Reviewer's report

Title: Impact Evaluation of a Healthy Lifestyle Intervention to Reduce Cardiovascular Disease Risk in Health Centers in San Jose, Costa Rica and Chiapas, Mexico

Version: 2
Date: 14 January 2015

Reviewer: Hector Balcazar

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Comments to Authors

This manuscript provides very important information from two countries, Guatemala and Mexico, regarding research efforts to assess an impact evaluation study of a healthy lifestyle intervention to reduce cardiovascular disease risk in health centers in San Jose, Costa Rica and Chiapas, Mexico. This report provides useful empirical information in spite of all the challenges that exist to evaluate impact data from two different countries, and utilizing research designs that are not optimal but are probably the best initial approach to begin framing the translational and research approaches needed in countries like Mexico and Costa Rica. These approaches are regarding the great cardiovascular disease burden observed in these low to middle-income countries.

There are several important issues that the authors may consider for improving this important study. I will describe them next by theme.

The definition of health care worker. The study identifies different descriptions for health promoters, health care personnel, healthcare staff. It is not clear if primary health clinics utilized community health workers or a combination of both CHWs versus other clinic personnel (nurses, doctors, social workers, etc). Who actually deliver the intervention in these communities? Was it a combination of clinic staff (i.e. nurses, doctors, etc) and community health workers? Are community health workers the way they are defined in the U.S., members of the primary health team in the community sites utilized in both countries?

The non-equivalent comparison groups. The information presented in the manuscript is sketchy regarding the definition and description of the comparison groups. It is not clear how these groups in both countries were selected? What process was used to select them? The manuscript describes a patient registry. Who was in charge of this process of selecting eligible patients for the comparison groups? Was the process done similarly in both countries?

Data collection time frame versus intervention duration. The authors describe that there were three data points (baseline, mid-point, and 8 months), and that the study had a duration of 4 months in terms of enrollment. Given this information, several issues are in need of clarification. First, why was not considered 4 months a possible end point for testing pre –post changes if the intervention of six sessions was done within that time period? Second, what is
the attrition rate differential at 4-months versus 8 months in terms of data collection versus participation in the intervention. How was data collection handled for the comparison groups? Was the mid-point done at 4 months?

Possible sources of Bias. The authors do acknowledge the challenges of attrition and differential participation. In this regard, do the authors know how many eligible participants in both countries rejected to be part of the study? Was cardiovascular disease risk differential (with the WHO algorithm) a potential bias not accounted for in the multiple regression analyses as a source of confounding within each country? The attrition rates are problematic as the authors described. Can the authors present this information of attrition rates for the mid-point and follow-up data collection points versus intervention participation in education classes?

Conceptual Model versus Data Analytical Plan. The conceptual framework is a great informational piece described as part of the study. However, to make justice to the empirical integration of the data and the conceptual model, the author may want to say that their analytical framework and empirical analyses does not measure exactly all the steps in the model. For that SEM and other techniques are needs including path analyses. In addition, the component of usual care, as the authors know is problematic given the lack of data pertaining medication, assessment and follow up, etc. For example, home visits are part of a difficult variable to account for in the description of usual care.

Reliability of Data Instruments and Need For Sample Questions. Before I describe the need for more information regarding data instruments, I want to congratulate the authors for their great efforts to utilize adequate and empirically-based measures as much as possible. Having said that, can the authors provide some sample questions (one per instrument perhaps) to provide an idea of the validity of the instruments used? In terms of reliability/ internal consistency, what is the perspective of the authors for how well the indexes/scales performed? Do the authors conduct Cronbach’s alpha assessment when feasible?

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

No competing interests.