

DTIC FILE COPY

Navy Personnel Research and Development Center

San Diego, CA 92152-6800 TN-90-20 May 1990



2

AD-A221 989

Evaluating Quality of Life Programs: Summary of a Literature Review

Deborah Mohr Bruce

DTIC
ELECTE
MAY 29 1990
S B D

Approved for public release; distribution is unlimited.

90 05 24 05 8

**Evaluating Quality Of Life Programs:
Summary of a Literature Review**

Deborah Mohr Bruce

Reviewed by
Elyse W. Kerce

Approved by
Emanuel P. Somer

Released by
Jules I. Borack
Director, Personnel Systems Department

Approved for public release;
distribution is unlimited.

Navy Personnel Research and Development Center
San Diego, California 92152-6800

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE May 1990		3. REPORT TYPE AND DATE COVERED Tech. Note--1989	
4. TITLE AND SUBTITLE Evaluating Quality of Life Programs: Summary of a Literature Review				5. FUNDING NUMBERS Work Unit 9WRTT578	
6. AUTHOR(S) Deborah Mohr Bruce					
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Navy Personnel Research and Development Center San Diego, California 92152-6800				8. PERFORMING ORGANIZATION NPRDC-TN-90-20	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Navy Military Personnel Command (NMPC-6) Washington, DC 20370-0000				10. SPONSORING/MONITORING	
11. SUPPLEMENTARY NOTES					
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) This report summarizes the results of a literature review conducted to identify previous efforts to evaluate quality of life programs. Organized by program areas that correspond to Navy programs, identified studies are cited together with a brief discussion of their results and their applicability to Navy evaluation efforts. Program areas examined include compensation, health care and promotion, housing, personnel policies, education and training programs, recreation, child care, personal services, and religious support. A discussion of the role of measurement in evaluation and goals of evaluation research are included as background material. It was concluded that there is a pervasive lack of research designed to evaluate quality of life programs and that evaluation efforts frequently suffer from an absence of methodological rigor. It is recommended that efforts to evaluate Navy programs should include attitude and satisfaction assessment and objective effectiveness data as a minimum, with cost-effectiveness analysis when feasible. <i>Kenneth</i>					
14. SUBJECT TERMS Quality of life, evaluation methodology, cost-benefit analysis				15. NUMBER OF PAGES 47	
				16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UNLIMITED		

FOREWORD

This report is a general review of the literature pertaining to the evaluation of quality of life programs in the military and civilian sectors. Studies are cited along with a brief discussion of the strengths and/or weaknesses of the methodologies employed and their applicability of Navy evaluation efforts.

This task was conducted with O&M,N funding and is one of two reports produced under Work Unit 9WRTT578. The report is intended for the use of OP-15/NMPC-6E.

JULES I. BORACK
Director, Personnel Systems Department



Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Cist	Avail and/or Special
A-1	

SUMMARY

Problem

To develop the evaluation capabilities necessary to assure the effectiveness of Navy quality of life programs and make changes and improvements where indicated. An understanding of the field of evaluation and an awareness of previous evaluation efforts are needed.

Objective

The objective of this report is to summarize the results of a literature review conducted to identify previous efforts to evaluate quality of life programs in the military and civilian sectors.

Background

Evaluation efforts may reflect a broad range of experimental rigor from the one-shot, post hoc case study approach in which a single program is examined after a program or treatment has been given to fully planned approaches based on the principles of research design. Evaluation studies may also include an assessment of the cost-effectiveness or cost-benefit of the program. However, social programs, including quality of life programs, are difficult to evaluate in this manner due to the many intangible costs and benefits often associated with them.

The key to the evaluation process is measurement. A wide variety of measures can be used, which generally will include measures of performance, effectiveness, and efficiency.

Approach

The results of a literature review conducted to identify previous efforts to evaluate quality of life programs were summarized by program area. Within each area, the studies found were cited along with a brief discussion of the strengths and/or weaknesses of the studies, their results, and their applicability to Navy evaluation efforts. This review includes military program evaluations found, as well as applicable evaluations from civilian programs.

Conclusions

Except in certain areas, there is a pervasive lack of research designed to evaluate quality of life programs. The majority of the evaluation efforts uncovered suffer from a lack of control and the sole reliance on subjective data. Subjective evaluation is very important in the quality of life field, but should not be used at the exclusion of objective measures when they can be developed.

Evaluations become dated very quickly as programs, policies, and the environment change. Therefore, the validity of previous evaluation results for current quality of life program is dubious.

In general, studies evaluating drug and alcohol control efforts, health promotion programs, and employer-sponsored child care programs were more rigorous and objective than those in other areas. There are more reports of measured outcomes linked to these programs and many of these evaluations assess the effects of such programs on more than one outcome.

In some quality of life arenas, there are major problems evaluating program outcomes because outcome areas are not clearly defined and process measures are not collected. The problems of separating the effects of one program (e.g., military pay) on a given outcome measure (e.g., retention) from the effects that all other concomitant factors in the environment have on the same outcome measure is difficult in real-world research.

An effective approach to subsequent evaluations will include service member attitude and satisfaction assessment, as a minimum; objective effectiveness data, whenever obtainable; and cost-effectiveness analysis, when feasible.

Recommendation

It is recommended that efforts to evaluate Navy programs should include attitude and satisfaction assessment and objective effectiveness data as a minimum, with cost-effectiveness analysis when feasible.

CONTENTS

	Page
INTRODUCTION	1
Problem	1
Objective	1
Background	1
Measurement	1
An Overview of Evaluation	4
LITERATURE REVIEW	6
Compensation	6
Regular Military Compensation	7
Retirement Benefits	8
Special Pay and Bonuses	8
Travel and Transportation Reimbursements	9
Health Care and Promotion	10
Health Care Systems	10
Health and Physical Readiness	13
Alcohol and Drug Abuse Control	16
Housing	20
Bachelor Housing	20
Family Housing	20
Personnel Policies	21
Education/Training Programs	21
Morale, Welfare, and Recreation	23
Recreation/Clubs	23
Personal Services	28
Family Service Centers	28
Spouse and Child Abuse/Family Advocacy Program	29
Counseling Services	31
Commissaries/Exchanges	33
Religious Support	
Multi-program Evaluation	33
CONCLUSIONS	34
RECOMMENDATION	34
REFERENCES	35
DISTRIBUTION LIST	43

INTRODUCTION

Problem

To effectively carry out its quality of life programs, the Department of the Navy must evaluate their effectiveness and make changes and improvements where indicated. However, evaluating social programs, including quality of life programs, is difficult because many of the outcomes are intangible. To develop an effective evaluation program in this area, an understanding of the field of evaluation and an awareness of previous evaluation efforts are needed.

Objective

The objective of this report is to summarize the results of a literature review conducted to identify previous efforts to evaluate quality of life programs in the military and civilian sectors.

Background

In general, the purpose of program evaluation is to assess the effectiveness or value of a given program or experimental project, or to compare alternative programs. In addition to such summative evaluation, formative program evaluation can be used to help develop new programs (Grant, 1978). Evaluation efforts may reflect a broad range of experimental rigor from the one-shot, post hoc case study approach in which a single program is examined after a program or treatment has been given to fully planned approaches based on the principles of research design (Campbell & Stanley, 1963). Further, evaluation studies may also include an assessment of the cost effectiveness or cost benefit of the program. However, social programs, including quality of life programs, are difficult to evaluate in this manner due to the many intangible costs and benefits often associated with them (Lorenson, 1977, p. 8).

To provide an understanding of program evaluation, a discussion of the role of measurement in evaluation and an overview of the evaluation process will be presented.

Measurement

The key to the evaluation process is measurement. Anecdotal information, which may provide richness to any evaluation, is not in and of itself sufficient for adequate evaluation. While program managers or workers may believe their program is having a positive effect and may cite individual clients who benefited from the program, proper evaluation requires measurable evidence of program outcomes. A wide variety of measures can be used in program evaluation. These measures include performance (i.e., program indicators), effectiveness, and efficiency.

Measures of Performance. Measures of performance reflect the processes underlying the program without attaching any evaluation to the measures. They measure program activity rather than accomplishments or progress toward goals. For example, measures of performance for an alcohol rehabilitation program might include number of inpatients treated; service members requesting inpatient service; outpatients seen; visits per outpatient, size of the staff, and operating hours. These measures reflect the work being done by the rehabilitation program, but do not indicate how well the program is working.

Measures of Effectiveness. Measures of effectiveness, on the other hand, assess the extent to which a program meets its goals. Measures of effectiveness reflect the impact of the program on its users and the degree to which it meets identified needs. Because programs typically have many goals (e.g., curing identified alcoholics, preventing relapses, limiting the number of new alcoholics, reducing DWI citations, reducing alcohol-related accidents), multiple measures of effectiveness are often used. Many measures of effectiveness are expressed as ratios. For the alcohol rehabilitation program, such measures might include percent of clients successfully returned to the fleet or the recidivism rate among treated individuals. In addition, client satisfaction with services provided should also be considered a measure of effectiveness. Further, if a goal for the indicator exists or can be developed, program indicators, such as those listed in the previous paragraph, can be converted to measures of effectiveness. For example, if a stated goal of the alcohol rehabilitation program is to provide inpatient services to all who request it, then an appropriate measure of effectiveness would be the percent of service members requesting service who are actually provided inpatient service.

In addition to meeting the many goals related to providing appropriate service to clients, social programs must also meet requirements placed on the program by program managers, parent organizations, or congress; follow appropriate legislation or other applicable regulations; remain competitive with other similar programs; maintain a qualified and satisfied staff; and so on. These additional goals can also be included in program evaluation. Compliance evaluations, for example, address whether a program and its expenditures are in compliance with applicable law, regulations, and procedures (General Accounting Office, 1978).

Measures of Efficiency. Finally, measures of efficiency are input-to-output ratios that track inputs or resources consumed by the program (e.g., the costs related to labor hours, facilities and materials, energy, etc.) in relation to the outputs produced (e.g., problem-drinkers treated or "cured" alcoholics). These measures determine whether the program's resources are used efficiently and economically. Although program sponsors may prefer to emphasize the "positive" side of evaluation (program effectiveness), they must not ignore the "negative" side (program costs). Responsible evaluations will always include an assessment of costs in the evaluation (Windle & Sharfstein, 1978). A measure of efficiency for the alcohol rehabilitation program might be the cost per client treated.

Cost-benefit and cost-effectiveness assessments are specific types of measures of efficiency: Both techniques are comparative in nature and are designed for use in evaluating alternatives (Levin, 1987). Both cost-benefit and cost-effectiveness techniques measure costs in the same way--by specifying all of the resources required by the program and assessing their market value. However, cost-benefit and cost-effectiveness techniques differ in how they measure outcomes. Cost-benefit analysis is used when the benefits can be assessed in monetary terms as the costs are. Educational and training programs can be evaluated with this method because they are intended to improve employment or earnings of participants. The measurable benefits are the increased earnings due to program participation. Of several programs under consideration, the program that produces the greatest increase in earning potential with the smallest investment of resources would have the best cost-benefit ratio. With some effort, a variety of outcomes of social programs can be translated to monetary values. The value of a "cured" alcoholic can be estimated by the dollar savings accrued to the organization by returning a trained sailor to the fleet rather than recruiting

and training a new sailor. Cost-benefit analysis is very useful in assessing multiple outcomes of a program when they all can be converted into dollar values.

However, when the outcomes cannot be easily converted into market outcomes, cost-effectiveness analysis is appropriate. Here, alternative interventions or programs are evaluated against a common set of goals. For example, training programs may be evaluated by testing participants on their knowledge and understanding of course content. The option that requires the fewest resources to meet a particular objective (e.g., competency score) would have the best cost-effectiveness ratio. In comparing alternative alcohol education courses, the one that resulted in the best end-of-course grades on an alcohol-knowledge test with the fewest costs invested would be the most cost-effective. Likewise, in comparing different alcohol rehabilitation programs, the one that had the best success rate (i.e., percent of clients successfully treated) with the smallest costs would be most cost-effective for that goal. A current challenge for the field of evaluation is developing means to combine multiple outcomes when they cannot be converted into dollar values. Utility analysis is one approach that has been used. In this technique, the independent outcomes are converted to ratings on utility scales that share common measurement properties. The separate scales can then be aggregated into a total utility index (Keeny & Raiffa, 1976; Levin, 1987).

Program evaluation may include any or all of these types of measures. In fact, many evaluations rely on multiple measures to assess social programs. Few programs can be effectively evaluated with a single indicator or effectiveness measure. Likewise, cost-benefit and cost-effectiveness evaluations should consider all costs and all outcomes. If an alcohol treatment program had an impressive initial success rate, but also had the highest recidivism rate, it could not be considered most cost-effective overall.

An additional consideration in conducting any evaluation, particularly a cost effectiveness study, is the cost of the evaluation itself. While a "quick-and-dirty" look at the operation of a program may incur few costs, a well-planned systematic evaluation will involve a substantial investment. For example, in fiscal year 1977, the Department of Housing and Urban Development devoted 18 staff-years and \$2.3 million to evaluating its programs (General Accounting Office, 1978). Agencies considering evaluation efforts must balance the goals for the evaluation and the scope of the evaluation with the investment they can make in the effort.

There are several important characteristics of a good measurement package (Mohr, Shumate, & Magnusson, 1983). First, measures should focus on the key objectives of the program. Thus, prior to program evaluation, clear statements of program goals must be developed. Goals may be derived from legislation, compliance manuals, written departmental or program instructions, national norms, or program managers' objectives for the program. Second, measures should be objective and definable. This is particularly important when independent sites are to be evaluated or when multiple evaluators contribute information about the program. If measures are calculated even slightly differently in each site, there will be no common basis for comparison or aggregation. In certain circumstances, subjective measures may supplement objective measures (e.g., to judge client satisfaction with services provided). Third, measures should be complete and comprehensive. Because all important goals of the program must be assessed, multiple measures are often required. If all goals are not included in the measurement package, the program may appear to be successful on measured goals at the expense of unmeasured goals. Fourth, measures should be accessible. They should not be so difficult to obtain that the potential benefits of the

information are negated by the costs required to obtain the information. Existing data collection procedures (e.g., management information systems and other automated record keeping mechanisms) should be utilized whenever possible.

An Overview of Evaluation

Figure 1 presents an overview of the evaluation process. At the left are shown the factors driving quality of life programs: need or demand, goals, and resources. To conduct a proper evaluation of a quality of life program, these must be identified and fully understood. The need to explicitly define all program goals cannot be underestimated. If a goal is not specified, it cannot be measured and may be overlooked in the evaluation analysis.

First-stage evaluation assesses the outcomes of the quality of life program in three areas: goal attainment, attitudinal enhancement, and tangible improvements. Evaluation of goal attainment relies on measures of effectiveness defined above. It may also include assessment of the extent to which the program reaches its intended client base. Measures of performance and anecdotal evidence of program outcomes can enrich this area of evaluation. Evaluation of attitudinal enhancement can supplement the goal attainment evaluation. If attitudinal improvement such as increased job satisfaction or greater spousal support for the service member's career are part of the program's goals, these can be included in goal attainment evaluation, as well. Finally, evaluation of tangible improvements provides evidence of the program's impact on "bottom-line" factors such as retention, job performance, discipline rates, absenteeism, and readiness.

Second-stage evaluation attempts to combine the many results found in first-stage evaluation either through cost-benefit analysis (if all outcomes can be translated to dollar values) or through cost-effectiveness analysis (if they cannot). While there is substantial evidence that job satisfaction, spousal support for one's career, and other attitudinal factors can have a positive effect on outcomes such as retention (through career intent), absenteeism, and job performance (e.g., Bruce & Burch, 1989; Mohr, Holzbach, & Morrison, 1981; Porter & Steers, 1973; Sterling & Allen, 1983), it is difficult to include this link in cost-effectiveness analysis. Mirvis and Lawler (1977) presented an exploratory approach that can be used to attach behavioral costs to attitudinal factors. Their approach treats attitudinal measures as indicators of subsequent behavior. This methodology suggests that including attitudinal factors in cost-benefit analysis may eventually be feasible.

Before beginning an evaluation effort, many factors must be specified. These include the time frame for evaluation, level of analysis, and purpose of the evaluation.

Time Frame for Evaluation. The time frame encompassed by an evaluation can vary widely. Program evaluation may occur as a one-shot study at the conclusion of a temporary program (e.g., a program to provide emergency aid after a natural disaster). More likely, it will be ongoing, providing continual information about the effectiveness of a program or set of programs. Ongoing evaluations might feasibly provide monthly updates about program effectiveness. More likely, year-end evaluations occur.

EVALUATION OF QUALITY OF LIFE PROGRAMS

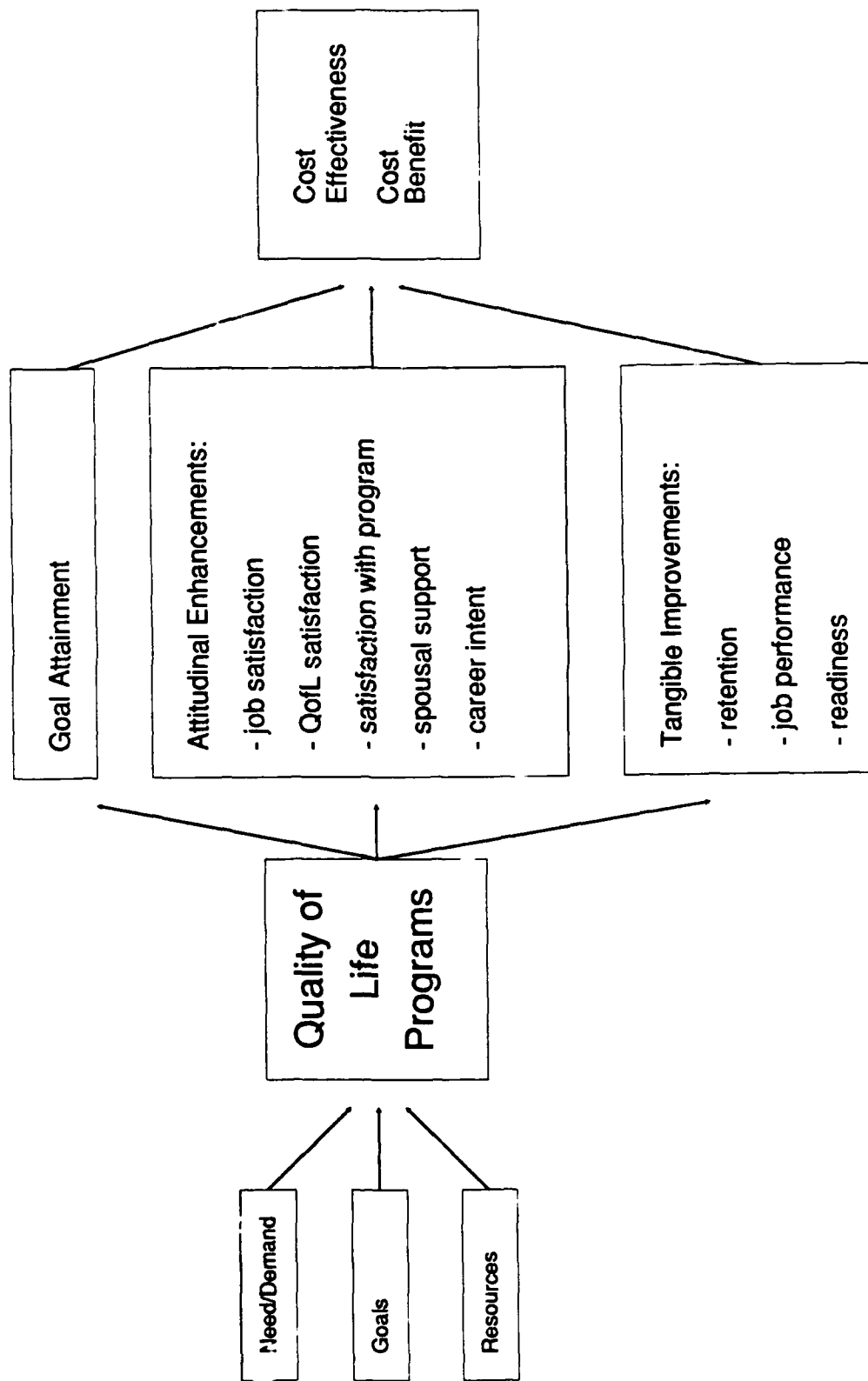


Figure 1. An overview of the evaluation process.

Level of Analysis. In planning an evaluation, the appropriate level of analysis for performance measures must also be determined. The scope of the analysis as a whole might be at the program site level, program level, or program area. Program site evaluation would provide information about the effectiveness of individual service-providing sites (e.g., comparing effectiveness of individual Family Service Centers). Thus, the performance of sites could be compared to identify more effective programs. Program level analysis would evaluate the effectiveness of all service-providing sites as a whole (e.g., all Family Service Centers). This type of evaluation would reflect the effectiveness of the Family Service system Navy-wide. Finally, program area evaluation would evaluate the broad functional areas comprising the quality of life arena (e.g., housing, personal support, etc.). Such a global analysis is much more difficult because of the many programs with unique goals and outcomes that are found within each functional area.

Purpose of the Evaluation. Finally, the purpose of the evaluation must be specified clearly. It will help drive the scope and focus of the evaluation effort. Evaluations can be done to: compare program effectiveness from year-to-year, from site-to-site, or across services; to evaluate different treatment methods, program structures, or benefit packages; determine customer/client satisfaction with services provided; or determine that tax dollars are being used effectively. Each of these will require different methods and different measures.

LITERATURE REVIEW

The results of a literature review conducted to identify previous efforts to evaluate quality of life programs will be summarized by program area. Within each area, the studies found will be cited along with a brief discussion of the strengths and/or weaknesses of the studies, their results, and their applicability to Navy evaluation efforts. Given the time available to conduct this review, it cannot be considered exhaustive.

In reviewing the literature available in this area, it should be kept in mind that negative or no-effect results are not often published in journals, books, or technical reports. Thus, most available literature indicates that whatever program was implemented was effective. Furthermore, as Bowen and Scheirer (1986) note, "rigorous evaluation of programs and services is comparatively rare within the military" (p. 196). This review includes military program evaluations found, as well as applicable evaluations from civilian programs. Within the quality of life arena, anecdotal reports and "how-to" guidelines abound. Sound evaluation is rare. Finally, the purpose, scope, and design of specific quality of life programs vary over time, as does the surrounding economic environment. Assuming that results of previous evaluation efforts automatically apply to today's programs is inappropriate.

Compensation

Within the compensation functional area, few evaluation studies were identified. Those cited below address compensation and other pay, retirement benefits, bonuses, and relocation reimbursement. In examining studies presented below, care should be taken to interpret all findings in light of the time period in which they were conducted. Changing unemployment rates and other economic indicators may invalidate the findings of past studies.

Regular Military Compensation

The General Accounting Office (GAO) (1986a) analyzed the comparability of military and civilian compensation. They compared the compensation of all military and all civilian workers who were employed full time in calendar year 1984 and who met certain other matching criteria (e.g., age, educational attainment, etc.). Military compensation was defined as Regular Military Compensation (RMC) plus special and incentive pays. RMC is comprised of basic pay, allowances for quarters and subsistence, and a DoD-calculated imputed tax advantage for service members receiving cash allowances. Enlistment and retention bonuses were not included. Civilian compensation was defined as wages and salaries reported in the March 1985 Current Population Survey conducted by the Bureau of the Census. Benefits were valued as the cost to the employer of providing the benefit. Benefits included health and life insurance, survivors' benefits, and retirement. Results of the comparison showed that military compensation was higher than that of comparable civilians in all cases except that of male high school graduates of certain ages.

In separate analyses, GAO also attempted to determine the relationship between military-civilian compensation comparability and recruiting and retention. GAO concluded that many factors in addition to compensation contribute to the military's ability to recruit adequate personnel. These factors include: improved post-service educational benefits, more recruiting resources, and lower unemployment rates. They also concluded that no clear relationship could be found between differences in military and civilian compensation and military retention.

Another GAO report (1986b) also examined the compensation comparability issue. In contrast to the above report, which compared earnings on an "age-earnings" basis, the present study compared earnings for similar occupations, skill levels, experience, and responsibilities. GAO points out that this type of comparison is limited because many military occupations have no civilian counterpart, military service is unique, and it provides fringe benefits not often found in civilian employment situations. They were able to compare compensation for a sample of 52 occupations covering about 4 percent of the enlisted force. Results of the comparison showed that military compensation for these occupations was generally lower than civilian compensation. However, these occupations were primarily technical in nature, involving highly-skilled work (e.g., computer operators and technicians of various sorts) and tend to be very well paid in the private sector.

Haber and Stewart (1975) examined the Navy retention effects of the 1971 military pay increase. They used a measure of pay elasticity for the analyses. Pay elasticity is an estimate of the sensitivity of the reenlistment rate to changes in military pay and, hence, provides a cost-benefit measure of the effectiveness of pay increases in improving reenlistment rates. Looking at first-term reenlistment, they found that pay elasticity was high. In almost one-half of the cases, a 1 percent increase in pay resulted in a 3 percent increase in reenlistment. No differences were found by occupational area.

Institute for Research Studies, Inc. (1979) developed a model to determine the extent to which compensation influences retention of personnel in various Navy ratings. Results of the analysis led them to conclude that "even a partial shift in the amount of compensation from Regular Military Compensation (RMC) to Basic Pay would result in greater retention of enlisted personnel" (p. 3).

Kostiuk (1985) studied the effects of pay on the retention of Marine Corps aviators. He used a simplified version of the annualized cost of leaving (ACOL) model to estimate the impact of pay changes on the voluntary turnover of Marine aviators. By comparing the value of continuing a military career to the value of a civilian career (as a civilian airline pilot), he concludes that pay has a significant effect on aviator retention.

Retirement Benefits

Retirement pay is a key element within the compensation arena. Because 20 years of service is required to receive retirement pay, it is believed to be a strong retention factor for personnel between 10 and 20 years of service. Retention rates drop sharply after 10 years (Warner, 1979). Because of the cost associated with this system, alternative systems are periodically proposed. Studies found within this area do not evaluate current retirement policies. Rather, they describe models developed to assess the effects of alternative retirement systems of force retention. Instead of presenting results of specific alternatives evaluated in these reports, the models will be identified. Users wishing to examine any particular retirement system can do so using these models.

To evaluate four specific proposed alternative retirement systems, the Center for Naval Analyses developed an economic model to evaluate quantitatively the impact that alternatives would have on retention and the average experience levels of the armed forces (Warner, 1979). This model is a variant of the cost of leaving model proposed by Gotz and McCall (1977). The report describes the application of the model to the four alternative retirement systems.

Likewise, Chipman and Silverman (1978) and Chipman and Mumm (1978) developed a model for forecasting Navy enlisted retention rates and service continuation rates under alternative retirement systems. Their technique was based on the work of Gotz and McCall and can also be used to examine sub-groups within the Navy that have homogeneous occupations and retention behavior.

Special Pay and Bonuses

Reenlistment bonuses and other special pay categories also have an important role in the overall military compensation package. They help to prevent shortages in critical occupations and can be targeted where they are needed most. Hosek and Peterson (1985) examined the effectiveness of bonuses when the method of bonus payment was changed from installment to lump sum in April 1979. Inputs to their analysis include reenlistment, extension, and retention data for each occupation; bonus coverage and amount; military/civilian wage index variable; unemployment rate; educational background of enlisted personnel; and the percent black. They found that both types of reenlistment bonuses increase reenlistment and retention rates and decrease extension rates. Furthermore, they found that lump sum bonuses were more cost-effective than installment bonuses.

The forecasting model developed by Chipman and Mumm (1978) can also be used to study the effects of alternative economic incentives at various points of time in a sailor's career on continuance rates. However, they do not present any specific analyses along this line.

Weber (1987) reviewed the effects of the Navy's aviation continuation bonus (Aviation Officer Continuation Pay or AOCP) implemented in July 1981 to address severe retention problems among naval aviators. AOCP is paid to a naval aviator to extend his period of obligated service for a certain length of time. In the first 2 months after implementation, 74.3 percent of the aviators eligible for the bonus had applied for it. However, Weber's analysis revealed that 49 percent of those applying for the bonus were in their 11th to 15th year of service and reasonably could have been expected to continue their careers even without a bonus. Other problems were identified and subsequent changes to the AOCP program were summarized. Weber concludes that while bonuses can have a significant effect on retention (and the current version of AOCP does), the bonus was originally targeted at the wrong group at the wrong time.

Kostiuk (1985) evaluated the effects of three proposed changes to the Marine Corps Aviation Career Incentive Pay (ACIP). He calculated the costs and benefits of each proposal using the ACOL model. Benefits are the reduced ACIP payments and costs are the expense of training new pilots to replace those who leave due to the pay change. All three proposed changes provide a net increase in total expenditures over the existing system.

Finally, the Naval Aviator Active Duty Service Obligation (ADSO) Study Group (1988) analyzed ACIP (flight pay) and AOCP combinations in an attempt to determine a cost-effective compensation package for pilots. The group provides a historical summary of both programs. The ACOL model was used to evaluate alternatives and make recommendations for changing the current bonus systems.

Travel and Transportation Reimbursements

The military is probably the largest employee-mover in the country and, as such, provides many services in the areas of reimbursement and relocation assistance. While relocation assistance takes many forms in military and civilian organizations, no quantitative studies of the effectiveness of these programs were found. At most, personnel journals suggest that organizations must have adequate relocation assistance programs to limit the extent to which employees refuse moves (by either staying in their current location or leaving the company). Organizations must also limit the stress of relocation on employees and their families. No attempts to assess refusal rates under different relocation programs were found.

Relocation costs have risen substantially in the recent past. Milbrandt (1983) found that the average cost of relocation rose from \$7,500 in 1968 to \$37,500 in 1983. This increase is due to increased costs and increased services. Civilian organizations now offer a wide range of services in their relocation package (Debats, 1982; Milbrandt, 1983). These may include shipment of household goods; home selling, finding, or servicing; house hunting trips; temporary living expenses; living cost differentials; mortgage rate buy downs; and spouse employment assistance.

Milbrandt (1983) discusses ways in which relocation costs can be managed or constrained. However, these have very limited applicability to military relocations. He suggests reducing the number of relocations, avoiding high-cost areas, considering short distance relocations before long distance moves, and limiting the transfers of homeowners.

The Air Command and Staff College (1986) conducted a study to compare reimbursement for permanent change of station (PCS) moves provided to military members and federal civilian employees. Their analysis was based on a 1984 survey. Results showed that, excluding home ownership costs, military members must absorb 75 percent of out-of-pocket expenses related to the move. On the other hand, many of these out-of-pocket expenses are reimbursed for federal civilian employees. The authors conclude that military members are not receiving comparable reimbursement for their PCS moves.

Hansen and Handforth (1980) also compared compensation for PCS moves among the military, civil service, and private sector. Using a set of standard relocation scenarios, they estimated actual costs for each move as well as the standard reimbursements provided by military, civil service, and private sector employers. They found significant differences in reimbursements. (Note that all comparisons are based on 1979 costs and reimbursement coverages.) Over the six standard relocation scenarios, they found that military members pay an average of \$9,368 in out-of-pocket expenses; corporate employees pay an average of \$1,254 in out-of-pocket expenses; and civil service employees are reimbursed an average of \$1,058 in excess of their actual expenses. Major discrepancies resulting in the large military out-of-pocket expenses are: military members are not reimbursed for house hunting trips or temporary lodging either at the old or new duty station, nor do they receive any assistance in purchasing a home if government quarters are unavailable. Reimbursement rates for miscellaneous expenses and travel costs are also significantly different. Military service members do have better coverage in two areas: a greater weight limit on household goods and temporary storage of goods for up to 180 days. Finally, the authors point out that these comparisons are valid for military E-5s and up. E-4s and below are not eligible for household goods shipment over 225 pounds, mileage allowance for dependents, or dislocation allowance (for incidental expenses). These out-of-pocket expenses represent a significant reduction in the real pay service members receive and may have implications for turnover and retention.

Health Care and Promotion

Within the scope of the medical and mental health care and prevention functional area fall many inter-related quality of life programs. These will be addressed separately in this section. These programs include health care systems, health and physical readiness programs, and alcohol and drug abuse control programs.

Health Care Systems

Adequate evaluations have not been conducted due to the many recent changes in the military health care system (e.g., CHAMPUS and CHAMPUS-Prime). While the popular press abounds with horror stories about the state of military medical care, these do not represent adequate evaluation efforts and will not be included here. Few evaluations were found in the area of medical care itself. Kozlowski and Oleksy (1987) discuss ways to assess the cost-effectiveness of an organization's benefit plan (including medical care) and provide suggestions and alternatives to lower such costs. Several evaluation efforts were found in the mental health care arena.

Kaplan and Bush (1982) proposed a measure of health status that can be used in evaluation efforts. The "Well-Year" expresses the output of health programs in terms of the number of added years of life and the health-related "quality of life" of those years produced by a treatment,

program, or health care system. Once calculated, the Well-Years can be divided into the cost of the program to determine the cost-utility of the program. On this basis, alternative programs or treatments can be compared. Kaplan and Bush provide a sample calculation of Well-Years for illustrative purposes.

Hall and Dorman (1988) reviewed available studies on consumer satisfaction with medical care. They used meta-analytic techniques to derive relative levels of satisfaction with 11 aspects of medical care over all studies. No information was given describing the types of medical services evaluated. In the studies reviewed, consumers were most satisfied with humaneness and competence and least satisfied with cost, access, bureaucracy, and attention to psychosocial problems. It appears that patients are relatively satisfied with the actual care they are receiving, but are less satisfied with the process or system that provides the services. Hall and Dorman provide information about these ratings that would be useful for tapping consumer satisfaction with medical services.

Moore (1989) reviewed health care cost containment efforts in the public sector. In 1984, employers' costs for medical benefits rose to \$1,285 per employee, an increase of 115 percent in 8 years. Private sector organizations have been aggressively pursuing cost-containment methods. Moore sought to determine the extent of similar efforts in the public sector. Results of a survey completed by the benefit directors of 75 large cities across the United States reveal that public agencies are beginning to pursue cost-containment methods, but lag behind private sector organizations in their progress. Tangible benefits are limited though, largely because public agencies lack the comprehensive medical costs data tracked by private organizations.

Moore presents six major strategies used to contain medical costs: (1) self-insurance or self-funding of insurance, (2) cost-sharing actions such as increased deductibles and co-insurance, (3) claims management and utilization review, (4) financial incentives to employees to lower costs, (5) alternative delivery systems (e.g., health maintenance organizations (HMOs) and preferred provider organizations (PPOs)), and (6) health promotion and wellness programs. Moore also reviews studies citing cost savings attributable to any of these methods. He indicates that in private sector organizations, estimated cost-savings from self-funding range from 2 to 20 percent. Cities responding to the survey who could evaluate their costs savings in this area reported 10 to 20 percent savings. A Health Research Institute study (1983) was cited that reported savings of 6 percent of total claims attributable to increased use of deductibles for medical care. A study by Lillard, Manning, Peterson, Lurie, and Goldberg (1986) found that people who had to pay part of their medical bills themselves had one-third fewer visits to doctors for minor problems than those whose medical care was fully funded. HMOs and PPOs are believed to be effective in reducing medical costs, but no data were presented to support this position. Finally, Moore reports substantial savings can be realized through health promotion programs. (These programs will be reviewed below.)

Prigmore and Crank (1977) propose a performance index that can be used within the military health service system. It provides a measure of the relative productivity of medical care facilities. The authors review previous research in the area of health care performance measurement to identify both problems with previous approaches and successful measurement methodology. They present an extensive review of Kaiser-Permanente's new Cost Center Accountability System (CCAS) on which Prigmore and Crank's measurement model is based. CCAS provides

management information in the areas of utilization, performance, membership, access/backlogs, and cost. The proposed military health service model may be helpful in developing standard measures in this area.

Academy of Health Sciences (1980) evaluated an innovative medical screening program used with Army service members. Instead of using the traditional morning sick call procedures to provide outpatient medical care to active duty personnel, the Naval Regional Medical Center (Orlando, Florida) developed an in-barracks medical screening program. Evaluation showed that recruits participating in the new system returned to active duty in one-sixth the time when compared to the traditional system. Furthermore, pharmaceutical costs were reduced by two-thirds, total visits to sick call were reduced by 20 percent, and 85 percent of recruits returned to duty without requiring the services of a physician or physician's assistant. Because fewer recruits were seen at the branch clinic, waiting times there were reduced as well.

Smith (1975) reviewed several previous evaluations of mental health programs and reported on the comparison of a community-oriented regional mental health center to a traditional state hospital in treating seriously disturbed mental patients. Patients were tracked for 3 years after beginning treatment at either facility. Hospitalization rates and a clearly stated measure of successful patients were used for evaluation. Furthermore, the costs related to each treatment program were compared. Although the community-oriented approach provided more humanitarian care, no objective evidence was found that it was more effective in decreasing mental disorder disabilities. Based on the evaluation results, the focus of the regional mental health center was changed substantially to stress client rehabilitation.

Kiresuk and Lund (1975) developed a measurement technique to subject mental health therapy to evaluation methodology. The "goal attainment scaling" procedure uses pre-specified anchors against which to judge clinical progress at the client, therapist, or program level. Goal attainment scales are similar to behaviorally anchored rating scales in that points on the scale are anchored to observable behaviors. The authors also present a methodology to quantitatively weight and aggregate scales for independent outcomes or activities.

Weisbrod and Helming (1980) describe the use of economic cost-benefit analysis in evaluating an experiment in treating the mentally ill. The experiment, Training in Community Living (TCL), de-emphasized hospitalization and made community-based resources available to patients. Patients seeking treatment were assigned randomly to the existing treatment program or to the TCL program. Evaluation was conducted on 65 experimental and 65 control subjects for 12 months following their admission. They found that the experimental program was 10 percent more costly during the first year than the traditional approach (\$8,093 vs. \$7,296 per patient). However, looking at the economic benefits of the program, the authors found that TCL patients had greater labor market productivity (\$1,200 more in wages per person per year) than control patients. Other non-economic benefits of the TCL program were that patients reported greater life satisfaction, had opened more savings accounts, had purchased more insurance, and had worked more days during the year. The authors provide a thorough discussion of the use of cost-benefit analysis with social service programs and stress the need to assess intangible outcomes as well.

Finally, Hagedorn, Beck, Neubert, and Werlin (1976) present a handbook for use in developing program evaluation capabilities. The handbook compiles a variety of techniques and approaches to

program evaluation that are applicable to community mental health centers and many other quality of life programs. They include sections on outcome studies, cost-effectiveness analysis, evaluation of consultation and education efforts, and assessment of quality. Furthermore, the authors provide estimates of the level of effort required to utilize each methodology.

Health and Physical Readiness

Health promotion programs (HPPs) and Employee Assistance Programs (EAPs) are contemporary innovations in the U.S. workplace. Few have been in existence more than 15 years and most are less than 5 years old (Roman & Blum, 1988). While the terms are somewhat similar, there is a basis for distinction. HPPs use a proactive, "primary prevention strategy" to decrease the risks of health problems that are costly to the employee and the employer. EAPs use a reactive, "secondary prevention strategy" to provide early treatment for symptoms that have already emerged, thereby limiting the costs to employee and employer. HPPs typically focus on weight reduction, smoking cessation, stress management, physical fitness, and dietary changes. EAPs focus on alcohol and drug problems and emotional or family problems. Both are undertaken in an attempt to reduce health care costs and improve job performance.

The military quality of life system has no single program that corresponds directly to either of these private-sector programs. Many of the factors included in HPPs and EAPs are included in Navy quality of life efforts, but they are not grouped under similar umbrella programs. While most of these factors fall within the various programs of the health care/promotion functional area (specifically the health and physical readiness program), physical fitness efforts might also be considered under the welfare, morale, and recreation functional area. Alcohol and drug education programs fall within the HPP/EAP arena, but were discussed above because evaluation efforts in that area are typically independent of HPP or EAP evaluations. Because HPPs and EAPs do not correspond directly to Navy programs, the methods used to evaluate these private-sector programs must be adapted for use with similar military programs. Likewise, one cannot assume that results are directly applicable to military programs.

Battle (1988) and Yamatani (1988) provide overviews of evaluation methodology in this area. Gibbs, Mulvaney, Henes, and Reed (1985); Hollander and Lengermann (1988); Kronenfeld, Jackson, Davis, and Blair (1988); and Bly, Jones, and Richardson (1986) present the results of evaluation studies of HPPs/EAPs, while Flakenberg (1987) reviews the literature evaluating one aspect of HPPs, and Wheeler (1988) and Smith, Haight, and Everly (1988) evaluate other sub-elements of HPPs. The Employee Assistance Quarterly is a relatively new journal devoted to these issues. Its third volume (1988) was devoted to evaluation issues and case studies in this area.

Jerrell and Rightmyer (1982) reviewed the literature available at that time on the effectiveness of EAPs (38 articles). As introductory information, they provide a profile of the characteristics of programs reviewed and the typical client. In addition, they review the many ways in which these programs have been evaluated. Various program evaluations have revealed that while on-site accident rates are similar for "troubled" and "non-troubled" employees, off-site accident rates are higher for "troubled" employees (Brenner, 1967; Trice & Roman, 1972); EAPs have been associated with 40 to 80 percent reductions in on- and off-site accidents (Allander & Campbell, 1975) and 43 to 50 percent reductions in absenteeism (Allander & Campbell, 1975; Pell &

D'Alonzo, 1970); and treatment costs range from \$840 to \$3,000 per employee per year (Allander & Campbell, 1975; Manello & Seamans, 1979).

The methodological deficiencies, lack of common criterion and standard measures, and unstated assumptions about cost data found in the review by Jerrell and Rightmyer limit the ability to compare results from study to study or to combine results across studies. The authors suggest several strategies to be used in evaluating EAPs in the future.

Hollander and Lengermann (1988) surveyed Fortune 500 firms to determine the extent and nature of worksite HPPs. As part of the survey, they also assessed the extent to which firms conducted program evaluations or cost-effectiveness analysis of their HPPs. While two thirds of responding organizations have HPPs, only 35 percent reported they had evaluated their programs and only 16 percent used any type of cost analysis. It appears that many organizations implement HPPs believing they will have positive effects without determining if this is so. At a minimum, organizations should determine employees' satisfaction with the program. Among potential benefits of such programs cited by Hollander and Lengermann are reduced health care and health insurance costs, reduced absenteeism, reduced on-the-job accidents, reduced turnover, increased productivity, and increased employee morale. However, adequate research is not yet available to support these claims.

Battle (1988) examines a number of important issues to be considered in planning evaluations of EAPs and presents a model for use in developing such efforts. Yamatani (1988) provides a methodology for translating the benefits and costs of EAPs into dollar figures for use in evaluating the cost-effectiveness of such programs and determining break-even points. The presentation is non-technical in nature, geared to the EAP practitioner.

Gibbs, Mulvaney, Henes, and Reed (1985) describe an evaluation of the first 5 years of Blue Cross and Blue Shield of Indiana's HPP. Short- and long-term utilization of health care services are evaluated as well as program costs relative to health cost reductions for participants. An appropriate comparison group of non-participants is also used in this evaluation. This is not a cost-benefit study because many other relevant costs and benefits (e.g, those related to absenteeism and longevity) are not considered. The authors found that while participants incurred higher health care costs during the first 6 months after implementation, participants averaged 24 percent lower health care costs than nonparticipants over 5 years of program operation. Savings in 5-year health care costs exceed program costs by a factor of 1.45, indicating the program was cost-effective to operate.

Kronenfeld, Jackson, Davis, and Blair (1988) used questionnaire methodology on health behaviors and health attitudes to assess the effects of a worksite HPP for state government employees in South Carolina. Because no records were kept of who "joined" the program and who did not, all results reflect the impact of the HPP on the employee cohort as a whole. No attempt was made to compare behavioral change between participating and non-participating employees. While this study includes the limitations inherent in using self-report data to evaluate such programs, the authors did employ a pre-post longitudinal design to assess behavioral changes up to 1 year after program implementation. They found positive changes in the areas of: smoking, seat belt usage, diet, exercise, and alcohol usage.

Bly, Jones, and Richardson (1986) evaluated Johnson & Johnson's HPP by comparing outcomes at independent intervention and control sites. They examined changes in health behaviors, health care costs, and hospital admissions over a 5 year period. As in the Kronenfeld et al (1988) study, these authors did not distinguish between employees who did and did not participate in the program at the intervention site. Program evaluation compared changes between the intervention and control sites as a whole. Analysis revealed that compared to control sites, intervention sites showed more cessation of smoking, more weight loss, more initiation of exercise programs, and less increases in health care costs and utilization. While medical costs for participants doubled over the 5-year evaluation period, similar costs for nonparticipants increased four-fold. For inpatient care alone, this translates to an annual cost savings of approximately \$34 per person.

Smith, Haight, and Everly (1988) evaluated the effects of a corporate-sponsored weight loss program (at Kimberly-Clark). They evaluated weight reduction, sick leave usage, and health care costs among participants and a matched sample of non-participants to assess the effectiveness of the program. Evaluation data were collected for 18 months before and after program implementation. Direct and indirect, fixed and variable costs of the program were identified. Sick leave reductions, health care cost savings, and program fees collected from participants were used to measure program benefits. The authors provide a clear presentation of cost-effectiveness and cost-benefit calculations for this program. The calculated cost-benefit ratios and cost-effectiveness measures were all favorable. The most conservative calculations showed a cost benefit ratio of 1.05/1 and a cost-effectiveness ratio of \$20 per pound loss. The authors observe that the cost-benefit ratios might have been significantly higher had less conservative assumptions been used and had other potential benefits been measured.

In reviewing the literature on one aspect of HPPs--exercise--Falkenberg (1987) found that there is relatively little evidence that employee fitness programs lower absenteeism or turnover. According to Falkenberg, studies in this area rely too much on subjective reports of change (as some of the previous citations indicate) and lack adequate controls. One study that surpassed others in objectivity and use of controls and might be used as an example is reported by Cox, Shepard, and Corey (1981) and Shepard, Cox, and Corey (1981). This study included the use of a control group of non-participants to evaluate the effects of the exercise program on turnover, absenteeism, productivity, and job satisfaction up to 6 months after introduction of the program. They found that participants in the fitness program had 22 percent less absenteeism and 13 percent less turnover than nonparticipants. The authors estimate that a potential for a 1 percent reduction in payroll costs could result from these improvements. No difference was found between participants and nonparticipants in productivity or job satisfaction.

Zimmerman, Gerace, Smith, and Benezra (1988) examined the effects of a HPP on the wives of participating employees. Using interview data from a small sample of wives of participating and non-participating employees, the authors compared the spouses' knowledge of the program and health habit changes, as well as spouses' perception of the health habit changes of their husbands. While no significant changes were found in the wives' health habits, the authors did find the wives were more aware of the program than controls. While they acknowledge that the effort was primarily exploratory in nature, their work does suggest an additional area for identifying potential benefits of such programs. If "spin-off" benefits can be identified and measured among family

members of participants in HPPs or EAPs, the cost-effectiveness of these programs will be enhanced.

Wheeler (1988) evaluated the effectiveness of a community-wide smoking cessation program immediately after completion of the 20-day program and 3 months later. Results showed that 16 percent had stopped smoking by the end of the program and 12 percent were not smoking 3 months later. Cigarette consumption dropped for 60 percent of participants. While no comparison or control groups were used, some efforts were made to assess the fiscal impact of behavioral changes. Including costs for health care for smokers and their employers, and costs for cigarettes, the authors translated these outcomes into an annual overall cost savings of \$7,694,000. Additional analyses focused on identifying successful and unsuccessful sub-groups.

Spilman (1988) examined participation rates in a corporate HPP. HPPs, as well as many other quality of life programs, cannot be termed successes if targeted populations do not participate. Participation rates for men and women were compared for each element of the HPP (e.g., stress management, weight reduction, back pain management, etc.). This methodology can be used to assess use of a wide variety of quality of life programs.

At this time, there appears to be some evidence of the effectiveness of HPPs and EAPs. As Kozlowski and Oleksy (1987) point out, the real benefits of these programs might not become apparent for many years after implementation. The ultimate impact will be known only when participants reach the age at which hypertension and other negative health factors take their toll. As these programs become institutionalized in corporate America and long-term evaluation efforts are conducted, additional evidence of their success or failure should become available.

Alcohol and Drug Abuse Control

The greatest number of evaluation efforts within the Navy's health care/prevention functional area were found in the alcohol and drug education and treatment area. Many of these studies focus on the evaluation of specific programs or innovative treatment methods or provide evaluation guidelines or methods (e.g., Barnes, 1984; Kim, Hoffman, Pike, & Gibson, 1984; Mitchell, Hu, McDonnell, & Swisher, 1984; Moskowitz, Malvin, Schaeffer, & Schaps, 1984; Retka, 1977; Werch, & Damron, 1985). A portion of these studies report the results of evaluation efforts focussed on DoD or Navy programs (e.g., Booz, Allen, & Hamilton, 1981; Borthwick, 1977; Hoyt, 1974; Kolb & Gunderson, 1975; Kolb, Gunderson, & Cohen, 1978; Resource Consultants, Inc., 1980; Systems Development Corporation, 1975). The articles and documents cited here do not provide an exhaustive list of evaluation efforts in this area. The Journal of Drug Education and the Quarterly Journal of Studies on Alcohol routinely publish such work and are good sources of illustrative evaluation efforts in this area.

Cairo (1983) estimates that the costs to industry related to alcoholism reach \$12 billion annually, taking into account the effects of absenteeism, tardiness, accidents, turnover, substandard job performance, and the costs of treatment. The costs associated with drug abuse, though likely not as large, are substantial as well. Efforts to prevent or treat alcoholism and drug abuse can be assessed in part by their effects on the factors listed above. Cairo estimates that between 1,200 and 2,400 employer-sponsored treatment programs exist for alcohol abuse alone.

In a review of these programs, Follman (1978) found recovery rates of 60 to 80 percent were common. The most common criterion for success is return to work with no recurrence of the problem, which prompted referral to the treatment program. However, the time period over which a treated employee's performance is examined varies widely. Typically, success is judged 1 to 2 years after treatment. Discrepancies in this measure limit the ability to compare studies.

Borthwick (1977) provides the best example of evaluation research of Navy and Marine Corps programs in this area. Borthwick summarizes the results of a cost-benefit analysis of the Navy's Alcoholism Prevention Program (NAPP). In addition to assessing treatment effectiveness of NAPP, the study also examined the effects of Navy resident treatment programs on replacement, hospitalization, accidents, jurisprudence, and productivity aspects of military operations. These aspects are included in the cost-effectiveness analysis. Borthwick found that discharging identified alcoholics and replacing them with new personnel is 2.2 times more costly than the existing rehabilitation program. This rate rises to five times more costly for more senior personnel (ages 26 and older). Treatment effectiveness of the existing program (based on a 2-year post-treatment evaluation) is 83 percent for the 26 and older group and 44 percent for those 25 and younger. Successful rehabilitation of Navy and Marine Corps alcoholics reduces their sick day rate from 9 days per person per year to the service average of 2.7 days per person per year. Effective rehabilitation translates to a cost avoidance of \$7.8 million in reduced demand for health care services.

Systems Development Corporation (1975) presents the results of an evaluation of DoD Alcohol Abuse Control Programs (AACP). Thirty military sites in the U.S and overseas were visited to evaluate the four components of the DoD AACP: education/prevention programs, treatment/rehabilitation programs, identification programs, and program administration. Evaluation was at the DoD level, rather than by service or site. In addition to describing the types of programs in each component, the measures of effectiveness used for each are presented. Some measures are archival (collected from records maintained by each site). However, the majority are subjective (e.g., client and administrator ratings of program effectiveness and recidivism). Results of the study include in-house evaluation of education/prevention programs is weak, Alcoholics Anonymous meetings and peer group therapy were the most effective treatment modalities, use of Antabuse was the most ineffective method, funding inadequacy was seen as a consistent weakness in the treatment program, and no clear difference in effectiveness of centralized or local treatment facilities exists.

Hoyt (1974) evaluated the effectiveness of the Navy's Drug Education Program by administering questionnaires to a sample of Navy commands and interviewing program administrators. Questionnaire items covered four major areas: drug knowledge, attitudes toward drugs and drug users, use of Drug Education Program resources, and drug utilization. While the use of self-report data to assess the effects of drug education on drug use is less than fully dependable, the remaining evaluation areas are covered adequately. Areas for improvement of the program were also identified. The author concluded that exposure to drug education resources increases drug knowledge, but has no apparent effect on drug use. However, the more important finding was that the drug education program had received little command support and, thus, had not been utilized adequately.

Resource Consultants, Inc. (1980) compared the size, effectiveness, and efficiency of the Navy's alcohol and drug abuse programs to those of the Army and Air Force. Data for each service were obtained from historic records--program justification data provided by each service each year to the Assistant Secretary of Defense (Health Affairs). The report compares the services' performance in the areas of identification and treatment and calculates cost per client for each service. Problems with using archival data for evaluation were mentioned (e.g., inconsistent reporting of data, incomparable treatment effectiveness periods among the services, etc.).

Their analysis showed that Navy was more effective in identifying individuals with alcohol and drug problems (due to its Navy Safety Action Program) than the other services. Navy had 3.4 percent of active duty personnel enter alcohol treatment programs, while the Army had only 1.8 percent and the Air Force 1 percent. Similar figures were reported for individuals entering drug treatment programs. The effectiveness rate for Navy's alcohol rehabilitation programs is 71 percent (compared to 65 percent for Army and Air Force). Comparing the efficiency of these programs (calculated as dollars spent per persons successfully treated in 1978), Navy is most efficient. Navy spent \$848 per rehabilitee, while the Army spent \$1,124 and the Air Force spent \$2,896. At the time the analysis was conducted, Navy and Army effectiveness rates for drug treatment programs were not known. Air Force spent about \$750 per successful rehabilitee and reported an effectiveness rate of 54 percent. Assuming a comparable effectiveness rate for Navy drug treatment programs, their cost per rehabilitee would have been \$2,512.

Booz, Allen, and Hamilton (1981) compared the Navy's drug abuse control program to that of the Air Force. They examined the organizational responsibility for the program, activities comprising the program, management of the program, and resources committed to the program. In doing so, they identified shortcomings in the Navy's system. While this is not a true program evaluation study (no quantitative evaluation was conducted), such comparative analyses can provide information about strengths and weakness of a program and identify improvements that can be made.

Kolb and Gunderson (1975) and Kolb, Gunderson, and Cohen (1978) report on post-treatment outcomes for Navy men treated for alcoholism and attempt to identify differences in effectiveness among patient sub-groups. Further, they cite the need for research to identify the successful elements of alternative treatment programs. Their work underscores the fact that overall treatment effectiveness measures may be misleading. More useful information is provided when effectiveness measures are calculated for significant sub-groups of the client population. Likewise, sub-elements of treatment programs should ideally be assessed independently. Their analyses revealed that effectiveness rates ranged from 54 to 91 percent depending on type of treatment and age of participant. Higher effectiveness rates were found for older men (89% vs. 59% for younger men) and for individuals treated in dry docks (63% for younger men and 91% for older men).

These studies of military alcohol and drug treatment programs reveal moderate effectiveness rates of the Navy's programs. From this limited review, it appears the Navy's education and awareness programs are far less effective than its identification and treatment efforts.

Turning to the non-DoD efforts, Retka (1977) provides an overview of a methodology for calculating cost effectiveness of drug abuse prevention programs. This report includes a discussion of the costs of dysfunctional drug use and the costs associated with four model programs used by

the National Institute on Drug Abuse. Retka concluded that all four model programs can be cost effective if a 10 percent level of effectiveness can be achieved.

Mitchel, Hu, McDonnell, and Swisher (1984) present the results of a cost-effectiveness analysis using a quasi-experimental approach to evaluate four variations in an educational drug abuse prevention program for high school students. They found that one variation (imbedding alcohol and drug information in a religious studies class) was effective in changing behaviors at a cost of \$68 per student. None of the other alternatives evaluated were effective.

Leveson (1973) presents a model for conducting cost-benefit analysis that takes into account both characteristics of the client population and variations in treatment programs. It is used to evaluate narcotics addiction treatment programs. His analysis revealed that a Methadone treatment program was more effective (70% success rate after 36 months) than the alternative methods being used in New York State (incarceration and rehabilitation services resulting in 44% success rate after 21 months).

This group of studies provides information that can be useful in developing a cost-effectiveness or cost-benefit analysis of alcohol and drug programs. Some of the points made in these papers and the methodologies they suggest can be applied to similar evaluations in other quality of life functional areas. The following group of studies assess treatment effectiveness or describe evaluation methodologies.

Miller (1988) reports on the evaluation of a chemical dependence treatment program that used three types of outcome measures in addition to the traditional measure that assesses substance use/abuse after treatment. A treatment program, shown to be successful in reducing drug usage, was also found to be successful in reducing clients' presenting symptoms, changing clients' attitudes, and improving clients' quality of life. This study shows the usefulness of self-report data in supplementing program effectiveness information.

Werch and Damron (1985) present an experimental study of the effectiveness of an alcohol control program designed to reduce drinking and driving. While much of their evaluation data is subjective, the design of the study is sound. Unlike previous evaluations of the same alcohol control program, the current study found no significant effects of program participation. The authors speculate that this may be due to the non-problem drinker population treated in the present study.

Likewise, Moskowitz, Malvin, Schaeffer, and Schaps (1984) employed an experimental design to assess the effectiveness of a drug education course for seventh graders. They used both subjective data (e.g., intention to use drugs) and a drug knowledge test to evaluate the program. Results indicated the program had no significant effect on girls and only a few significant effects on boys.

Kim, Hoffman, Pike, and Gibson (1984) present a theoretically-based outcome evaluation instrument that can be used in assessing the effectiveness of alcohol education, prevention, and intervention programs. Barnes (1984) reviews previous efforts in evaluating alcohol and drug education programs and identifies their deficiencies. This group of studies provides examples of experimental evaluation studies, suggests a number of outcome measures that can be considered in

evaluating the effectiveness of alcohol and drug programs, and identifies problems to be avoided. Further, they reveal the extent to which different treatment methods can have different effectiveness rates. Making global conclusions about the effectiveness of alcohol or drug treatment programs is unwarranted. Each program must be evaluated independently.

Housing

This functional area includes two programs: bachelor quarters and military family housing. Private sector organizations rarely provide housing to their employees. Thus, few evaluation studies were found in this area.

Bachelor Housing

Resource Consultants, Inc. (1980) reported the results of a world-wide bachelor housing survey conducted by the Navy in 1979. This survey found that the Navy is 66,239 berths short in bachelor quarters (958,012 enlisted berths and 8,227 officer berths)--a shortfall of about 46 percent of the need. Typically, this deficiency is met in the form of Basic Allowance Quarters (BAQ) supplements in lieu of quarters. The authors identify ambitious programs designed to meet this shortfall, but indicate that proposed reductions may jeopardize the effort.

Family Housing

Resource Consultants, Inc. (1980) found that between 1976 and 1979 approximately 15 percent of Navy permanent change of station (PCS) families moving into military housing were not suitably housed. The percentages for the other services were consistently lower. Looking at private housing, they found that while the proportion of Navy families suitably housed improved from 1976 to 1979, the other services nonetheless had better suitable housing rates. In addition, the authors found that the Navy spends less per capita on operating costs for family housing (e.g., utilities, repairs, and maintenance), than the other services do. The total expenditures for operating costs and investments (e.g., new construction, renovation, and modernization) in the Navy are far less than in the other services. The Navy spends \$624 per person; the Army spends \$796; and the Air Force spends \$932. Navy does exceed Army in providing funds for improvement in existing family housing units. The authors speculate that this consistent lower level of support for family housing may ultimately have a negative impact on retention.

A 1977 General Accounting Office (GAO) study examined DoD's self-help maintenance program for occupants of military family housing. This voluntary program is designed to encourage occupants to perform minor maintenance tasks on their homes and develop owner-like responsibility. While the services believe their programs are effective, they have no empirical evidence to determine if self-help programs are cost-effective. GAO found that these programs have weak controls over funds, inventory, and materials and have no acceptable cost accounting procedures. Further, the program is voluntary and there is no incentive for occupants to perform self-help maintenance since other means are available to accomplish such tasks.

In the same study, GAO also examined the effectiveness of the services in charging and collecting damages from tenants. They found that all services lack explicit criteria for distinguishing damages from normal wear-and-tear and lack adequate procedures for identifying

damages. Consequently, damages are often treated as normal maintenance tasks and repaired at the services' cost. Based on a survey of 11 bases (comprising about 8% of DoD's housing units), GAO found over \$1 million in repair costs during a 1 year period that resulted from occupant damages but were not collected from the tenants (e.g., broken doors, holes in walls and ceilings, missing towel racks and curtain rods, and torn screens).

Personnel Policies

Evaluating the effects of personnel policies such as sea/shore rotation policy, equal opportunity, and work environment on any tangible outcome such as retention or readiness is very difficult. As in many quality of life areas, individuals and organizations often have strong beliefs that a particular change to any of these policies will have or have had a positive effect on the Navy and its personnel; these claims are rarely evaluated. Few studies in this area were found.

Resource Consultants, Inc. (1980) compared the average Navy work week to the Navy goals and to the average civilian work week. They found that the typical American worker is at the job 1,888 hours per year while the average sailor aboard ship is on-board 2,828 hours per year if in port the entire year. This includes 22.9 weekend days. The Navy standard work week calls for 59.25 hours per week aboard ship. The authors found that in surface combatants and submarines of the Pacific Fleet, sailors exceed this by 20 percent. This translates to a 64 percent increase over the typical civilian work week. As of the time of their review, further efforts were needed to reach the Navy work week goal.

Resource Consultants, Inc. (1980) also examined changes in sea-shore rotation between 1974 and 1979. They found a marked improvement between these two times. While in the past, junior enlisted personnel could expect 10 years of sea duty for every 3 years of shore duty, in 1979 they could expect 7.7 years of sea duty for 3 years of shore duty. Similar improvements were found for senior enlisted personnel. No analysis of the impact of this change on retention or performance was made.

Education/Training Programs

The Navy provides many off-duty voluntary educational opportunities to its members through the Navy Campus for Achievement (NCFA). Many non-military employers provide similar benefits to their employees. Githens and Wilcove (1977) reviewed the literature related to employer-sponsored off-duty education and found "no empirical evidence that clearly linked off-duty education to recruiting, performance, or retention" (p. 5). In a similar survey (Milwaukee Personnel Department Training Unit, 1977), efforts were made to identify studies of the quantitative cost-benefits of tuition reimbursement programs. The authors concluded that "such an analysis does not exist in either the public or the private sector" (p. 170). Despite the lack of adequate evaluation in this area, Githens and Wilcove identified a survey of 279 companies that showed that 81 percent provide monetary assistance to employees for education (Administrative Management Society, 1976).

In another survey of 283 firms, Watson and Grzybowski (1975) found that over 90 percent have some form of tuition plan. Almost all firms participating in the survey reported they had benefitted from their plans and 54 percent reported that employees using the tuition support plans had advanced in the organization faster than others. Organizations also reported increased quality of work and improved organizational climate. However, these conclusions were based on self-report data from firms participating in the survey rather than from any empirical evaluation. Githens and Wilcove (1977) point out that since the majority of private sector corporations provide educational assistance of some sort, the Navy must do likewise to maintain a competitive recruiting position, despite the lack of any proven cost-effectiveness data.

Githens and Wilcove (1977) analyzed the effects of the Navy's off-duty educational programs on recruiting, performance, and retention. Based on a survey of recent recruits, they found that 45 percent indicated that they joined the Navy primarily for education and training benefits under the Navy Campus for Achievement program. Respondents also indicated that the opportunity to continue their education was a fairly strong influence on their decision to enlist. From these results, the authors concluded that the NCFA appears to provide a positive recruiting incentive.

The Program for Afloat College Education (PACE) was evaluated by comparing responses to a Human Resource Management (HRM) Survey between high-PACE-participation ships and a matched group of non-PACE-participation ships. Githens and Wilcove (1977) found that personnel aboard high-PACE-participation ships perceived organizational conditions significantly more favorably. The authors also compared the promotion and retention rates between a matched sample of participants and nonparticipants in the PACE, Tuition Assistance, and Contract for Degree programs. They found that participants in the PACE and Tuition Assistance programs were not as likely to reenlist as nonparticipants, but that participants in the Tuition Assistance and Contract for Degree programs were more likely to be promoted than nonparticipants. Githens and Wilcove speculate that personnel who are planning to leave the service participate in these programs to better prepare themselves for civilian jobs.

The current job performance levels of NCFA participants and nonparticipants were also compared. No differences were found between the two groups on performance indices such as military performance marks, disciplinary actions, or commendations. However, the authors note that NCFA participants have higher aptitude scores than nonparticipants and may perform better overall.

Based on their many varied analyses, Githens and Wilcove conclude that off-duty educational programs should be continued. They are viewed very positively by civilian industry, recruits, Navy wives, operational commands, and active duty personnel. Their positive links to promotion and perceptions of organizational effectiveness are important.

Resource Consultants, Inc. (1980) compared Navy's off-duty education programs to those of the Army and Air Force. They reported that the PACE program selectively services only 6 percent of the personnel afloat and that, because they are assigned sea duty, few junior personnel participate. Further, Navy spent only \$25 per capita toward these programs, while the Army spent \$119 and the Air Force spent \$61 per capita. Finally, the ratio of off-duty education staff per 10,000 service members was 4 for Navy and 16 for both Army and Air Force. While Githens and Wilcove

concluded the Navy's education program was effective, Resource Consultants, Inc. conclude that the Navy is not keeping parity with the other services in this area.

Morale, Welfare, and Recreation

The programs provided for service members within this area are largely unique to the military services. With the exception of child care services, few private sector organizations provide similar services to their employees. Furthermore, those somewhat comparable services (e.g., employer-subsidized cafeterias) are rarely evaluated independently. Thus, most of the information in this section pertains entirely to military services. These programs are designed to "maintain high levels of esprit-de-corps, job proficiency, military effectiveness, educational attainment, and physical well-being" (Resource Consultants, Inc., 1980, p. A-1). Few studies have examined their effectiveness in any of these areas.

Recreation/Clubs

Resource Consultants, Inc. (1980) compared the morale, recreation, and welfare (MWR) programs provided by each of the armed services. They examined end-of-year reports submitted by each service to DoD. Looking at overall per capita expenditures on MWR programs, they found that Navy spent less than the other services in each year evaluated (1976 to 1978). In 1978, the Air Force out spent Navy by 15.4 percent. (Note that active duty end-strength, on which these calculations were based, was reduced for Navy to reflect the personnel at sea and physically removed from MWR services.)

Looking at the military welfare and recreation program (e.g. pools, bowling, movies, sports activities, etc.), they found a difference between the services. The difference indicates that either the Navy fees to sailors for these services are higher than those in the other services, or that a greater number of Navy personnel use these facilities, thereby yielding greater income.

In the area of military clubs, their comparison showed that the Air Force out spent the Navy by about \$100 per capita in the 3 years examined. All services operated at a net loss when income from dues and package stores was subtracted. The Navy's loss was less than that of the other services.

To achieve economic parity with the other services in the MWR area, as a whole, Resource Consultants, Inc. (1970) report Navy would have to increase support for these programs by somewhere between \$25 million and \$108 million annually.

A 1979 GAO (1979a) review of military club usage indicated that Navy enlisted personnel use their clubs less than their counterparts in the Army, but more than enlisted personnel in the Air Force. The Navy officers used their clubs less than the Army and Air Force. Most often given reasons for not using military clubs (across all services, including enlisted personnel and officers) were: atmosphere, entertainment, quality of services, and hours of operation. Most commonly given reasons for joining or using military clubs were drink prices and location. For the most part, different reasons were given by enlisted personnel and officers and different reasons were given by service members from the three services.

Lalchandadi, Morey, deAndrade, Humphreys, and Snyder (1975) used an innovative technique to assess the cost-effectiveness of the Navy's recreation program. They examined the potential impact of eliminating recreation services in terms of reduced operating costs and increased recruiting and training costs required to compensate for the increased turnover that would result. Given that the Navy spent \$100 million on these programs in 1974, the potential for savings by eliminating undesired services is substantial. The authors administered a survey to a broad cross-section of eligible users (N = 11,229) to determine the extent of usage of recreation services. In this area, they found that bowling, movies, outdoor recreation, informal sports, and other recreation services were most used. Boating/sailing and golf facilities were least used. Of responding personnel, 13 percent were characterized as high recreation services users and 35 percent were characterized as extremely low users.

To capture the value of recreation services, survey respondents indicated that an increase in salary would be necessary to prevent their resignation if each component of recreation services was eliminated. In other words, individuals estimated the size of the monthly pay increase that would be required to make the person indifferent to loss of the service. To assess the perceived value of these services to eligible users, the survey also asked respondents to estimate the dollar savings each component of recreation services is worth to them using frequency of use and the existence and cost of comparable off-base facilities as inputs. In contrast to the use rates reported above, these responses indicated that the auto hobby shop, recreation equipment checkout, and bowling were the most valued by the users, while golf facilities and organized sports were least valued. For example, respondents indicated they would require \$87.20 per person per year in compensation for eliminating the auto hobby shop, but only \$44.80 per year for eliminating the golf facilities. By using the ratio of benefits (based on both value calculations above) to net expenses for each component of recreation services, it was found that all components are cost-effective.

Finally, econometric models used these data to estimate the impact on retention, changes in recruiting and training costs that would result from eliminating recreation services without providing alternative compensation. In addition, optimization models were used to recommend resource allocation across recreation service components.

Child Care

Few sound, objective studies of the effectiveness or cost-benefits of employer-sponsored child care programs are available. In fact the Department of Labor (1988) reported that employers' efforts to address employees' child care needs are occurring prior to any concrete business or industry research showing a quantifiable positive outcome of such support. While the popular press and some of the personnel journals routinely publish articles touting the benefits of employer-sponsored child care, little empirical evidence is available. Such articles claim that employers can reap benefits including improved ability to attract and retain employees, decreased sick leave, and improved employee satisfaction. As with HPPs and EAPs, people believe employer-sponsored child care programs are "good" things to do, communicating to employees that management cares about them. In addition, they keep corporations competitive in recruiting new employees. Until appropriate evaluations of the effects of employer-sponsored child care programs are conducted, such claims cannot be supported.

Miller (1984) reviewed the literature on these programs and concluded that "assertions that employer-sponsored child care reduces workers' absenteeism or tardiness, or that it increases workers' productivity or job satisfaction are not supported by credible research" (p. 277). Little solid evidence based on sound research methodology has been offered in support of these programs. Miller cites one study (Milkovich & Gomez, 1976) that made an attempt to compare the work behaviors of child care users to comparable non-users.

Milkovich and Gomez (1976) reported on the North Side Child Development Center (Minneapolis) in which Control Data Corporation participated. Work behaviors of 30 participating parents, 30 non-participating parents, and 30 others were compared. Turnover rates were significantly different among the three groups (1.8% for participants, 6.3% for non-participant parents, and 5.5% for others). Likewise, absenteeism rates were significantly different (4.4% for users, 6.0% for other parents, and 5.0% for others). No difference was found in the job performance rate. Miller acknowledged that this study made an excellent attempt to introduce control in studying this issue by using comparison groups, but he also criticized the study because important information about the comparison groups was not reported. The reasons for participating in the child care program or not participating were not given. In addition, no attempt was made to measure attendance and tardiness before enrolling in the program. Initial differences between the groups might have accounted for the reported findings.

Between 1978 and 1985, Department of Labor's (1988) review of employer-assisted child care found that industry participation in child-care assistance rose more than 2000 percent. In addition, labor unions are becoming involved in establishing child care programs for members. Nonetheless, they found that only 11 percent of the nation's worksites (with 10 or more employees) provide direct child care help for their employees. Direct help includes operating on-site or nearby child care centers, providing financial assistance for child care, and providing other child care benefits such as referral or counseling programs. The findings of the Department of Labor's review include quantified outcomes and anecdotal evidence in the following areas:

1. **Recruitment.** A photography company reported an annual savings of \$30K in recruitment costs as a result of offering child care services to its employees. In a labor market with only 2 to 3 percent unemployment, they reported 3,500 walk-in job applicants in one year.

2. **Retention.** A Sioux Falls hospital reported that many parents won't consider working elsewhere because of their on-site child care center. They believe the center allows them to keep qualified medical workers who are in short supply in the local area.

3. **Productivity.** A hosiery mill reported saving between \$6,000 and \$10,000 in 1981 in improved productivity due to its child care center. Further, 49 percent of employers surveyed in another study reported positive effects on productivity.

4. **Turnover.** An Indiana plastics firm reported a drop in turnover from 55 percent to under 10 percent in the first 2 years of running a Learning Center and after-school program for its employees' children.

5. **Absenteeism.** A Texas medical device manufacturer claimed it saved 15,000 hours from reduced absenteeism when it opened a near-by child care facility. This reduction combined with decreased turnover translated to more than \$2 million in savings in the first 2 years of operation.

6. **Public Relations.** A survey of Fortune 1500 firms found that 60 percent of companies polled reported an increase in favorable publicity resulting from their efforts in child care services. Such coverage increases a company's ability to attract new employees.

7. **Morale.** Ninety percent of employers surveyed reported an improvement in employee morale as a result of their child-care assistance efforts.

Because the Department of Labor (1988) report does not provide complete information about the source of these findings or the way in which calculations were made, it is difficult to determine their accuracy and objectivity. Some appear to be subjective, self-reports of positive program outcomes. If even a portion of these citations represents the results of sound program evaluation, they indicate the positive impact that employer-sponsored child care may have. Further research is needed to support these claims. In addition, a measure of parent satisfaction with employer-sponsored child care programs can provide another perspective on effectiveness.

Burud, Aschbacher, and McCroskey (1984), in a well-done "how-to" book on employer-sponsored child care, reported on the results of the National Employer Supported Child Care Project conducted in 1982. This effort surveyed 415 firms with active employer-sponsored child care programs. Site visits were made to some firms participating in the study. Firms were asked to indicate whether their child care programs had had positive effects in a number of areas. Firms responded based on whatever data they had to make such judgments; in many cases, responses were entirely subjective. In the area of turnover, 65 percent reported positive outcomes, but only 18 companies could compare turnover rates between users and non-users of the child care facilities. Of these 18, the average turnover rate among all employees was 44 percent; among users, it was 19 percent. In the area of recruitment, 85 percent of respondents indicated positive changes had accompanied program implementation. Only 10 firms estimated the annual recruitment value of their child care program--among these firms it averaged \$16,400. Other positive outcomes reported were: productivity improvement (reported by 49%), reduction in absenteeism (53%), and decrease in tardiness (39%).

In other outcome areas, objective measures of positive outcomes were not mentioned. For example, 90 percent reported an improvement in morale, 83 percent reported an improvement in job satisfaction, 73 percent reported an improvement in commitment to the organization, and 85 percent reported an improvement in corporate image. While several case studies were presented in which substantial positive improvements were reported (a 60% reduction in turnover in one case, a 3% reduction in absenteeism translated to \$89,856 savings per year in another, and one with a 7.8% reduction in turnover translatable to \$159,600 yearly savings in recruitment and training costs) the methodology used to determine these figures was not described. Without clear explanation for the basis of these calculations and comparisons, it is unclear whether they are sound.

In addition to employer-sponsored child care centers, the Department of Labor (1988) review also found that employers are supporting a variety of other assistance programs. These include

efforts to sponsor child care facilities jointly with other firms in the area; financial assistance in the form of direct reimbursement, voucher systems, or employer-sponsored discounts at local centers; flexible benefit programs that include child care as one option; resource and referral services; and innovative work policies that allow job-sharing, sick child leave, flextime schedules, or work-at-home options.

The Department of Labor (1988) report also discussed many of the critical issues in child care including availability, affordability, and quality. Effective evaluation in this area would utilize measures designed to assess child care programs on these important dimensions. None of those cited above do so.

In 1982, GAO reviewed the status of military child care programs. As with most GAO studies, this was not a full-scale evaluation effort. These studies tend to accentuate shortcomings and problems in the area of review and rarely identify positive findings. This GAO report provides information about the benefits and shortcomings of military child care efforts. GAO found that many facilities were neither safe nor suitable places for child care, user fees were insufficient to support maintenance and renovation of facilities, and adequate standards for care were lacking. A more recent GAO review (1988) found similar shortcomings in military child care programs. At that time, GAO estimated that 25,000 military children were on waiting lists for on-base child care.

Nesenholtz (1976) surveyed directors of DoD day care centers to obtain information about size and operating characteristics, costs, and staffing. Because no on-site observations were made of day care centers, all conclusions are limited by the self-report nature of the data. Centers operated for a mean of 76 hours per week; none operated for less than 48 hours a week. Eighty-nine percent of children in these day care centers were military dependents. Sixty-four percent were 4 years old or less. The mean average daily attendance was 73 full-time children and 72 part-time children. Costs for day care varied widely from site to site. The mean fee for full-time care was \$17.59 per week (ranging from \$12 to \$25). Day care center directors indicated that the two most critical problems they faced were transience and their nonappropriated fund status. Being nonappropriated fund facilities, day care centers must be self-sustaining or profit-making. Balancing the demand for profit against the costs required to provide quality service was a particular problem.

Resource Consultants, Inc. (1980) compared Navy's child care capabilities and expenditures to those of the other services. In comparing the services' capacity to provide child care per 10,000 in end strength, results indicate that the Navy can provide child care to only 1.6 children, while the Army can provide care to almost 2.25 children, and the Air Force to almost 3 children. Comparing expenditures per child cared for, the Air Force spent \$920 per child during FY79. The Navy spent only \$516 per child. The authors conclude that Navy's quality of care is lagging the other services.

It appears that little progress has been made in adequately assessing the impact of employer-sponsored child care programs since Miller (1984) did his review. There is substantial anecdotal evidence and some empirical data to suggest these programs are very effective. Until better research is done in this area, we cannot assume these efforts are cost effective. Further, no attempt has been made as yet to determine the relative effectiveness of the many alternative forms of employer-sponsored child care support that exist. Nonetheless, if the Navy is to remain a competitive employer, it must continue to assist service members in obtaining child care.

Personal Services

Within the personal services functional area, research was found addressing several components of the family support program. Family support includes many unique Navy programs: Family Service Centers (FSCs), Family Advocacy Program, Spouse Employment Assistance Program, OMBUDSMAN Program, and others. Some of these have parallel programs either in corporate employment situations (spouse employment assistance, pre-retirement counseling) or in the public sector assistance arena (spouse and child violence programs). Some have no comparable program outside of the military.

Family Service Centers

Bishop, Peters, and Wooley (1982) interviewed 191 FSC clients, staff members, and representatives of operational commands at four sites where FSCs had been in place for approximately 1 year. Interviews assessed participants' opinions about the impact of FSCs on individuals and on the Navy's mission. The authors concluded that FSCs had a direct positive impact on clients served and on commands. This was a qualitative exploratory study based on a small sample which bears all of the research limitations of a case-study approach. The study does not provide definitive or statistically valid measures of impact in any specific area or on any particular Navy population.

Although not a true evaluation study, Szoc (1982) reported on the relationship of family factors to retention in the Navy, based on the survey responses of 1,417 enlisted personnel and officers whose term of enlistment or minimum service requirement was nearing an end. Analyzing the simultaneous effects of 22 variables and scales using a path analysis, the author found that opinions of the spouse and satisfaction with family life in the Navy directly influenced retention decisions. Retention is indirectly influenced by the degree of perceived social support and satisfaction with Navy service. Similarly, Bruce and Burch (1989), analyzing survey data from aviation officers, and Mohr, Holzbach, and Morrison (1981), using data from surface warfare officers, found that spousal support for an officer's career was strongly related to the officer's intent to pursue a Navy career.

The effects of FSC family programs on satisfaction with military life and retention in the Marine Corps were estimated by Calvin (1987). Calvin constructed a behavioral model of Marine Corps separation using data from the 1985 DoD member survey, rather than data from an instrument designed for that purpose. As a result, the effect of spousal pressure on intentions to leave the service could not be investigated. Satisfaction with family services was found to be a direct factor in the decision of Marines to remain in the Corps. It was also estimated that the Marine Corps retention rate would decline by 1 percent if family services were to be eliminated. These findings were interpreted in cost-benefit terms.

A system for systematically collecting needs assessment, satisfaction, and utilization data for evaluating Navy family support services on a recurring basis has been developed by Kerce (1987a). The system is based on a stakeholder approach and provides for data collection from service members, family members, service providers, career counselors, and commanding officers and other representatives of commands in the FSC catchment areas. Assessments are conducted locally with provisions for data to be aggregated at the program level. A number of FSCs have

implemented this plan at the local level. Kerce (1988) reports on the results of the prototype implementation at Taylor-Leaver FSC in San Diego.

Kerce (1987b) reports on an attempt to utilize existing Navy statistical indicators to evaluate the impact of FSCs. The report contains an assessment of services provided by FSCs and populations served; a conceptual model indicating relationships between services provided, intermediate outcomes, and effects on the Navy; and trend analyses of area cohorts based on year of FSC establishment. The use of loss data, health history files, records of child and spouse abuse, desertion data, and supplemental items on the enlisted retention questionnaire were investigated. The results of this effort indicated that currently available Navy data bases are inadequate to support efforts to evaluate FSC impact on the Navy's mission. It was concluded that supplemental data collection strategies must be implemented, which will include both subjective measures and better objective measures that are more directly related to services provided. The approach taken by Kerce (1988) is laudable, in that existing data sources were examined first, before new data collection efforts were proposed.

Spouse and Child Abuse/Family Advocacy Program

There are few available studies of programs designed to prevent or eliminate family abuse. All of those found were public sector programs; no reports of abuse programs supported by private sector firms were identified. Of the reports presented here, about half describe military abuse treatment programs.

Barrett (1978) describes an alternative child abuse treatment approach that attempts to minimize family disruption and maximize protection of the child. This system, Nashville's Comprehensive Emergency Services (CES) system, provides 24-hour coordinated services through interagency planning and cooperation. The system provides the following services: 24-hour emergency intake, emergency caretakers and homemakers, emergency shelters for families and adolescents, foster family homes, and outreach/follow-through services. Fully, 51 percent of the referrals were after normal working hours, so the 24-hour basis of this program was very important. Evaluation of Nashville's demonstration project revealed a 56 percent reduction in the number of neglect and dependency (N&D) petitions filed, a 51 percent decrease in the number of children placed in any sort of substitute care, and a 180 percent increase in the number of complaints in which no N&D petition was required.

However, when Johnson (1978) compared the long-term effectiveness of this program to a more traditional protective service system in Savannah, the results were not as positive. Neither system was effective in preventing serial abuse. Under Nashville's system, 44.8 percent of cases included in the 3-year evaluation period had been reported and investigated one or more times prior to the most current incident. Under Savannah's system, 24.4 percent were serial abuse cases, suggesting that the traditional approach is marginally more effective in preventing serial abuse. Under both systems, children involved in serial abuse situations tended to be harmed more seriously in subsequent incidents than in the initial incident, indicating that violence tends to escalate over time. The evaluation revealed that in both systems little, if any, "treatment" was provided to parents before children were returned to their homes. The author concludes that innovation per se will not necessarily improve child protective services. This evaluation also highlights the importance of multiple evaluation criteria. Looking only at the results presented by

Barrett, one would conclude the new system was very effective. However, Johnson's analysis reveals that not all outcomes were positive.

Shannon and St. John (1978) reported on a Parent Partner program implemented through the Carswell Air Force Base Mental Health Clinic that was designed to prevent abuse and neglect. The program involves group meetings among new parents and identified or suspected abusive parents and one-on-one interactions with volunteer Parent Partners. Group meetings include presentations and discussions of topics such as military life and stress, building a better marriage, sexuality, child development and behavior, and child care. While objective measures of the program's effectiveness were not reported, participants' evaluations were. Group members reported that their knowledge in areas covered by the program had increased and that they had applied what they had learned. They reported feeling better equipped to be parents, feeling better about themselves, and feeling less isolated.

Neidig (1986) described a spouse abuse treatment program developed and implemented in conjunction with the Marine Corps FSCs at Parris Island and Beaufort, South Carolina. Based on a review of the literature on spouse abuse a new program was developed. The Domestic Conflict Control Program (DCCP) was a program of 10 weekly 2-hour sessions of group instruction for abusive couples. The approach involves behavioral rehearsal, skill-building, and cognitive restructuring in the areas of anger control, stress management, and communication. Neidig identifies two procedures used to assess interspousal violence after completion of the training program. First, military police reports of domestic disturbances were reviewed on a daily basis to determine if participants had been involved. Second, at 6-month intervals, follow-up phone calls were made independently to husbands and wives concerning additional violent episodes. The author admits the many limitations with these methods. Both methods focus only on those who have remained in the service, and the phone-call methodology suffers from lack of candor associated with self-report data. No data for either method were reported by Neidig. As an alternate approach to assessing program effectiveness, Neidig compared pre- and post-program scores of participants on locus of control and dyadic adjustment scales. Both have been found to have utility in differentiating abusive from non-abusive samples. He found that participation in the program significantly changed scores on these scales in a direction approximating non-abusive norms. The need for adequate long-term follow-up data was discussed.

McNelis and Awalt (1986) report on a cross-service project to prevent and treat family violence in Hawaii. The Services Assisting Family Environment (SAFE) program provided the following services: a family violence shelter; clinical services, outreach, and prevention teams; and Wellness in the Home (WITH) prenatal prevention program for high-risk mothers. With yearly operating costs averaging \$865,000 in the first 3 years of operation, SAFE had monthly utilization rates of 330 bed days in the shelter, 215 active cases in clinical services, and 101 active cases in the WITH program. Based on results not reported in the article, the services institutionalized this demonstration project. Full evaluation to determine the effectiveness of the program in preventing and eliminating family violence, the relative effectiveness of components of the program, and the cost-benefits related to the SAFE project is underway. The authors conclude that the program is successful because it is being increasingly used by the military community and because clients express satisfaction with services received. This is positive preliminary evidence of program success, but not enough to make a final judgment of its effectiveness.

A 1979 GAO (1979b) study of military child advocacy programs identified many problems with administration and management of these programs. Consistent DoD-wide guidance was lacking, maltreatment reporting systems were incomplete and ineffective, and insufficient command attention and funding were provided to these programs.

Objective evaluations of the Navy's spouse and child abuse prevention and treatment programs were not found. To date, efforts in this area have focussed on identifying and reporting abuse more than on treatment programs. Bowen, Woolley, and McGaughey (1983), Bowen (1983), and Bycer, Fluke, Allen, Schene, and Suski (1984) reviewed and reported on the demographics of family violence in the Navy and the status of the Navy's Family Advocacy Program (FAP). Although this work does not represent a full-scale evaluation effort, it does identify strengths and weakness of the program and point to the need for evaluation in this area. In fact, Bowen, Woolley, and McGaughey, reporting on site visits to 13 Navy and Marine Corps FAPs, found there were "no efforts to evaluate the effectiveness of the local FAP" (p. 113), despite DoD guidance calling for evaluation.

Counseling Services

Cairo (1983) reviewed the literature on personal and career counseling in business and industry and summarized information found on the extent and effectiveness of counseling programs. In general, he found a limited amount of information about the extent of these programs, particularly among smaller companies; few detailed reports describing program components and client characteristics; a lack of adequate evaluation efforts; and a predominance of superficial descriptions of unevaluated programs and well-intentioned "how-to" suggestions.

In the personal counseling area, Cairo found that alcohol treatment programs are, by far, the most frequently offered by industry. These programs were discussed previously and will not be discussed here. Cairo identified one study that attempted to determine the extent to which industry offers personal counseling to its employees. The American Society for Personnel Administrators (ASPA) and the Bureau of National Affairs (1978) surveyed a random sample of ASPA members and 65 responded. One-half of those responding indicated they offered in-house counseling of some sort. However, it was often described as informal, sometimes consisting of no more than one-on-one discussions with supervisors prior to referral for outside help. In fact, a large majority of respondents indicated their programs were poor or only fair in dealing with employees' problems.

Only one evaluation study was found. Weiner, Akabas, and Sommer (1973) helped to evaluate a corporate-sponsored mental health care clinic for clothing industry workers in New York City. Over a 3 year period, 718 workers were referred to the clinic and 442 were provided with service. They found no difference in a measure of productivity of these employees when compared to a matched random sample of other industry workers.

Two other examples of employer-sponsored counseling services were described. One at United States Steel provided in-house services and referral for employees. Self-report evaluation data indicate the majority of employees utilizing the services said the presenting problem had improved (80%) and said they had received the type of treatment they wanted (74%). Another at Kennecott Copper provided referral services for employees to available community services. Skidmore,

Balsam, and Jones (1974) reported that of 150 employees receiving counseling through the program for absenteeism problems, attendance improved by an average of 52 percent.

In the area of career counseling, Cairo (1983) found three surveys of career planning practices in industry that revealed these services are fairly common. However, no evaluations of the effectiveness or cost-benefit of these programs were found. There is some peripherally-related literature available on career interventions, career assistance, and occupational information with population outside of business (e.g., with graduating students).

In the area of pre-retirement counseling, Cairo (1983) found that efforts in this area are fairly common in larger firms. However pre-retirement programs vary widely, from one-session information meetings with a benefits administrator to intensive group counseling programs. Efforts to evaluate pre-retirement counseling programs typically use self-report outcome measures such as attitude toward retirement, knowledge of retirement issues, acquisition of relevant retirement information, and pre-retirement activities, and rarely use any control or comparison group. Cairo concludes that the information available is insufficient to determine the effectiveness of these programs.

Miller (1981) reviewed Polaroid's Employees' Counseling Service begun in 1958. The service treats workers with problems related to work (e.g., conflict with supervisor, anxiety about job performance), problems related to self (e.g., depression, emotional disturbances, alcoholism), and problems related to others (e.g., marital problems, parent-child problems, premarital concerns). Polaroid believes that employees who are "anxious, upset, or lack self confidence are seriously blocked in their ability to perform" (p. 50). Several other references to the impact of personal problems on job performance are made by Miller, but no empirical evidence is provided to support this claim. Nor does he provide evidence that participating in treatment results in improvements in job performance. Rather, in reference to measuring productivity improvements, he says "It is difficult to measure, but a conservative estimate of the productivity gain of those who have been counseled is 10 percent" (p. 55). Projecting this estimate to the entire population seen by the counseling department, Miller states that every \$1.00 spent for counseling yields a \$5.00 payback. This subjective cost-benefit analysis is not enough to allow confident decisions to be made about such programs.

Esteban (1985) discusses the growing need for retirement planning programs and the components of an effective program. He states that retirement planning programs can "provide a demonstration of corporate concern for older workers, provide visible proof of its social conscience, maintain an open environment in the workplace, and boost morale and enhance productivity" (p. 22). No empirical data are provided to support this claim.

The staff of Catalyst report (1986) that in 1981 just 4 percent of companies responding to one survey indicated they provided spouse employment assistance. In another survey conducted in 1985, 28 percent indicated they offer such services. With the increasing number of two-career couples, these services are becoming more important. Catalyst reports that the potential benefits of spouse employment assistance programs include increasing relocation success, decreasing reluctance to move, offering an incentive to recruits, reducing the stress and expense of relocation, and indicating corporate concern for employees' personal and family needs. No empirical evidence was provided to indicate such outcomes have ever been investigated.

Commissaries/Exchanges

Resource Consultants, Inc. (1980) in comparing the combined Army/Air Force exchange program to that of the Navy, found that the Navy spends slightly more per capita on its exchanges than do the other services. However, per capita sales are fairly comparable between the Navy and Army/Air Force systems.

Religious Support

Hawkins (1980) conducted a preliminary evaluation of a counter-attrition program implemented within the religious support functional area. Chaplains Religious Enrichment and Development Operation (CREDO) is a spiritually-based program first established in 1971 to assist marginal performers, naval personnel with various problems, and disciplinary offenders. Hawkins mentions an unreferenced survey evaluation of CREDO that indicated respondents believed CREDO reduced the likelihood of premature attrition from the Navy. No additional description was provided of the study methodology or results.

The purpose of Hawkins' effort was to evaluate an experimental implementation of CREDO at Recruit Training Center (RTC), Great Lakes. This program, known as RTC CREDO, was implemented in May 1979 and continued throughout March 1980. His evaluation focussed on the impact of RTC CREDO on first-term enlisted attrition. Because the evaluation was done when participants had been in the service for a brief period of time (1 to 9 months), it represents only a tentative evaluation of the program's effectiveness. Subjects were male recruits from the Apprentice Training Division (General Detail personnel). Some were selected to participate in RTC CREDO based on review of their performance and discipline records; others were randomly selected. Comparison group personnel were retrospectively matched to recruits assigned to RTC CREDO based on record review or were those not randomly selected for participation. In essence, Hawkins used two experimental groups and two control groups. He cites some problems in the comparability of these groups, however. Using regression analyses, he found that being assigned to either experimental group was the best predictor of non-attrition. Based on this preliminary evaluation, it would appear that CREDO programs may hold promise and should be evaluated more rigorously.

Multi-program Evaluation

A pamphlet recently published by the Department of the Army (1989) describes its overall Quality of Life program and provides minimum standards to be used in evaluating quality of life for the Army community. Standards on nine dimensions are provided against which the performance of various programs may be evaluated. These dimensions are related to the manner in which services are provided. They specify such factors as accessibility, availability, timeliness, space requirements, facilities, and the population which is eligible to receive each of the services. The specification of implementation standards should be an integral part of an overall evaluation because goal attainment, attitudinal enhancements, and final outcomes may all be affected by the implementation process.

CONCLUSIONS

Based on the review of the literature presented above, several conclusions can be drawn. Except in certain areas, there is a pervasive lack of research designed to evaluate quality of life programs. At this time, we do not know the effectiveness of many of these programs in meeting their goals, their effects on other factors such as retention, performance, and readiness, nor their cost-effectiveness. Many of the evaluation efforts found suffer from a lack of control and the sole reliance on subjective data. Subjective evaluation is very important in the quality of life field, but should not be used at the exclusion of objective measures when they are available or can be readily developed or obtained. Finally, because evaluations become dated very quickly as programs, policies, and the environment change, the validity of previous evaluation results for current quality of life programs is unknown.

In three areas, research was found that, to an extent, contradicts the above conclusions. Some, but certainly not all, of the studies evaluating alcohol and drug control efforts, health promotion programs, and employer-sponsored child care programs are more rigorous and objective than those in other areas. The effective evaluations use comparison or control groups and/or pre-post comparisons to evaluate effects of these programs. Further, there are more reports of measured outcomes linked to these programs and many of these evaluations assess the effects of such programs on more than one outcome, including client satisfaction. In this area, there were a number of studies that conducted cost-effectiveness analyses. The methodologies used in some of the better evaluations in these areas can be used as the basis for developing more effective evaluations in other areas as well.

In some quality of life arenas, there are major problems evaluating program outcomes because outcome areas are not clearly defined and because process measures are not collected. In some areas, service member satisfaction with services provided or overall satisfaction with quality of life may be the only feasible measure available. In most cases, client satisfaction should certainly be one outcome that is measured. The problems of separating out the effects of one program (e.g., military pay) on a given outcome measure (e.g., retention) from the effects that all other concomitant factors in the environment have on the same outcome measure (e.g., labor market situation, other forms of compensation, training and education received, etc.) is difficult in real-world research. Particularly within the compensation area, researchers have resorted to the use of modeling techniques to assess such effects.

The studies reviewed here do not provide a definitive view of the quality of life programs. Rather, they can suggest evaluation methodologies, outcome measures, and cost-effectiveness approaches to be used in future evaluations. An effective approach to subsequent evaluations will include service member attitude and satisfaction assessment, as a minimum; objective effectiveness data, whenever obtainable; and cost-effectiveness analysis, when feasible.

RECOMMENDATION

It is recommended that efforts to evaluate Navy programs should include attitude and satisfaction assessment and objective effectiveness data as a minimum, with cost-effectiveness analysis when feasible.

REFERENCES

- Academy of Health Sciences (1980). *In-barracks medical screening program at the Recruit Training Command, Naval Training Center, Orlando, Florida*. Fort Sam Houston, TX: Author.
- Administrative Management Society (1976). *Committee of 500 survey*. Willow Grove, PA: Author.
- Air Command and Staff College (1986). *Comparison of military and federal civilian employee Permanent Change of Station (PCS) reimbursements*. Maxwell Air Force Base, AL: Author.
- Allander, R., & Campbell, T. (1975). An evaluative study of an alcohol and drug recovery program: A case study of the Oldsmobile experience. *Human Resources Management*, 14, 14-18.
- American Society for Personnel Administrators and the Bureau of National Affairs (1978). Counseling policies and programs for employees with problems. *Bulletin to Management*, 1-10.
- Barnes, G. M. (1984). Evaluation of alcohol education--A reassessment using socialization theory. *Journal of Drug Education*, 14.
- Barrett, B. (1978). Child abuse treatment. In M. L. Lauderdale, R. N. Anderson, & S. E. Cramer (Eds.). *Child abuse and neglect: Issues on innovation and implementation (Vol. II.)*. Washington, DC: Government Printing Office.
- Battle, S. F. (1988). Issues to consider in planning employee assistance program evaluations. *Employee Assistance Quarterly*, 3, 79-93.
- Bishop, S., Peters, M., & Wooley, S. (1982). *Impact evaluation of the Navy's Family Service Centers (N00600-79-D-0845 EG-2L)*. Arlington, VA: Booz, Allen & Hamilton, Inc.
- Bly, J. L., Jones, R. L., & Richardson, J. E. (1986). Impact of worksite health promotion on health care costs and utilization: Evaluation of Johnson and Johnson's Live for Life program. *Journal of the American Medical Association*, 256, 3235-3240.
- Booz, Allen, & Hamilton (February 1981). *A comparative analysis of drug abuse control efforts in the Navy and Air Force (Contract N00600-79-D-0845)*. Arlington, VA: Author.
- Borthwick, R. B. (July 1977). *Summary of cost-benefit study results for Navy alcohol rehabilitation programs (TR 346)*. Arlington, VA: Presearch.
- Bowen, G. L. (October 1983). *Department of the Navy Family Advocacy Program: Service need and service response--Phase III report: Conclusions (Contract N000014-82-C-0834 Kept. ONR-3)*. Arlington, VA: SRA Technologies Inc.
- Bowen, G. L., & Scheirer, M. A. (1986). The development and evaluation of human service programs in the military: An introduction and overview. *Evaluation and Program Planning*, 9, 193-198.

- Bowen, G. L., Woolley, S. F., & McGaughey, T. A. (August 1983). *Department of the Navy Family Advocacy Program: Service need and service response--Phase II report: Assessment* (Contract N000014-82-C-0834 Rept. ONR-2). Arlington, VA: SRA Technologies Inc.
- Brenner, B. (1967). Alcoholism and fatal accidents. *Quarterly Journal of Studies on Alcohol*, 28, 517-528.
- Bruce, R. A., & Burch, R. L. (1989). Officer career development: Modeling married aviator retention (NPRDC-TR-89-11). San Diego: Navy Personnel Research and Development Center.
- Burud, S. L., Aschbacher, P. R., & McCroskey, J. (1984). *Employer-sponsored child care*. Boston: Auburn House.
- Bycer, A. M., Fluke, J. D., Allen, T. C., Schene, P., & Suski, L. B. (June 1984). *Navy Family Advocacy Program: The demographics of family violence in the Navy and Marine Corps* (TR-1-ONR-1). Denver, CO: The American Humane Association.
- Cairo, P. C. (1983). Counseling in industry: A selected review of the literature. *Personnel Psychology*, 36, 1-18.
- Calvin, E. S. (1987). *A study of Marine Corps family programs* (CNR 139). Alexandria, VA: Center for Naval Analyses.
- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally College Publishing.
- Catalyst. (1986). Moving the two-career couple. *Management Review*, 75, 54-56.
- Chipman, M. D., & Mumm, H. (November 1978). *Forecasting naval enlisted retention behavior under alternative retirement systems* (NPRDC-TR-79-4). San Diego: Navy Personnel Research and Development Center.
- Chipman, M. D., & Silverman, J. (April 1978). *Studying alternative retirement policies: A methodology with test results* (NPRDC-TN-78-8). San Diego: Navy Personnel Research and Development Center.
- Cox, M., Shepard, R., & Corey, P. (1981). Influence of an employee fitness programme upon fitness, productivity, and absenteeism. *Ergonomics*, 24, 795-806.
- Debats, K. E. (1982). The current state of corporate relocation. *Personnel Journal*, 61, 664-679.
- Department of the Army (1989). *Quality of life program evaluation/minimum standards*. Washington, DC: Author.
- Department of Labor (1988). *Child care: A workforce issue*. Washington, DC: Author.
- Esteban, J. (1985). Mutual benefits of corporate retirement planning programs. *Advanced Management Journal*, 50, 19-22.

- Falkenberg, L. E. (1987). Employee fitness programs: Their impact on the employee and the organization. *Academy of Management Review*, 12, 511-522.
- Follman, J. F. (1978). *Helping the troubled employee*. New York: AMACOM.
- General Accounting Office (1977). *Greater emphasis on occupant responsibilities can reduce military housing costs* (PLRD-83-77). Washington, DC: Author.
- General Accounting Office (1978). *HUD's evaluation system: An assessment* (PAO-78-44). Washington, DC: Author.
- General Accounting Office (1979a). *Changes needed in operating military clubs and alcohol package stores*. Washington, DC: Author.
- General Accounting Office (1979b). *Military child advocacy programs: Victims of neglect*. Washington, DC: Author.
- General Accounting Office (1982). *Military child care programs: Progress made, more needed* (FPCD-82-30). Washington, DC: Author.
- General Accounting Office (1986a). *Military compensation: Comparisons with civilian compensation and related issues* (NSIAD-86-131BR). Washington, DC: Author.
- General Accounting Office (1986b). *Military compensation: Selected occupational comparisons with civilian compensation* (NSIAD-86-118). Washington, DC: Author.
- General Accounting Office (1988). *Availability for civilian dependents at selected DoD installations* (HRD-88-115). Washington, DC: Author.
- Gibbs, J. O., Mulvaney, D., Henes, C., & Reed, R. W. (1985). Work-site health promotion: Five-year trend in employee health care costs. *Journal of Occupational Medicine*, 27, 826-830.
- Githens, W. H., & Wilcove, G. L. (December 1977). *Relationship between Navy off-duty educational programs and recruiting, performance, and retention* (NPRDC-TR-78-8). San Diego: Navy Personnel Research and Development Center.
- Gotz, G. A., & McCall, J. J. (1977). *The retirement decision: A numerical analysis of a dynamic retirement model* (WN-9628-8F). Santa Monica, CA: The Rand Corporation.
- Grant, D. L. (1978). Editor's notes. In D. L. Grant (Ed.). *Monitoring ongoing programs*. San Francisco: Jossey-Bass.
- Haber, S. E., & Stewart, C. T. (1975). *The responsiveness of reenlistment to changes in Navy compensation* (Contract N00014-67-A-0214 TR 1254). Washington, DC: The George Washington University.
- Hagedorn, H. J., Beck, D. J., Neubert, S. F., & Werlin, S. H. (1976). *A working manual of simple program evaluation techniques for community mental health centers* (DHEW ADM 79-404). Cambridge, MA: Arthur D. Little.

- Hall, J. A., & Dornan, M. C. (1988). What patients like about their medical care and how often they are asked: A meta-analysis of the satisfaction literature. *Social Science and Medicine*, 9, 935-939.
- Hansen, G. L., & Handforth, D. W. (1980). *Adequate compensation for a permanent change of station move: A study comparing the policies of the military, civil service, and private sector*. Monterey, CA: Naval Postgraduate School.
- Hawkins, S. G. (1980). *RTC CREDO: Initial assessment*. Monterey, CA: Naval Postgraduate School.
- Health Research Institute (1984). *1983 Cost containment survey*. Walnut Creek, CA: Author.
- Hollander, R. B., & Lengermann, J. J. (1988). Corporate characteristics and worksite health promotion programs: Survey findings from Fortune 500 companies. *Social Science and Medicine*, 26, 491-501.
- Hosek, J. R., & Peterson, C. E. (March 1985). *Reenlistment bonuses and retention behavior* (R-3199-MIL). Santa Monica, CA: Rand Corporation.
- Hoyt, J. L. (June 1974). *Navy-wide drug education impact study* (TM-5347/000/00). Santa Monica, CA: Systems Development Corporation.
- Institute for Research Studies, Inc. (1979). *Effect of industrial compensation on Navy Enlisted Retention--Model Development*. Athens, OH: Author.
- Jerrell, J. M., & Rightmyer, J. F. (1982). Evaluating employee assistance programs: A review of methods, outcomes, and future directions. *Evaluation and Program Planning*, 5, 255-267.
- Johnson, C. L. (1978). A comparative evaluation of two community protective services systems: Mechanisms for and effectiveness of intervention. In M. L. Lauderdale, R. N. Anderson, & S. E. Cramer (Eds.). *Child abuse and neglect: Issues on innovation and implementation (Vol II.)*. Washington, DC: Government Printing Office.
- Kaplan, R. M., & Bush, J. W. (1982). Health-related quality of life measurement for evaluation research and policy analysis. *Health Psychology*, 1, 61-80.
- Keeny, R., & Raiffa, H. (1976). *Decisions with multiple objectives: Preferences and value trade-off*. New York: Wiley.
- Kerce, E. W. (1987a). *A manual for program evaluation at Navy Family Service Centers* (NPRDC-TN-87-19). San Diego: Navy Personnel Research and Development Center.
- Kerce, E. W. (1987b). *Family Service Center program evaluation: Exploring approach options and data sources* (unpublished report). San Diego: Navy Personnel Research and Development Center.

- Kerce, E. W. (1988). *Taylor-Leaver FSC (Family Service Center): A prototype for program evaluation of Navy Family Service Centers* (NPRDC-TN-88-48). San Diego: Navy Personnel Research and Development Center.
- Kim, S., Hoffman, I. R., Pike, M. A., & Gibson, J. (1984). An outcome evaluation instrument for alcohol education, prevention, and intervention programs. *Journal of Drug Education*, 14, 331-432.
- Kiresuk, T. J., & Lund, S. H. (1975). Process and outcome measurement using goal attainment scaling. In J. Zusman & C. R. Wurster (Eds.). *Program evaluation: Alcohol, drug abuse, and mental health services*. Lexington, MA: D. C. Heath and Company.
- Kolb, D., & Gunderson, E. K. E. (October 1975). *Alcoholism in the U.S. Navy* (NHRC Report No. 75-79). San Diego: Naval Health Research Center.
- Kolb, D., Gunderson, E. K. E., & Cohen, P. (July 1978). *Population differences and correlates of post-treatment effectiveness in alcohol rehabilitation facilities* (NHRC Report No. 78-48). San Diego: Naval Health Research Center.
- Kostiuk, P. F. (1985). *Pay and retention of Marine Corps aviators*. Alexandria, VA: Center for Naval Analyses.
- Kozlowski, J. G., & Oleksy, W. (1987). *Complete guide to cost-effective employee benefit programs*. Englewood Cliffs, NJ: Prentice-Hall.
- Kronenfeld, J. J., Jackson, K. L., Davis, K. E., & Blair, S. N. (1988). Changing health practices: The experience from a worksite health promotion project. *Social Science and Medicine*, 26, 515-523.
- Lalchandani, A., Morey, R. C., deAndrade, A. B., Humphreys, T. H., & Snyder, D. P. (1975). *Costs and retention impacts of the Navy's CONUS recreation program*. Palo Alto, CA: Control Analysis Corporation.
- Leveson, I. (1973). Cost-benefit analysis and program target populations: The narcotic addiction treatment case. *The American Journal of Economics and Sociology*, 32, 129-142.
- Levin, H. M. (1987). Cost benefit and cost-effectiveness analyses. In D. S. Cordray, H. S. Bloom, & R. J. Light (Eds.). *Evaluation practice in review: New directions for program evaluation* (No. 34). San Francisco: Jossey-Bass.
- Lillard, L. A., Manning, W. G., Peterson, C. E., Lurie, N., & Goldberg, G. A. (1986). *Preventive medical care: Standards, usage, and efficacy*. Santa Monica, CA: Rand Corporation.
- Lorenson, D. (1977). *Evaluations of social service programs: An annotated and unannotated bibliography* (PB-285 525). Norman, OK: Oklahoma University, Bureau of Government Research.

- Manello, T., & Seaman, F. (1979). *Prevalence, costs, and handling drinking problems on seven railroads*. University Research Corporation, Report to U.S. Department of Transportation.
- McNelis, P. J., & Awalt, S. J. (1986). Project SAFE: An Armed Services cooperative initiative for the prevention and treatment of family violence. *Evaluation and Program Planning*, 9, 223-241.
- Milbrandt, G. F. (1983). Can relocation costs be managed? *Personnel Journal*, 62, 657-659.
- Milkovich, G. T., & Gomez, L. R. (1976). Day care and selected employee work behaviors. *Academy of Management Journal*, 19, 111-115.
- Miller, A. B. (1988). New perspectives on chemical dependence treatment evaluation: A case study. *Employee Assistance Quarterly*, 4, 45-60.
- Miller, L. (1981). Giving a helping hand with personal services. *Advanced Management Journal*, 46, 49-55.
- Miller, T. I. (1984). The effects of employer-sponsored child care on employee absenteeism, turnover, productivity, recruitment, or job satisfaction: What is claimed and what is known. *Personnel Psychology*, 37, 277-289.
- Milwaukee Personnel Department Training Unit (1977). Tuition reimbursement in employee productivity and OD: A survey. *Public Personnel Management*, 6, 166-172.
- Mirvis, P. H., & Lawler, E. E. (1977). Measuring the financial impact of employee attitudes. *Journal of Applied Psychology*, 62, 1-5.
- Mitchel, M. E., Hu, T., McDonnell, N. S., & Swisher, J. D. (1984). Cost-effectiveness analysis of an educational drug abuse prevention program. *Journal of Drug Education*, 14, 271-293.
- Mohr, D. A., Holzbach, R. L., & Morrison, R. (1981). *Surface warfare officer retention: Spouses' influence on career decisions* (NPRDC-TR-81-17). San Diego: Navy Personnel Research and Development Center.
- Mohr, D. A., Shumate, E. C., & Magnusson, P. A. (1983). *Individual performance measurement and reporting in a Navy industrial organization* (NPRDC-TR-83-35). San Diego: Navy Personnel Research and Development Center.
- Moore, P. (1989). Health care cost containment in large American cities. *Public Personnel Management*, 18, 87-100.
- Moskowitz, J. M., Malvin, J. H., Schaeffer, G. A., & Schaps, E. (1984). An experimental evaluation of a drug education course. *Journal of Drug Education*, 14, 9-22.
- Naval Aviator Active Duty Service Obligation Study Group (1988). *Determining the relationship of obligated service, continuation pay, incentive pay, and training rates*. Washington, DC: Author.

- Neidig, P. H., (1986). The development and evaluation of a spouse abuse treatment program in a military setting. *Evaluation and Program Planning*, 9, 275-280.
- Nesenholtz, D. (1976). Military day care--A nationwide Survey. *Young Children*, 32, 137-143.
- Pell, S., & D'Alonzo, C. (1970). Sickness absenteeism of alcoholics. *Journal of Occupational Medicine*, 12, 198-210.
- Porter, L. W., & Steers, R. M. (1973). Organization, work, and personal factors in employee turnover and absenteeism. *Psychological Bulletin*, 80, 151-176.
- Prigmore, M. E., & Crank, H. L. (June 1977). *Performance indices for military hospitals*. Monterey, CA: Naval Postgraduate School.
- Resource Consultants, Inc. (June 1980). *Quality of life parity analysis for POM-82* (Contract N00014-79-C-0633). McLean, VA: Author.
- Retka, R. L. (1977). *Cost accountability in drug abuse prevention* (DHEW 77-444). Washington, DC: Alcohol, Drug Abuse, and Mental Health Administration, U. S. Department of Health, Education, and Welfare.
- Roman, P. M., & Blum, T. C. (1988). Formal intervention in employee health: Comparisons of the nature and structure of employee assistance programs and health promotion programs. *Social Science and Medicine*, 5, 503-514.
- Shannon, C. & St. John, D. (1978). Volunteers as parental socialization agents: Applications within the military culture. In M. L. Lauderdale, R. N. Anderson, & S. E. Cramer (Eds.). *Child abuse and neglect: Issues on innovation and implementation (Vol II.)*. Washington, DC: Government Printing Office.
- Shepard, R. J., Cox, M., & Corey, P. (1981). Fitness program participation: Its effects on workers' performance. *Journal of Occupational Medicine*, 23, 359-363.
- Skidmore, R. A., Balsam, D., & Jones, O. F. (1974). Social work practices in industry. *Social Work*, 3, 280-286.
- Smith, K. J., Haight, G. T., & Everly, G. S. (1988). Financial effectiveness of a corporate weight loss program. *Journal of Business and Psychology*, 2, 373-377.
- Smith, W. G. (1975). Evaluation of the clinical services of a regional mental health center. *Community Mental Health Journal*, 11, 47-57.
- Spilman, M. A. (1988). Gender differences in worksite health promotion activities. *Social Science and Medicine*, 26, 525-535.
- Sterling, B., & Allen, J. (1983). *Relationships among organizational attitudes, work environment, satisfaction with human resource programs and benefits, and Army career intentions* (ARI TR572). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

- Systems Development Corporation (September 1975). *Task XI of a study to evaluate Department of Defense alcohol abuse control programs: Comprehensive report* (TM-5386/002/01). Santa Monica, CA: Author.
- Szoc, R. (1982). *Family factors critical to the retention of Naval personnel* (N00123-80-C-1444). Columbia, MD: Westinghouse Public Applied Systems.
- Trice, H., & Roman, P. (1972). *Spirits and demons at work*. Ithaca, NY: Cornell University Press.
- Warner, J. T. (September 1979). *Alternative military retirement systems: Their effects on enlisted retention* (CRC 376). Alexandria, VA: Center for Naval Analyses.
- Watson, C. E., & Grzybowski, A. L. (1975). What your company should know about tuition aid programs. *Business Horizons*.
- Weber, J. A. (1987). *The Navy's aviation retention bonus: Retention tool or waste of money?* (AU-AWC-87-225). Maxwell Air Force Base, AL: Air War College, Air University.
- Weiner, H. J., Akabas, S. H., & Sommer, J. J. (1973). *Mental health care in the world of work*. New York: Associated Press.
- Weisbrod, B. A., & Helming, M. (1980). What benefit-cost analysis can and cannot do: The case of treating the mentally ill. In E. W. Stromsdorfer & G. Farkas (Eds.). *Evaluation studies: Review annual, 5*. Beverly Hills, CA: Sage Publications.
- Werch, C. E., & Damron, C. F. (1985). An evaluation of a controlled drinking program for drinking drivers. *Journal of Drug Education, 15*, 205-215.
- Wheeler, R. J. (1988). Effects of a community-wide smoking cessation program. *Social Science and Medicine, 27*, 1387-1392.
- Windle, C., & Sharfstein, S. S. (1978). Three approaches to monitoring mental health services. In D. L. Grant (Ed.). *Monitoring ongoing programs*. San Francisco: Jossey-Bass.
- Yamatani, H. (1988). EAP benefit and cost structure analysis: A suggested estimation model. *Employee Assistance Quarterly, 3*, 129-150.
- Zimmerman, R. S., Gerace, T. A., Smith, J. C., & Benezra, J. (1988). The effects of a worksite health promotion program on the wives of fire fighters. *Social Science and Medicine, 26*, 537-543.

DISTRIBUTION LIST

Distribution:

Director, Human Resources Management Department (NMPC-6)
Defense Technical Information Center (DTIC) (2)

Copy to:

Assistant for Planning and Technical Development (OP-01B2)
Superintendent, Naval Postgraduate School
Technical Director, U.S. ARI, Behavioral and social Sciences (PERI-ZT)
Air Force Manpower and Personnel Division (AFHRL/MO)