randomized controlled trials (RCTs), cluster RCTs, quasi-experimental designs, interrupted time-series studies, or prospective controlled cohort studies.

Follow-up period—The follow-up period was at least 6 months.

Interventions—At least two of the following six strategies were used: (1) social marketing through local mass media, (2) other mass communication strategies, (3) individual counseling by health professionals, (4) work with organizations to encourage participation in walking and other physical activities, (5) outreach from public settings (e.g., school, community center), and (6) environmental and policy change strategies.

Outcomes—This study allowed a variety of objective or subjective measurements (e.g., percentage of people active or inactive, frequency of physical activity, percentage meeting recommendations)

Data analysis—Analyzed relative risk for dichotomous measures and percentage change for continuous measures compared to control, adjusted for baseline differences. Excluded studies with ≥60% missing data.

Results—25 studies were included in the review. Heterogeneity of designs, populations and interventions precluded conducting meta-analysis. Almost all interventions (22 studies) included partnership building with local governments. Many included a component of building partnerships with local governments or NGOs (22 studies). Many also used individual counseling by health professionals (18 studies), mass media (15 studies) or other forms of communication (18 studies). The overall quality of the studies was poor with the majority assessed as having a high risk of bias because of lack of randomization of control and comparator groups, low retention of participants, and use of nonvalidated outcome measures. No study was found to have a low risk of bias. Of the 10 studies judged to have unclear risk of bias, only 3 yielded evidence suggesting an intervention effect. There was no evidence that more intensive intervention produced better outcomes. There was also no evidence that adherence to a particular theoretical or conceptual model was advantageous.

Conclusions—The body of evidence analyzed by Baker et al. [1] does not support the hypothesis that community-wide, multi-component interventions can increase physical activity at the population-level.

Comment—Based on these findings, it could be argued that community wide physical activity interventions are ineffective. However, we join Baker et al. [1] in suggesting that such an interpretation is premature given the poor quality of the research conducted to date. We conclude that studies need to be well-designed and rigorously conducted in order to fairly evaluate the effectiveness of community wide physical activity interventions. Measurement of the physical activity outcome has been particularly weak and problematic in existing studies. Especially disappointing have been the trials of intensive intervention that evaluated outcome by a single low quality measure, impeding the ability to interpret results and draw conclusions. Future studies can be improved by the use of physical activity measures that are reliable and sensitive to

change at a population level. Whenever possible, random assignment of communities to intervention and control conditions is optimal, and routine assignment of the most underresourced communities to the control condition is especially to be avoided. In general, and especially for studies using cohort or time series designs, measuring physical activity at multiple time points before, during, and after the intervention can help to disentangle effects of treatment from those of regression to the mean and historic trends. Improving study retention and completeness of follow-up are other methodological improvements that could substantially increase research precision and power to validly test the effectiveness of community interventions. Finally, it would be advantageous to ensure that study sample size is adequate, based on power calculations that take into account clustering and attrition. The Department of Health and Human Services has recently announced the winners of the Healthy Living Innovation Awards contest in the areas of weight, physical activity, and nutrition [2]. This spotlight on effective programs provides a forum for the future of evidence-based healthy lifestyle interventions, including those addressing physical activity. We look forward to a next generation of research that supports conclusions about whether community wide physical activity interventions work.

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