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ABSTRACT

The Life Enhancement Afloat-Ashore Program (LEAAP) was a comprehensive worksite health program implemented on five U.S. Navy commands. It addressed substance abuse, fitness, life enhancement skills and behaviors, and recreation awareness and opportunity. The program included videotape education sessions at the worksite; command-sponsored health, fitness, and leisure events; health-related print media; and personal feedback from health risk appraisals. Former separate efforts in these areas were integrated at the command level, with leadership and support coming from the commanding officer. The program's effectiveness was evaluated using one experimental surface command and one comparison command not participating in LEAAP. The major impact of LEAAP was the significant reduction of alcohol use--LEAAP command moderate and light drinkers reduced their alcohol consumption. Reports from command leadership and the Regional Fleet Recreation Coordinator indicate that actual implementation of LEAAP accomplished only about 60 percent of the projected program. For example, only 21 of a possible 59 videos were shown, and media materials, contests, and leisure events were not well publicized due to lack of funding and leadership. Support for LEAAP often did not filter down through the ranks. Two appendices, which comprise more than half the paper, present data tables and are excerpted from volumes 1 and 2 of the final report. (JDD)

EXECUTIVE SUMMARY

Evaluation of a Work-Site Health-Promotion Program Emphasizing Leisure Awareness Within a Navy Command

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EVALUATION OF THE LIFE ENHANCEMENT AFLOAT/ASHORE PROGRAM (LEAAP)

EXECUTIVE SUMMARY

The problem

In the past 20 years epidemiological studies have demonstrated that diet, exercise, alcohol and drug consumption, and patterns of eating, sleeping, risk taking and managing stress predispose people to illness, chronic disease, and premature death. Navy personnel exceed national norms in the frequency of health-risk behaviors. Although illicit drug use has declined, alcohol and tobacco use continue to be traditional stress relievers, often associated with leisure time. The average young adult Navy man is in the population cohort most likely to practice the health-risk behaviors of excessive drinking, tobacco use, drug experimentation, drunk driving, risk taking, high levels of sexual activity, irregular sleep patterns and other poor health habits[1].

Community-wide health promotions and worksite health programs, that have addressed these behaviors with a comprehensive approach that involves support and participation of indigenous workplace leaders, supervisors and peers have been most effective in reducing risk behaviors and encouraging improved health habits.[2] Recognizing the need for an integrated, comprehensive approach to better the health of their personnel, the Navy has combined the former Departments of Health and Physical Readiness; Family Services; Morale, Welfare, and Recreation; and Substance Abuse into one command: Pride, Professional and Personnel Excellence. However these programs are not integrated or packaged for coordinated application within the workplace, resulting in varying degrees of implementation, fragmented program application, and dilution of their effectiveness.

LEAAP project objectives

Within this context, the LEAAP project implemented a comprehensive worksite health program on 5 Navy commands. LEAAP addressed substance abuse, fitness, life enhancement skills and behaviors, and recreation awareness and opportunity. The program included videotape education sessions at the worksite, command-sponsored health, fitness and leisure events, health-related print media, and personal feedback from health-risk appraisals. The former separate efforts, directed toward substance abuse, fitness and MWR, were here integrated at the command level, with leadership and support stemming from the commanding officer.

The leisure component

Although many health-risk behaviors are performed during leisure time, traditional health promotion/prevention programs have given litte attention to positive recreation alternatives. The value of satisfying leisure activity as an alternative to alcohol and drug use in reducing stress, promoting self esteem, and enhancing the

quality of life is advocated by leisure professionals[3]. LEAAP provides an opportunity to test this theory.

Procedures

The effectiveness of this coordinated approach with a unique leisure component, in reducing substance abuse and disciplinary actions, in increasing life enhancement skills and recreation opportunity and awareness and in improving retention, was tested in a quasi-experimental program evaluation design using two surface commands. An "experimental" command received LEAAP, while a "comparison" command received the existing MWR, fitness, and substance abuse programs.

Program outcomes were measured by: (1) self-report questionnaires administered to personnel in both commands, and compared before and after a 7-month implementation of lEAAP on the experimental ship; and (2) data from command records that measured actual behaviors of personnel on both ships during a 6-month "baseline" period prior to LEAAP implementation compared with the same data collected during the 7-month implementation. This measurement of behavioral activity can validate self-reported behaviors.

The questionnaires included 6 lifestyle, attitude and opinion surveys currently being used by the Naval Health Research Center; the Witt & Ellis Leisure Diagnostic Battery; sections of the Navy Smart Compass recreation survey; and measures from the health risk appraisals. Behavioral outcome data on each command was measured and compared for the baseline period and the implementation period by composite scores on Navy Physical Readiness Tests (PRTs), monthly medical reports, non-judicial punishment records, recreation rebate records and reenlistment records.

During the implementation period the average population of the experimental command was 553, the comparison command, 563. Baseline questionnaires were completed by 440 experimental and 328 comparison men; post-implementation questionnaires by 258 and 266 men respectively. A self-matched sample of 122 experimental and 107 comparison men completed both baseline and post-implementation surveys, allowing for a more accurate measure of comparative improvement (Analysis of Covariance). Health risk appraisals were completed by 427 experimental and 448 comparison men at baseline; and 485 and 311 men, respectively, after the LEAAP implementation. The self-matched samples completing the HRA before and after implementation were 182 experimental and 111 comparison ship men. PRT scores were available for 512 experimental and 542 comparison ship men at baseline; and 506 and 372 men, respectively, after the intervention. Scores from the matched sample taking PRTs before and after were available on 200 experimental and 172 comparison men. No women served in the studied commands.

Statistical analyses of demographic data indicated that the comparison command was a good control. The commands were exactly the same type of combat support ship, and comparison command men did not differ significantly from experimental command men in

age, education, ethnicity, years of service, or time in the present command.

Measurements of specific objectives

Alcohol, tobacco and drug use were measured by: 1. referrals to NADSAP, CAAC, & ARC, 2. command records of substance abuse non-judicial punishments, 3. sick call diagnoses of alcoholism & drug abuse, 4. individual scores on alcohol, caffeine, & tobacco items on Naval Health substance abuse surveys, and 5. substance abuse items on the health risk appraisals.

Health enhancement skills were measured on 5 Naval Health surveys: health attitudes and behaviors, values regarding health and fitness, participation in health promotion activities, command support of health and fitness, and perception of life quality.

Fitness was measured by: composite scores on PRTs, monthly medical reports, and group analysis of command averages on health risk appraisals.

Leisure awareness and opportunity was measured by: 1. Scales from the Leisure Diagnostic Battery, which tested leisure competence, involvement and perceived barriers to leisure activities, 2. the Smart Compass recreation participation survey, and 3. Participation levels in the command recreation ticket rebate program.

Disciplinary activities were measured by monthly non-judicial punishment reports and reenlistment rates were measured by monthly personnel retention reports.

Group frequencies were compared by chi-square analyses; individual scores were compared with t tests; and matched individual scores were compared with Analyses of Covariance (see Table 51 and Figure 3 in Executive Appendix A)

Findings

The major impact of LEAAP was the significant reduction of alcohol use by the command receiving LEAAP when compared with a similar command that did not receive the program. LEAAP command moderate and light drinkers reduced their alcohol consumption. This command also had a significantly higher percentage of non-drinkers after the intervention, and experienced significantly fewer alcohol and drug referrals and disciplinary actions related to substance abuse, when compared to the "comparison command." Use of other licit and illicit mood-altering drugs was low at the outset and remained unchanged. Analyses of descriptive data from both ships revealed patterns that are pertinent to designing Navy prevention, deterrence, and intervention programs. Heavy drinkers on these surface commands (5 or more drinks per drinking day) were fewer than those reported in the 1988 Navy longitudinal study.[4] On the other hand 30 to 35% of this sample reported little or no drinking, a contrast with Pentagon studies reporting 13% of military men as non-drinkers. (See Tables 10-14 and

Figure 1 in Executive Appendix B.)

Although tobacco and caffeine use were less affected by the program, LEAAP personnel reported increased concern about the negative effects of tobacco, and reported an increase in television as a source of tobacco-risk information, indicating that the LEAAP worksite videos on health risks of tobacco use increased their awareness. The sample had a large group of nonsmokers (56%), a smaller group of heavy smokers (11%) and many who were quitting or starting. More than 33% used smokeless tobacco and 38% of daily users used it 5-plus times per day. A suprising finding was that subjects in both commands reported an average of 9 persons smoking around them in their work environment!

Subjects in the LEAAP command also had a more positive view of command support for health promotion than did comparison subjects, reporting the use of more awards and incentives for fitness and other health promotion activities. They saw command leadership as having a more positive attitude toward the Health and Physical Readiness program, setting a good example, and being concerned about the fitness of their men. They were also more satisfied with their quality of life and experienced less social conflict. Reenlistment rates on the experimental ship increased, although the increase was not statistically significant.

LEAAP men improved their average raw and age-adjusted scores on the Physical Readiness Tests, though not significantly more than comparison subjects (see Figure 2 in Appendix B). Sick call data found LEAAP subjects with significantly fewer non-occupational injuries, office visits, and much less sexually transmitted disease than comparison counterparts. On the other hand, occupational injuries and bed days increased, the latter increased by a flu epidemic during the research period.

No differences were found between commands on self-reported measures of health attitudes, behaviors and values on the Navy lifestyle surveys or the health risk appraisals.

Personnel on both ships saw themselves as highly competent and involved in leisure activities, but perceived that lack of time and money were significant barriers to recreation activities. No significant changes occurred after the program. Recreation participation, measured by the ticket rebate program and the Smart Compass survey, yielded no signficant improvement on the LEAAP ship, compared to the comparison ship.[5]

Conclusions and Recommendations

The LEAAP project clearly impacted alcohol use, especially in deterring moderate and light drinkers from becoming heavy drinkers. This suggests that LEAAP-type program might focus on this population, preventing them from becoming alcohol abusers, rather than on the smaller group of hard-core abusers, who are served by current identification and treatment programs. The significant decrease in alcohol and drug referrals and related disciplinary

actions could indicate that many of this larger population of social drinkers were deterred from the kind of heavy drinking that could get them in trouble. The reported low level of other drug use confirms other studies that indicate a similar reduction correlated with the introduction of random drug testing[6].

The results on tobacco use also indicate that efforts should be directed toward deterring non-smokers and users of smokeless from beginning the habit. Videotapes and visuals should be examined for their relevance to the not-yet user. A future LEAAP program should also emphasize reduction of passive smoke through education and enforcement of existing regulations.

Responses to Navy lifestyle surveys, though not significant in this study, appear to be similar to those conducted by the Office of Naval Health Research. Correlation of this experimental data with that of comparable Navy prospective studies would enrich our understanding of the health-risk behaviors of Navy personnel[7].

LEAAP also stimulated health promotion awareness and leadership within the command, than within the non-LEAAP command, but little interest was expressed in health-related actvities. LEAAP incorporated participation oriented within-command activities but competition oriented traditions presented barriers to this approach. Although the LEAAP men were "mostly satisfied" with their quality of life, they were not satisfied enough to significantly increase their reeinlistments. A subsequent LEAAP program may need to train personnel in health promotion philosophy, and reexamine existing programs to increase their appeal.

Expected increases in leisure attitudes and behaviors did not occur, indicating that the leisure measures need to be further explored. Levels of leisure competence, involvement, and barriers may not have measured the leisure factors that relate to health behaviors. Perception of control of leisure experience and human needs met by leisure, and other possible measures, might be employed in a further study. It is recommended that the extensive data on health risk and leisure behaviors generated by this study be correlated in further analyses to determine the strength of the leisure/health relationship. Smart Compass did not specifically measure LEAAP activities; a better measure should be constructed to measure, more accurately, the LEAAP objectives and outcomes. Although this study adjusted for time in port, type of port and seasonal changes also influence leisure behaviors. A longer term study is needed to adjust for these influences.

The recreation components of LEAAP were not fully implemented due to changes in personnel and lack of understanding of the motivational/participatory philosophy of the program. Although supportive and enthusiastic about the program, command personnel saw health and fitness as a competitive arena. A future program will need a leisure education component that will equip work center and line supervisors to guide their personnel in positive use of free time.

The results of this study confirm findings of other studies of worksite health programs that point to comprehensive approaches as most effective in reducing health risk behaviors and increasing positive health practices[1]. Although not all of the program objectives were achieved, this multi-faceted approach can be seen as more likely to produce positive change in one or more objectives than an approach targeted to one behavior. For example, alcohol abuse is strongly related to other health-risk behaviors. LEAAP's emphasis on fitness, fun, and health alternatives can be more effective as an alcohol abuse prevention program than a specific alcoholism identification and treatment program.

Although a formal evaluation of the implementation effort was not conducted, reports from command leadership and the Regional Fleet Recreation Coordinator indicate that actual implementation of LEAAP acomplished only about 60% of the projected program. For example only 21 of a possible 59 videos were shown on the experimental command andm media materials (newsletters, posters, etc.), contests and leisure events were not well publicized due to lack of funding and leadership. Support for LEAAP often did not filter down through the ranks.

In conclusion, implementation of the unique LEAAP program, operated entirely within a command by internal personnel, was achieved on 6 commands, with 2 commands participating in an extensive program evaluation. Only routine MWR and command resources were used. Response by command leadership was positive and all would implement the program again. The videotapes and working groups were considered valuable by the Fitness Coordinators and Recreation Services Officers, respectively. A quasi-experimental evaluation of this program was successfully conducted on two active sea going vessels, with outcomes pointing to some positive results.

Recommendations for future implementation

1. Reintroduce the LEAAP program, targeting a 90% implementation level, which will be concurrently evaluated as to level of program effort and participation by command personnel. A formal on-site evaluation plan should be incorporated in the program.

2. Enable more effective program implementation by the assignment of a single worksite LEAAP coordinator, who would assure continuity and accountability for carrying out the program at all levels of the command and monitor the concurrent evaluation.

3. Provide supplemental funding for literature, posters, and health and leisure awareness materials, and their distribution

4. Test some of the assumptions about the relationship of health and leisure behaviors, and its relevance to current Navy research of health behaviors, by further multivariate analyses of the extensive LEAAP evaluation data.

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2. Ibid. (Vol II, pp 220-236).

3. Ibid. (Vol II, pp 237-248).

4. Conway, T.L., Conway, S.W., & Dutton, L.J. (1988, January). Lifestyle habits among U.S. navy personnel in 1986 (Interim Report N68). San Diego: Naval Health Research Center.

5. The full program evaluation report, referenced in references 1, 2 & 3 was completed as part of a doctoral dissertation in community health education at the University of Oregon School of Human Development and Performance, August 1990. This executive summary abstracts important highlights from the study. The complete program evaluation report is available from Tom Jelcick, Director, Regional Morale, Welfare, & Recreation, Naval Base Seattle. The full report contains a literature review, all the data, procedures and instruments used, results, conclusions, recommendations, and 268 references. The dissertation is available from Dissertation Abstracts.

6. Bray, R. M., Marsden, M. E.,Guess, L.L., Wheeless, S.C., Pate, D. K., Dunteman, G. H., & Iannocchione, V.G., (1986). 1985 Worldwide survey of alcohol and nonmedical drug use among military personnel (Doc. No. RTI/33066-02FR). Research Triangle Park, NC: Research Triangle Institute.

7. Lifestyle surveys currently being used in prospective studies of health habits of Navy personnel by the Health Psychology Department of the Office of Naval Health Research were also used in this experimental research so that they could be correlated with Navy research in further analyses.

EXECUTIVE APPENDIX A

Executive Appendix items are excerpted from: Evaluation of a Work-Site Health-Promotion Program, Emphasizing Leisure Awareness Within a Navy Command, Final Report, Volumes I and II, August, 1990 conducted by Mary Ann Holser.

TABLE 51. Statistical Analyses Chart

Dependent Variable	Measure	Unit of Analysis	Statistical Comparisons
Alcohol and Drug Use			
Self-Report	1. Navy survey: alcohol, caffeine, tobacco use	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	*t* tests
	b. Frequencies	Pretest/posttest matched groups	Chi-square
		Posttest unmatched groups	Chi-square
		Pretest/posttest unmatched group	Chi-square
		Pretest/posttest data per command	Descriptive
	2. Health Risk Appraisal: substance-abuse items	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
	b. Frequencies	Pretest/posttest per command unmatched groups	Chi-square
		Posttest unmatched groups between commands	Chi-square
Behavioral Outcomes	3. Alcohol and drug referrals	X and C command populations	
	a. Frequencies	Baseline comparisons	Chi-square
		Pretest/posttest per command unmatched groups	Chi-square
	4. Nonjudicial punishments: substance abuse	X and C command populations	
	a. Frequencies	Pretest/posttest data per command unmatched groups	Chi-square
	5. Alcoholism and drug abuse medical reports		
	a. Frequencies	Pretest/posttest per command unmatched groups	Chi-square
Life-Enhancement Skills and Behaviors			
Self-Report	1. Navy survey: health attitudes and behaviors	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	*t* tests
	2. Navy survey: health values	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	*t* tests
	3. Navy survey: health promotion	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	*t* tests
	b. Frequencies	Pretest/posttest data per command	Descriptive

TABLE 51--Continued

Dependent Variable	Measure	Unit of Analysis	Statistical Comparisons
Life-Enhancement Skills and Behaviors (continued)			
Self-Report (continued)	4. Navy survey: command support	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	t tests
	b. Frequencies	Pretest/posttest matched groups	Chi-square
		Posttest unmatched groups	Chi-square
		Pretest/posttest data per command	Descriptive
	5. Navy survey: quality of life and Navy Smart Compass: quality of work-life items	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	t tests
	6. Health Risk Appraisal items: health behaviors	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
	b. Frequencies	Pretest/posttest per command, matched and unmatched groups	Chi-square
Fitness			
Behavioral Outcomes	1. Navy physical fitness tests	X and C command	
	a. Scores	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	t tests
	b. Frequencies	Pretest/posttest per command, unmatched groups	Chi-square
	2. Command medical service reports	X and C command populations	
	a. Frequencies	Pretest/posttest per command, unmatched groups	Chi-Square
Leisure Attitudes and Behaviors			
Self-Report	1. Leisure Diagnostic Battery	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	t tests
	2. Navy Smart Compass survey	Sample populations, X and C commands	
	a. Scores	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	t tests

TABLE 51--Continued

Dependent Variable	Measure	Unit of Analysis	Statistical Comparisons
Leisure Attitudes and Behaviors (continued)			
Self-Report (continued)	3. Recreation ticket rebates	X and C command population	
	a. Means	Pretest/posttest unmatched samples	t tests
	b. Frequencies	Pretest/posttest per command, unmatched groups	Chi-square
		Posttest unmatched groups	Descriptive
Discipline			
Behavioral Outcomes	1. Nonjudicial punishment reports[a]	X and C command populations	
	a. Frequencies	Pretest/posttest per command, unmatched groups	Chi-square
Retention			
Behavioral Outcomes	1. Command reenlistment reports	X and C command populations	
	a. Frequencies	Pretest/posttest per command, matched and unmatched groups	Chi-square
Demographics			
Self-Report	1. Navy survey demographics	Sample populations, X and C commands	
	a. Means	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	t tests
	b. Frequencies	Pretest/posttest per command, matched and unmatched groups	Chi-square
	2. Health Risk Appraisal demographics		
	a. Means	Pretest/posttest matched samples	ANCOVA
		Posttest unmatched samples	t tests
	b. Frequencies	Pretest/posttest per command, unmatched groups	Chi-square

Note. X = Experimental Command, C = Comparison Command.

[a]Nonjudicial punishments include substance abuse, violent crimes, sex offenses, and theft charges as well as the punishments imposed. The latter three categories had insufficient numbers to compare separately. Alcohol and drug charges from these data are included in the alcohol and drug summary.

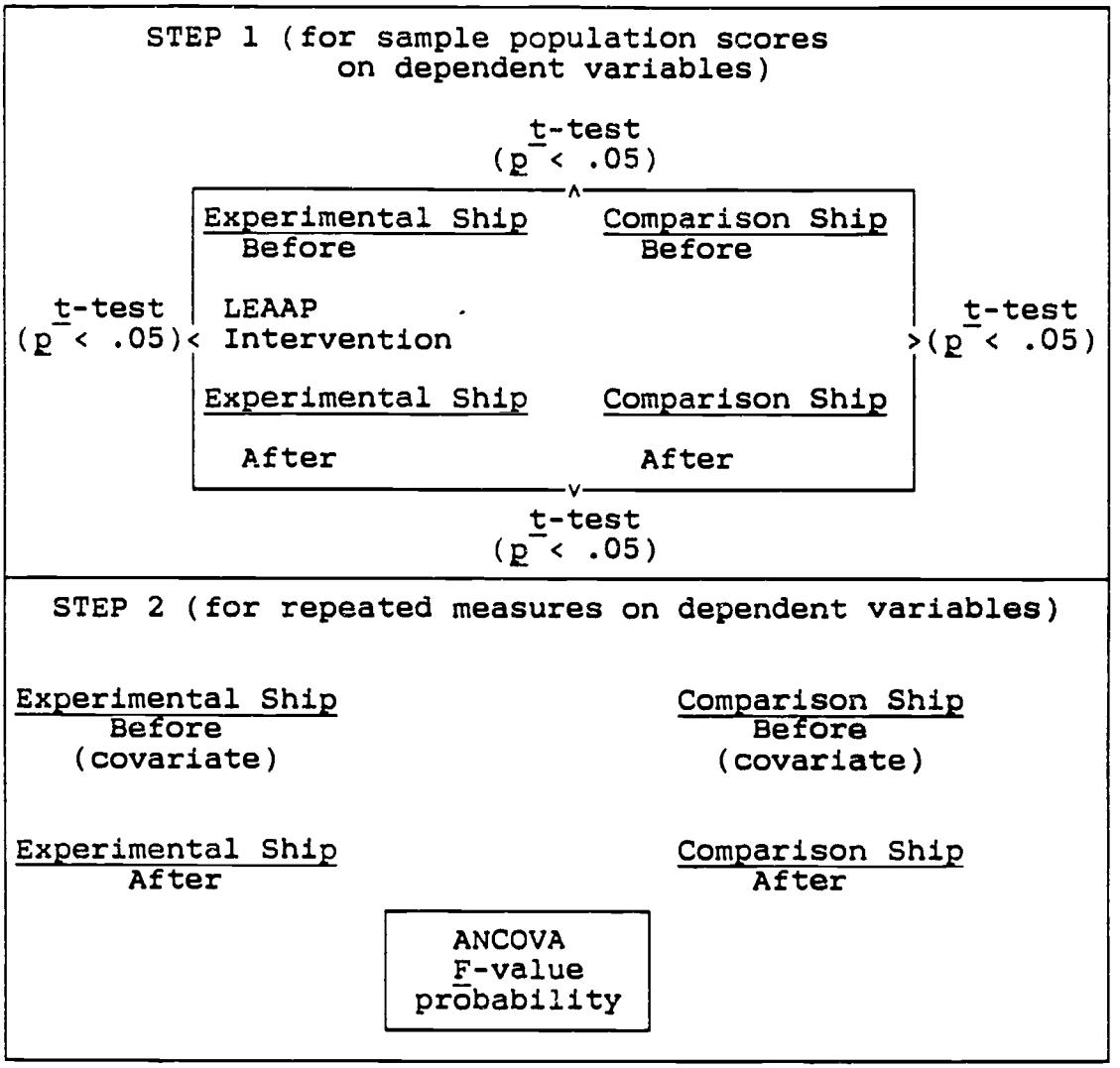

FIGURE 3. Life Enhancement Afloat/Ashore Program (LEAAP) Statistical Analyses Design for Interval Data (In Step I, sample populations of all ship personnel completing self-report scored items were compared with t-tests before and after the intervention, between the experimental and comparison ships, and within each ship. In Step II, when significant differences at $p < .05$ were observed on any of the four tests, an Analysis of Covariance or ANCOVA was computed on repeated measures for that dependent variable. Baseline scores were used as covariates.)

TABLE 10. Comparisons of Alcohol and Drug Use in Matched Samples Before and After Life Enhancement Afloat/ Ashore Program (LEAAP) Intervention

	Experimental Ship				Comparison Ship				ANCOVA	
Use Level	n	Before Mean (SD)	After Mean (SD)	p	n	Before Mean (SD)	After Mean (SD)	p	F	p
Bottles of Beer per Week	182	11.6 (18.9)	13.5 (19.0)	.350	111	7.8 (13.7)	13.0 (20.5)	.028*	3.4	.066
Drinks of Liquor per Week	182	3.5 (11.5)	3.3 (5.9)	.808	111	2.3 (5.6)	4.0 (10.9)	.135	1.0	.322
Glasses of Wine per Week	182	0.9 (6.1)	1.0 (2.7)	.854	111	0.3 (0.8)	1.4 (6.5)	.092	0.9	.337
Use of Drugs/ Medication[a]	175	2.9 (0.4)	2.9 (0.5)	.182	106	2.9 (0.4)	2.9 (0.5)	.741	0.1	.557

Note. Data were assembled from the Health Risk Analysis questionnaire.

[a]Score values describing use of drugs or medications which affect mood or aid relaxation included the following responses: 1 = almost every day, 2 = sometimes, and 3 = rarely or never.

*$p < .05$.

TABLE 11. Comparisons of Alcohol and Drug Use in Unmatched Samples After Life Enhancement Afloat/Ashore Program (LEAAP) Intervention

Mode	Experimental Ship			Comparison Ship				Both Ships		
	n	Mean	SD	n	Mean	SD	p	n	Mean	SD
Bottles of Beer per Week	481	8.0	15.4	311	13.2	19.4	.000*	792	10.0	14.6
Drinks of Liquor per Week	481	2.5	6.9	311	3.5	8.0	.067	792	2.9	7.4
Glasses of Wine per Week	481	0.8	4.9	311	1.1	4.5	.306	792	0.9	4.7
Use of Drugs/ Medication[a]	470	2.9	0.4	305	2.9	0.5	.175	775	2.9	0.4

Note. These t-test comparisons included all respondents to the Health Risk Analysis survey.

[a]Score values describing use of drugs or medications which affect mood or aid relaxation included the following responses: 1 = almost every day, 2 = sometimes, and 3 = rarely or never.

*$p < .001$.

TABLE 12. Comparisons of Level of Beer Drinking by Respondents to Health Risk Analysis (HRA) on Unmatched Samples Before and After the Life Enhancement Afloat/Ashore Program (LEAAP) Intervention

Drinking Level	Experimental Ship				Comparison Ship					Both Ships			
	Before		After		Before		After			Before		After	
	n	%	n	%	n	%	n	%	χ^2	n	%	n	%
Non-drinker	133	31.1	181	37.3	140	31.2	87	28.0	0.6	273	31.2	268	33.7
Moderate Drinker	227	53.2	244	50.3	222	49.4	147	47.2	0.0	449	51.3	391	49.1
Heavy Drinker	67	15.7	60	12.4	87	19.6	77	24.8	0.9	154	17.6	137	17.2

Note. These comparisons included all men completing the HRA survey. Moderate Drinker = 1-15 bottles per week; Heavy Drinker =) 15 bottles per week.

TABLE 13. Command Alcohol and Drug Referrals Before and During Life Enhancement Afloat/Ashore Program (LEAAP) Intervention

Number of Referrals According to Category	Experimental Ship		Comparison Ship		
	Baseline Period (n = 596)	Research Period (n = 553)	Baseline Period (n = 585)	Research Period (n = 563)	χ^2
Alcohol/Drug Education Referrals (NADSAP)	30.8	54.6	2.1	62.2	23.0***
Alcohol Rehabilitation Center (ARC) Referrals	0.0	5.9	4.1	0.0	8.6**[a]
Alcohol/Drug Screening Referrals (CAAC)	8.0	13.7	10.3	5.5	2.9
Total Number of Referrals	38.8	74.1	16.5	67.7	5.2*

Note. Each n refers to the mean ship population during the baseline and research periods. The number of referrals is adjusted to equalize the in-port time between ships. Ships in-port offer more opportunity for drinking. Alcohol consumption is prohibited when ships are deployed. NADSAP = Navy Alcohol and Drug Safety Action Program; ARC = Alcohol Rehabilitation Center; and CAAC = Command Alcohol Action Control.

[a]Yates correction applied.

*p < .05. **p < .01. ***p < .001.

TABLE 14. Command Disciplinary Reports Before and During Life Enhancement Afloat/Ashore Program (LEAAP) Intervention

Number of Offenses According to Category	Experimental Ship		Comparison Ship		
	Baseline Period (n = 596)	Research Period (n = 553)	Baseline Period (n = 585)	Research Period (n = 563)	χ^2
Nonjudicial Punishments Imposed	80.1	107.3	69.0	34.8	15.2***
Substance-Abuse Offenses Charged	20.5	5.9	21.6	27.5	7.9**
Absences Charged	58.1	58.5	43.3	21.9	4.7*
Disciplinary Infractions Charged	82.3	89.7	26.8	20.1	1.27
Total Number of Offenses of Any Kind Charged[a]	164.4	156.0	91.7	84.2	0.03

Note. Each n refers to the mean ship population during the baseline and research periods. The number of referrals is adjusted to equalize the in-port time between ships. Ships in-port offer more opportunity for behaviors requiring disciplinary actions.

[a]Includes some offenses not listed.

*p < .05. **p < .01. ***p < .001.

EXECUTIVE APPENDIX B

Executive appendix items are excerpted from: Evaluation of a Work-site Health Promotion-Program Emphasizing Leisure Awareness Within a Navy Command, Volumes I and II, Final Report conducted by Mary Ann Holser, August, 1990.

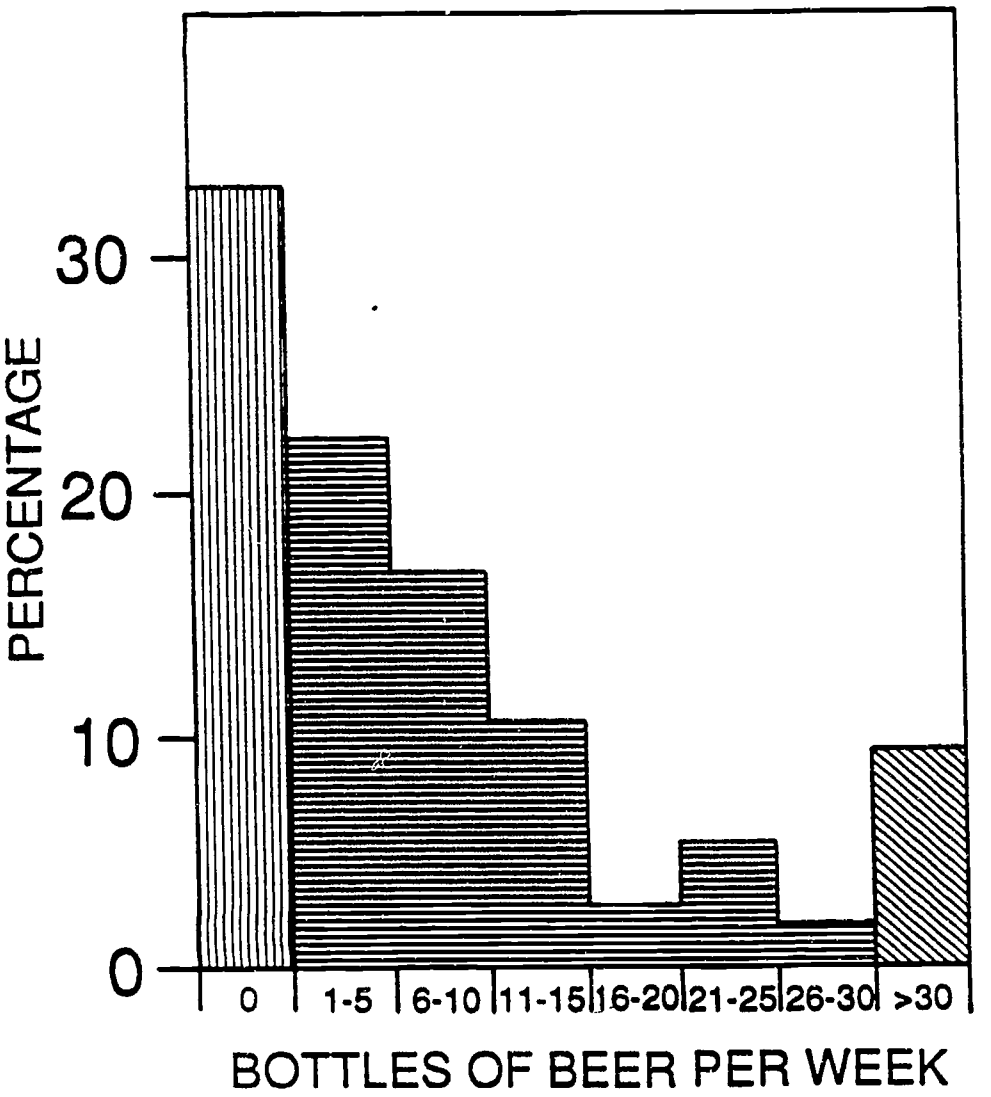

FIGURE 1. Distribution of Levels of Beer Drinking Among All Subjects (Both Ships) Completing the Health-Risk Analysis Survey After the Life Enhancement Afloat/Ashore Program Intervention. (Note that the lightly shaded bar on the left is the percentage of nondrinkers, and the bar on the right is the total percentage of very heavy drinkers.)

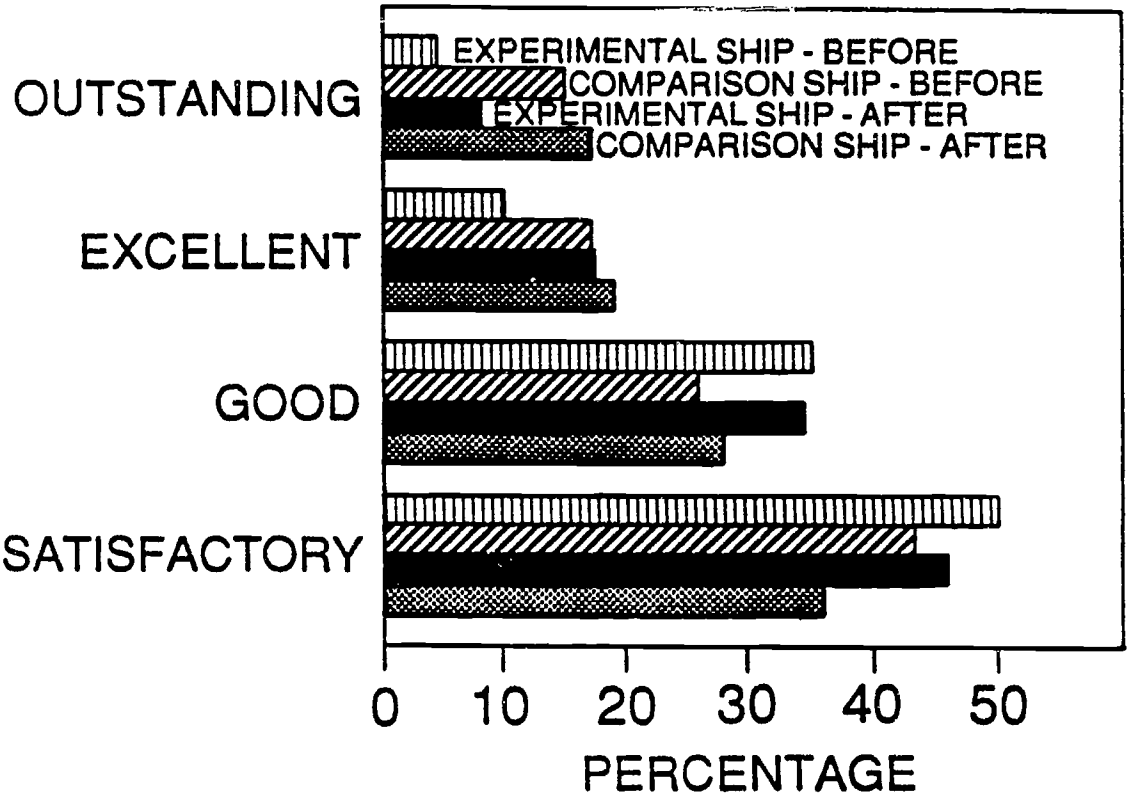

FIGURE 2. Comparisons of Age-Adjusted Ratings on the Physical Readiness Test for the Experimental Ship and the Comparison Ship Before and After the Life Enhancement Afloat/Ashore Program Intervention