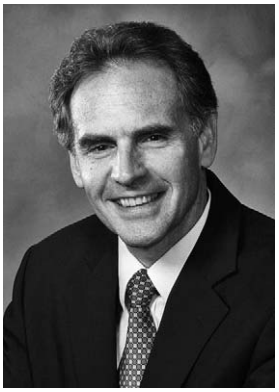

Editor's Notes

What Is the ROI of Workplace Health Promotion? The Answer Just Got Simpler By Making the Question More Complicated

This systematic review of the literature on the financial impact of workplace health promotion programs is the most extensive and well-conceived review conducted to date. It illustrates that the return on investment (ROI) from programs differs based on the quality of the methodology used to evaluate it, with 68 different ROIs depending how the published studies are sliced and diced. The review does consider the impact of program quality on ROI, in part because we have no established standards of program quality.

The new, simpler answer is, "It depends." Siyan Baxter and colleagues explain why it depends in the most thorough and rigorous systematic review of the literature conducted to date on the return on investment (ROI) of workplace health promotion programs.[1]

Their review addresses many of the issues raised in the recent controversy on reports of the financial impact of programs.[2] In the context of that controversy, the most important innovation in their review is a critique of the methodological rigor of each study and analysis of the relationship of that rigor to ROI. Their critique included scoring the rigor of each study using three methodology checklists: British Medical Journal Economic Evaluation Working Party,[3] the Consensus Health Economic Criteria list,[4] and the NICE study economic evaluations limitations checklist.[5]

For each study, they also extracted study design, sample size, program length, economic perspective, authors' home organization type, organization size and industry type, and target group, as well as program scope and focus. Additional economic metrics catalogued included time perspective and study duration, discount rate, method of measuring costs and benefits, and method of calculating ROI. Mean ROI estimates, weighted by target population size, were reported for groupings of many of those dimensions. ROI reports were adjusted based on several of these factors. For example, businesses in Western nations typically calculate ROI as benefits divided by costs (ROI = benefits ÷ costs), whereas economists typically calculate ROI as benefits minus costs divided by costs (ROI = [benefits − costs] ÷ costs). The economists' calculation method produces an ROI estimate that is 1.0 less than the Western business method. All of the calculations were reported using the economists' method.

Primary Findings

The final analysis included 51 studies with 61 intervention arms, 261,901 participants and 122,242 controls from 9 industry types in 12 nations from studies published between 1984 and 2012. The overall weighted ROI was 1.38 using the economists' method and 2.38 using the business method, which is lower than, but of the same order of magnitude as, reported in the recent meta-analysis performed by Baicker et al.[6] The methodology quality of studies improved over time, with quality scores increasing an average of 1.15%/year between 1984 and 2012, but the ROIs were lower for the studies with the higher methodology scores. The 12 studies with randomized controlled trials had the lowest ROIs, with an overall mean value of −.22, meaning they saved only $.78 for every dollar invested. This is in contrast to a recent review by Lerner and colleagues that concluded it was not possible to calculate ROIs of existing randomized controlled trials because of methodology limitations.[7] The 30 studies using quasi-experimental design had a mean weighted economists' ROI of 1.12, whereas those with nonexperimental design had mean ROI of 1.61. The highest ROI (2.74 weighted using economists' method) was found in the 25 studies that directly measured claims costs, rather than imputing them based on normal and customary charges or other methods. A total of 68 different mean ROIs were reported depending on the weighting or unweighting of the sample, methodology quality rating, study design, location of the employer, year of publication, sample size, intervention focus, scope of the program, method to measure differences, source of the ROI calculation, direct or indirect measure of savings and costs, and method used to determine costs.

Am J Health Promot 2014;28[6]:iv–v.
DOI: 10.4278/ajhp.28.6.iv
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What's Missing From This and All ROI Analyses?

There were no efforts to determine the quality of the health promotion programs provided in each of these studies. For example, we do not know if the focus of each of the programs was appropriate based on the health needs of the employees, if the individual interventions were designed based on best-practices standards, if they were staffed by qualified people, or if they were marketed and implemented with sufficient intensity to engage people or improve health. Without this knowledge, the most important metric is missing: the impact of quality of the program on ROI. What is the ROI of a comprehensive program that is designed and implemented well? We don't know. What is the ROI of a superficial program that is implemented poorly? We don't know. How do the ROIs compare to each other? We don't know. This is not a weakness of the Baxter et al.[1] review. Indeed, it is the most sophisticated and well-executed analysis yet conducted. This is a weakness with many levels. First, we do not have widely adopted standards about what works best. If we had those standards, we could develop programs to meet those standards. Second, we do not have widely distributed validated scales to measure program components or the quality of programs. Third, authors of ROI studies do not report the information necessary to judge the quality of programs. Making progress in each of these areas will advance the quality of programs and our ability to measure the impact of programs.

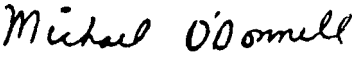
On a related point, we need to reflect on the validity of the three scales used by the authors to score the methodology quality of the ROI studies. These scales are most appropriate for measuring cost-effectiveness, rather than cost benefit. This is important because many studies on cost-benefit analysis will not report information commonly reported in cost-effectiveness analysis. The authors fully acknowledge this limitation and accounted for it by removing those items from both the numerator and denominator of the quality rating when the information was not provided.

Similarly, the optimal quality rating for study methodology is not clear. For example, double-blind, placebo-controlled randomized controlled trials are the appropriate study design for a clinical trial of medication, in which the treatment approach can be disguised by changing the color, shape, or taste of a pill; large numbers of people can easily be assigned to treatment and control conditions in a way that isolates them from each other by controlling the doctors they see and avoiding overlap of the times they see the doctor; and other protocols are followed to reduce other threats to validity. Not surprisingly, randomized controlled trials will have the highest score for the study design section of the methodology rating checklists. However, replicating that study design is not practical and is sometimes not feasible in a work setting, especially when the intervention includes serving nutritious food in the cafeteria, making stairs more prominent than elevators, creating smoke-free campuses, and shaping the health plan design to encourage use of preventive services. Accounting for other threats to validity can sometimes reduce the program quality of the intervention. Considering all these factors, the optimal study design for a workplace health promotion program may be a quasi-experimental design in which medical cost data are collected for several years before the program and participants and nonparticipants are matched through propensity scoring.

If our goal is to be able to rate the methodology quality of studies of workplace health promotion programs, three important next steps are (1) to develop methodology quality scales appropriate for workplace health promotion programs, (2) disseminate them widely, and (3) persuade scientists who conduct and report analyses to include measures of them in all manuscripts submitted for publication.

Conclusions

In light of this study, what can we say about the ROI of workplace health promotion programs? The authors' overall conclusion was that the "mean weighted ROI of workplace health promotion demonstrated a positive ROI," which means programs seem to pay for themselves. . .and that is what we should say when asked about the ROI of programs. For those who want a more precise answer, we can only say, "It depends."



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