

Cost Effectiveness Studies

Literature Review

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LITERATURE REVIEW

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The continued growth of EAPs in business settings is a testament to the widely held belief that these services improve the "bottom line." Though cost effectiveness studies have recently become more empirically based, the literature tends to be dominated by studies that lack scientific rigor or are case studies with little applicability to the profession in general. This lack of empirical data is attributed to a variety of issues long recognized as barriers in the mental health arena. Several generally accepted explanations for this situation are the difficulty of quantifying necessary variables, the need to respect client confidentiality, and a relative scarcity of resources.

In addition to these barriers, several authors raised more specific issues. For example, Collins (1998) suggests that there is a short supply of analytical resources for both internal and external EAPs. He also observes that coding formats for absenteeism, a widely accepted measure in cost-effectiveness studies, are not clear, standardized, or uniformly recorded across the industry. Blaze-Temple and Howat (1997) add that many mental health care professionals lack both background and expertise in research.

EAP studies, even with these qualifications, tend to be on the leading edge of cost-effectiveness research in the behavioral healthcare field, perhaps because of the business influence. Blum and Roman (1995) suggest that EAP cost effectiveness studies tend to fall into three categories:

1. Pre-post test designs with few outcome measures.
2. Comparison studies where the control groups may or may not be legitimately matched.
3. Case studies of specific business concerns that may or may not build on existing models or operational definitions of outcome measures.

The U.S. Department of Health and Human Services (USDHHS) evaluation of the Employee Counseling Service (ECS) is a model for the use of a control group with repeated collection of measurable data. This model was developed for the USDHHS in the mid 1980s (Development Associates, 1985; Masi & Maiden, 1988; Masi & Teems, 1983), and remains an industry standard of rigorous research design. This study reviewed the cost-effectiveness and cost-benefit of the sixteen operating units of the USDHHS Employee Counseling Services (ECS) program, and included over 2,000 EAP clients. The study evaluated the components of context, inputs, process, impact, and outcomes. The researchers compared a non-ECS using control group with ECS clients who were evaluated with the use of a client tracking system (CTS). The CTS which measures client status, work performance by supervisors, and personnel data, was used at three points: intake, three-month follow-up, and nine-month follow-up after EAP intervention. The data collected identified positive cost-effectiveness and cost-benefit results of the USDHHS ECS program. Specifically, the cost benefit analysis estimated the dollar benefits

in only six months were \$1,274 per employee served; for every dollar spent there was a return within 6 months of \$1.29, or an estimated 5 year cost-benefit ratio of thirteen dollars for each dollar spent.

Note: The principal author of this study was the project manager for the USDHHS study.

Another study using a control group and the collection of data over a five-year period involved the Orange County, Florida, Public Schools. The study included 125 EAP clients, 25 of whom were selected in each of the five years between 1986-1990. Like the U.S. DHHS' study, a matched comparison group who were not EAP users was used as a control. Relevant study findings suggest that costs drop over time. After an initial increase in the year following EAP adoption, costs dropped after 5 years by a 3:1 ratio.

Yet a third study was conducted by MASI for the US Postal Service in 1994. Capturing data from one year before EAP entry to one year after entry, MASI examined personnel/financial variables, health insurance claims, workers' compensation claims, EEO costs, and supervisors' rating of employee job performance. Data from EAP clients was compared to a random sampling of non-EAP clients. While the detailed results are confidential, it can be said that on an order-of-magnitude basis, the cost benefit ratios conformed to prior results.

The use of longitudinal data is described in a study of Virginia Power's EAP. Virginia Power studied its EAP in 1991, using long-term longitudinal data to assess the program's cost-effectiveness. Medical claims data from 4 years prior to treatment and 4 years after treatment were analyzed. The bottom line result was that medical costs for employees participating in the EAP were 23 % lower than costs for those who accessed behavioral health care on their own. More surprising, the non-behavioral related medical costs showed a larger drop than the behavioral illnesses costs, 32 % vs. 17 %.

The Chevron Corporation initiated two cost-benefit analyses in the 1990s, a return on investment (ROI) study and a post-substance abuse treatment analysis of safety records (Collins, 1998). The ROI calculated the value of retention compared to new hiring and training, improved productivity for mandatory and formal referrals, and improved productivity for self-referrals. Combining the totaled estimates from these three categories resulted in savings of approximately \$20.6 million over five years. The annual budget for Chevron's EAP is approximately \$1.5 million which yields a ratio of return of 14:1.

The second study was a post-treatment analysis of safety records of employees with a history of substance abuse problems who had been EAP clients. Of the 637 cases reviewed, 95 % had no lost time due to on-the-job accidents and 97 % had no lost time due to off-the-job accidents in the year following treatment. Comparison of the post-treatment EAP cases and the rest of the Chevron population showed no difference in on or off-the-job injury rates. Collins (1998) credits the EAP with using outcome measures that are objective and conducive to cost-benefit analysis. While this study report reflects impressive returns on investment, as a single case study the results cannot be generalized.

The McDonnell-Douglas EAP study is perhaps the best-known example of a limited focus of EAP effectiveness. This study compared employees who used the EAP for alcohol, tobacco and drug (ATD) dependency or psychiatric treatment with employees who received similar services at the same time from non-EAP sources. Follow-up was conducted up to three years following employees' program entry. Outcome results were encouraging, and included:

1. ATD EAP clients missed 44% fewer workdays than controls.
2. Psychiatric EAP clients missed 34% fewer workdays than controls.
3. ATD EAP clients, after 4 years, had a turnover rate of 7.5%, compared to the control group, which had a 40% turnover rate.
4. Psychiatric EAP clients had a 60% lower turnover rate compared to controls.
5. Medical claims were 35% lower for spouses and dependents that accessed treatment through the EAP compared to controls.
6. The average per case cost was \$2400 lower for EAP psychiatric cases than for employees not using the EAP for these services.

Another study using post-treatment data involved the benefits of mandatory EAP participation, using Last Chance Contracts (LCC) (Keaton & Yamatani, 1993). This study was based on the post-treatment data of 177 employees from a northeastern steel-manufacturing corporation, over a 15-year period. Based on Sickness and Accident (S & A) benefits, S & A money paid out, and actual days absent from work, an average savings of \$3,600 per LCC employee was calculated. This figure translated to a total savings of \$846,400, as measured by a reduction in absenteeism and health benefit use. Further, EAP participants reduced their average absenteeism by 87.2 %, while non-EAP participants increased absenteeism by 12.2 % during the study period. The average S & A cost associated with the EAP group and the non-EAP group was \$98 and \$865, respectively.

Blaze-Temple and Howat (1997) discuss the benefit-to-cost ratio results from a larger, comprehensive, independent, and controlled evaluation of an EAP. The design used was a quasi-experimental, prospective, multiple time series study in a blue-collar organization of 400 employees in Perth, Australia. The measurements for the two study groups and the control group were taken by employee surveys and employee records. The benefit-to-cost portion of the study included eight variables, had a good sample size and an alpha level of .05. The benefit-to-cost ratio of the "EAP" vs. "No Counseling Group" was 1:1; for the "EAP" vs. "Self-arranged Group" the benefit-to-cost ratio was 1 to 3.6. For the "Self-arranged" vs. "No Counseling Group" the ratio was 31:1. However, the EAP used for the study was a brand new one, and therefore might confound penetration rates due to a lack of trust in the program, and the lack of a significant word of mouth or "grapevine" effect, according to the authors.

Masi (1994) discusses another type of cost-benefit analysis, which uses monetized supervisor ratings. This can only be done for clients referred by a supervisor. The assumption of this analysis was that a higher-rated employee is more productive than one who is lower-rated, and that productivity can be translated into dollar values. Employees were rated on a scale with a theoretical range from -16 to +16, where -16 connoted low productivity and +16 high productivity, but for these analyses, the scores were uniformly divided by 32, producing a range of -0.5 to +0.5. The scores at intake were then compared with the mean of their scores at three months and nine months after intake to get a change score for the six month period after intake. Change scores were then multiplied by salary levels for the six month period to obtain a dollar benefit value. The results of the study revealed a 13:1 dollar return on the EAP investment. Though this system only applies to supervisory referrals, the general concept is gaining ground in the workforce for all employees in the form of merit pay.

Case Studies and Best Practice Models

Case studies that lack empirical rigor still yield general support for the cost-effectiveness of EAPs, and may suggest best-practice models. Examples of these follow.

The Campbell Soup Company integrated its EAP with a managed behavioral health care program and reaped significant rewards. The integrated program produced a 28 % reduction in mental health costs from 1989 to 1990 at the three plants where the program was implemented. Additionally, the program lowered mental health costs from \$261 to \$188 per employee per year and reduced mental health as a percentage of Campbell's total medical costs from 11.5 % to 6.7%.

After Proctor & Gamble's Oxnard California facility implemented an EAP as gatekeeper for behavioral health care services, there were dramatic results. During the first year of the new program, the projected costs were \$377,000. The actual expenditure for the year (1990) was \$148,818, or 39 % of the projection. Similar savings expressed as "cost avoidance" were realized in 1991, the second year of the program.

Applying what was learned from the initial study, McDonnell Douglas Corporation (MDC) began a new managed behavioral health care benefit plan called ASSIST at their Helicopter Company (MDHC) in Mesa, Arizona. Again, the Health Strategies Group was asked to review and analyze the program. The study analysis (Alexander & Alexander, 1990) revealed that in its first year of operation, the ASSIST program generated major savings and demonstrated that managed behavioral health care, using EAP technology focused on individual patient care and long-term case management, is qualitatively and quantitatively superior to other forms of managed behavioral health care which focus on cost and access control. In 1989, for example, the ASSIST program reduced per capita mental health/chemical dependency costs at MDHC by 34 %. Additionally, it decreased mental health/chemical dependency costs for employees 51 % by lowering the admission rate for psychiatric treatment by 50 % and the admission rate for chemical dependency by 29 %. Further, there were significant reductions in physician charges and payments through use of negotiated payments and a preferred provider panel. Total payments for psychiatric and chemical dependency services recorded on a medical claims data

tape were only 19 % higher in 1989 than in 1988. "This marginal net increase, especially in light that there is no adjustment for trend, is remarkable given that the number of eligible lives for the benefit was 200 % higher in 1989 versus 1988." Radically different from common beliefs about managed behavioral health care, MDHC's ASSIST program achieved these improvements without significant complaints from 1,172 individual clients and their families. Both the Campbell Soup Company and Proctor & Gamble, Oxnard, had similar experiences when they integrated an EAP with a managed behavioral health care program (Yandrick, 1992).

Every and Leong (1994) explore the underlying constructs of cost-benefit analysis and utilization rates in general, and the cost-effectiveness of the nuclear power plant's internal EAP, specifically. The authors tie utilization rates to cost-effectiveness and conclude that since the utilization rate in the plant is higher than industry standards (6.8 percent in 1990 and 7.5 percent in 1991) the program is cost effective. In addition, it was proposed that a full time internal EAP may be more cost effective, as well as better able to identify client needs than an external EAP.

Ahn and Karris (1989) performed a cost analysis of the University of Maine's EAP, using a cross-tabulation of two dimensions, employment classification and severity of problem. They found that an annual cost savings of \$64,193 had been realized for each of the 3 study years.

Two smaller studies look at specific aspects of EAPs rather than attempting to prove overall cost-effectiveness. Kabb's report (1993), while not scholarly in foundation, yields some interesting information. When benefits that are more liberal were offered to employees contacting the EAP, user rates went up and outlay for medical coverage went down. Over the 1-year study period, the study group that accessed managed care through the EAP had a hospitalization rate that decreased by 74 %. Additionally, there was a reduction of 65 % in inpatient days and a 20 % increase in use of panel providers. The study found that in 1989, 13 % of health care dollars paid out were for mental health and chemical dependency. In 1990 that figure dropped to 10 %.

Finally, Cummings, Dorken, Pallak, & Henke (1990) contrast and compare the use of a "targeted, focused" mental health treatment, traditional forms of mental health care, and no mental health care. A major finding of the study was that the 40 % of participants suffering from one of four chronic medical conditions who received "targeted, focused" mental health treatment had a decline in medical costs ranging from 18 % to 31 % (Virginia Power's 1991 EAP study corroborates these findings). Conversely, chronically (medically) ill patients receiving either no mental health treatment, or more traditional mental health treatment, experienced either no change in their need for medical care, or had an increase in costs of up to 56 %.