HSOR NEWS
The evidence behind your decisions

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Health program evaluation – Designing the study

INSIDE THIS ISSUE

This is the third of a series on evaluation of health programs. The first newsletter described the what, why and when of program evaluation while the second one discussed theory of change and logic models. This issue focuses on designing the evaluation.

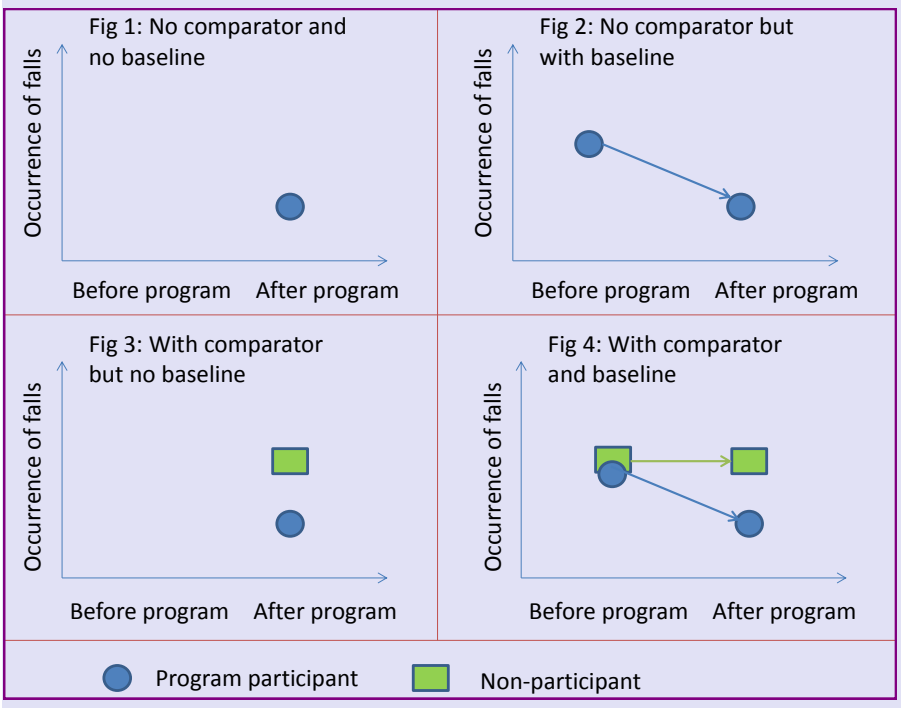
What is an evaluation design?

Design refers to a plan for meeting an objective. While a ***research*** design is a blueprint for conducting a study, an ***evaluation*** design is the detailed strategy for conducting an assessment of a health program. The designs used in program evaluation are based on Epidemiological methods.

What are the requirements of an evaluation design?

1. Complete and accurate data – While research studies need complete and accurate data, it may be difficult to achieve in real world research. This is the motivation for using prospective evaluation designs where data are longitudinally collected from program start (baseline) to program completion (follow-up). It is ***easier*** to ensure completeness and accuracy while data is being collected than after the data has already been gathered.

2. Basis for proving that the program is "effective" (Figs. 1 to 4) – As program evaluation aims to measure how well a program is performing, the best way to establish this is by comparing outcomes between:
   a. A group of program participants versus a group(s) who are not
   b. Baseline and follow-up measurement for both groups

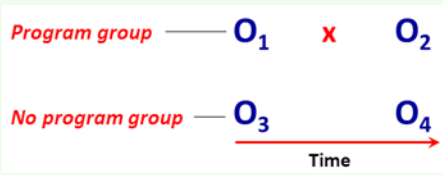


Figs. 1 to 4 show hypothetical "evaluation" results from a falls prevention program. When there is no comparator and baseline data, Figure 1 provides the least information to make an assessment of the program outcome. Although Figs 2 and 3 have additional data with which to compare the occurrence of falls during follow-up among program participants, it is still not enough to make a complete assessment. Figure 4 provides the most complete data for assessing program performance.

On the issue of comparability of treatment groups: Similarity in baseline characteristics between participants and non-participants facilitates attribution of program effects. However, there are post-design analytical approaches which can adjust for baseline differences. These include propensity score matching, use of instrumental variables, difference-in-difference analysis and regression-discontinuity design.

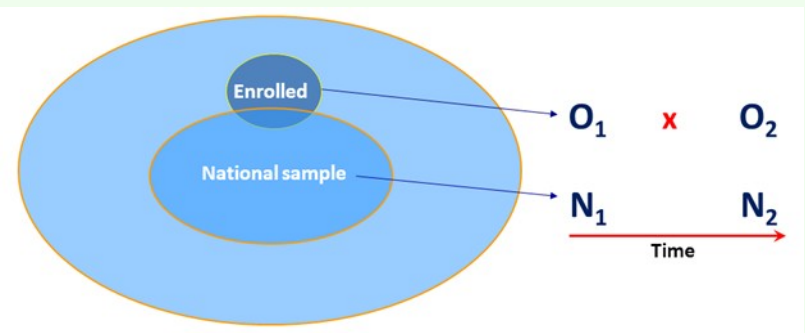
Common evaluation designs

1. Before-after, program-no program design – Comparisons are made within (before-after) as well as between groups (program participants versus non-participants), hence it is possible to attribute effects to the program.

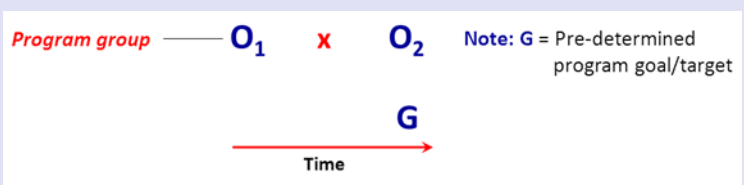


2. Chronological series (single group time series) – Multiple serial assessments are done before and after program implementation; trends in the outcome before and after program implementation are compared. Due to the absence of a non-program group, there is no way to discount the effects of adaptation to repeated assessments (testing effect), exposure to interventions from sources other than the program itself, or natural progression of the condition (maturation effect).

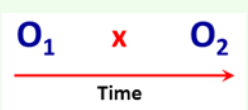
3. Before and after studies using national averages as comparison – Similar to (1), but comparison is with a national sample which may include some program participants



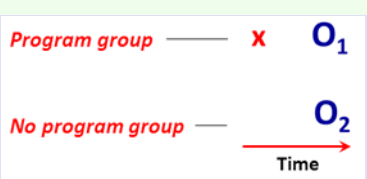
4. Goal-based evaluation model – Targets for the outcome are determined before program implementation. The program is held accountable to prior expectations rather than to relative performance against an actual comparison group. Setting targets for program performance require a strong logic model.



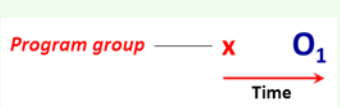
5. Single group before-after (pre- post-) "design" – No parallel control group; hence results are more suggestive rather than conclusive of program performance. Aside from the limitations of the chronological series design, the single pre-post- design is susceptible to regression to the mean (which implies that at their extreme states, some diseases/conditions may regress to less severe states even in the absence of any intervention).



6. Post-test only "design" with non-equivalent groups – No baseline data, hence it is not possible to rule out maturation effects. There is no way to assess comparability of groups at baseline.



7. One-group post-test only "design" – The weakest of all "designs," this "evaluation" is entirely uninformative except to describe the state of participants after enrollment into the program.



Of the abovementioned designs, the last three should be avoided as they are susceptible to many biases. Users of potentially misleading results run the risk of making flawed conclusions about the program. Evaluation designs can be hybrids of established designs. Ultimately, the program team should aim for a design which can generate accurate and relevant information to aid in decision making.

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