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CAUSAL FACTORS IN ALCOHOL REHABILITATION SUCCESS OR FAILURE.(U)
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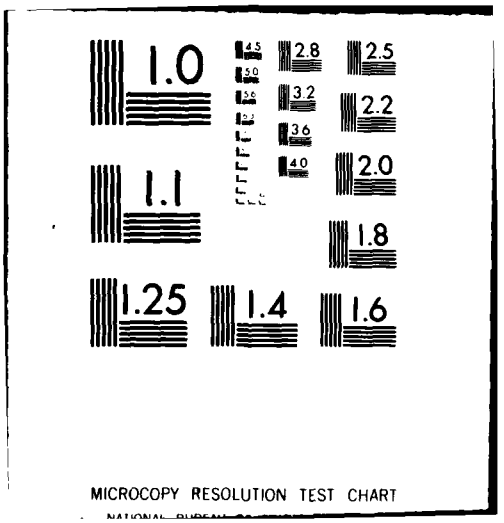
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LEVEL II

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REPORT NO. 80-10

(See 1473)

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Causal Factors in Alcohol Rehabilitation Success or Failure

E. K. Eric Gunderson and Douglas Kolb

Report Number 80-10

Research supported by the Bureau of Naval Personnel under Project Order Number N0002278F088AFZ and the Naval Medical Research and Development Command, Department of the Navy, under Research Work Unit M0096-PN.001-1034.

The views presented in this paper are those of the authors. No endorsement by the Department of the Navy has been given nor should be inferred.

SUMMARY

Problem

Younger participants in alcohol rehabilitation have much lower effectiveness rates after treatment than older participants. At the same time an increasing proportion of men entering treatment are younger. In order to provide a basis for improving the post-treatment effectiveness rate among younger men, it is necessary to obtain better understanding of the specific causes of rehabilitation success-failure.

Objective

The objective of this study was to examine in detail biographical and personnel characteristics that significantly affect post-rehabilitation success. If a particular pattern of personal and service history variables can be found that is highly discriminating with respect to post-treatment outcome, then younger personnel can be classified as to potential for success before referral to rehabilitation.

Approach

A sample of 4,937 Navy enlisted men admitted to four Alcohol Rehabilitation Centers, nine Services, and seven Drydocks during late 1974 through early 1977 was included in the study. A Biographical Questionnaire of 129 items was administered routinely to all rehabilitation participants and provided a wide range of information on family and social background, occupational and military history, and alcohol problems. Post-rehabilitation effectiveness was determined from service history files maintained at the Naval Health Research Center. Analyses were conducted to determine items that best discriminated success-failure for both younger and older populations at Centers, Services, and Drydocks separately. Special attention was given to a combination of variables that provided a simple but effective screening or selection method for younger participants in lower pay grades.

Results

Success rates varied by type of rehabilitation facility. These differences were probably explained by population differences at the three types of facilities.

Age, years of service, and pay grade were among the most discriminating variables at all types of facilities for both younger and older participants. Past disciplinary problems, whether associated with drinking or not, were important predictors of failure for younger participants. School achievement, job satisfaction, and positive Navy career intentions were favorable indicators. Counselor prognostic ratings and composite scales reflecting severity of alcoholism, sociopathy, family alcoholism and psychopathology, and age when drinking problems started all were highly

discriminating of success-failure in the younger population.

Among older men items related to drinking behavior, for example, trying to stop drinking, experiencing hallucinations, and drinking during treatment discriminated post-treatment successes from failures. Past disciplinary problems also were associated with a lower probability of success. Job satisfaction and positive career intentions were favorable indicators.

A combination of pay grade and disciplinary items provided a highly effective method of differentiating younger participants in terms of success-failure.

Conclusions

It was concluded that differences in success rates among the three types of rehabilitation facilities were largely due to differences in population characteristics. Biographical and personnel characteristics were highly related to post-treatment success or failure in both younger and older populations, but a combination of pay grade and disciplinary record was particularly effective in differentiating success-failure among younger participants.

Recommendations

Screening procedures using pay grade level and disciplinary record should be insituted at Counseling and Assistance Centers (CAACs) to eliminate from consideration for rehabilitation those younger men most likely to be ineffective after treatment.

INTRODUCTION

Background

Previous studies of the military effectiveness of Navy enlisted men following alcohol rehabilitation have indicated success rates of approximately 80% for older men (age 26 or older) and 60% for younger men (age 25 or younger). The lower success rate for younger men is of concern because an increasing proportion of referrals to rehabilitation are younger men. For example, 47% of the admissions were age 25 or younger during 1974-1977 compared with only 30% during 1972-1974.

Regression equations and actuarial tables have been developed to predict post-rehabilitation success-failure for both younger and older populations, but such equations provide little insight into possible underlying causal factors and their interrelationships. In order to devise the means for improving post-treatment success and thus reducing rehabilitation costs and manpower losses, particularly among younger participants some degree of understanding of causal factors seems essential. For example, if the most important determinants of success are individual or personal history characteristics at the time of referral, then the most effective strategy for improving post-treatment success is more appropriate referral or assignment of participants. On the other hand, if the most important determinants of outcome were particular kinds of treatment, then a great deal of attention should be given to identifying or developing the best possible treatment procedures. Finally, if post-treatment success-failure depends heavily upon actions or experiences that occur after rehabilitation, such as attending AA, taking Antabuse, and maintaining sobriety, then appropriate forms of post-rehabilitation support and assistance should be emphasized.

Objective

The primary objective of this study will be to examine in detail personnel characteristics that significantly affect post-rehabilitation success-failure. Generally, previous studies have indicated that individual characteristics are the most important determinants of treatment outcome. At the same time, differences among individual treatment facilities and programs have had little apparent impact on post-rehabilitation success. That is, individual facilities of the same type, for example, Centers, tend to have similar success rates. Although post-treatment AA attendance and sobriety have been shown to be highly related (1), it is not known at present whether they result in better military performance than non-attendance and continued drinking. It seems plausible, however, that post-rehabilitation factors play some role in treatment success.

METHOD

Participants

The sample consisted of all male enlisted admissions to alcohol rehabilitation facilities during the period from late 1974 through early 1977 (N = 4,937). More than half of the participants were admitted during 1976. The types and numbers of facilities involved were: (a) four Alcohol Rehabilitation Centers, residential facilities located at major naval bases (N = 1,859); (b) nine Alcohol Rehabilitation Services, residential facilities located in naval hospitals (N = 1,324), and (c) seven Alcohol Rehabilitation Drydocks, outpatient or short-term residential counseling facilities located at smaller naval bases (N = 1,754).

Procedure

During the period of study, a 129-item Biographical Questionnaire was administered routinely to all participants entering naval alcohol rehabilitation facilities. This questionnaire contained a wide range of information pertaining to family background, social and occupational history, military service, and drinking history and alcohol-related problems. At the completion of treatment staff counselors rated each man's prognosis on a 4-point scale and indicated whether the individual drank during treatment.

Post-rehabilitation success or failure was determined from service history files maintained at the Naval Health Research Center. Success was defined as being on active duty status or receiving a favorable discharge from service with no recommendation against reenlistment at least six months following completion of rehabilitation. Failure was the receipt of an unfavorable discharge from service more than 30 days after completing rehabilitation or a negative recommendation for reenlistment at the time of discharge.

Questionnaire responses were grouped by type of facility and were divided into younger (age 25 or younger) and older (age 26 or older) populations at each type of facility. Distributions with respect to success or failure and χ^2 significance tests were computed for each biographical item by age group and type of facility (Centers, Services, and Drydocks). Also, success rates in terms of the post-treatment military effectiveness criterion were reported for appropriate levels of each of the discriminating variables.

The analyses were concerned primarily with the following questions: (a) Which questionnaire items best discriminated success-failure? (b) Which items discriminated in both younger and older populations? (c) Which items discriminated uniquely for younger or older groups? (d) Which items discriminated at all types of facilities? (e) Does the pattern of discriminating items suggest the most important underlying causal factors? and (f) Does a combination of highly dis-

criminating variables offer an effective screening or selection tool for referral of younger participants?

RESULTS

Younger Alcoholics

The younger alcoholics had an overall success rate of 59%. The three types of facilities differed in success rate as follows: Centers - 53.9%, Services - 57.6%, and Drydocks - 63.1%. These differences in outcome are consistent with differences in population characteristics at the three types of facilities.

Breakdowns of success and failure for all discriminating biographical items are shown separately for younger and older participants in the Appendix.

For the younger population the most discriminating variables with respect to post-treatment success and failure at all types of facilities were age, length of service, and pay grade at the time of admission to rehabilitation. Pay grade was the most discriminating variable overall.

Additional variables that were highly discriminating for the younger population reflected occupational achievement and satisfaction: being assigned to a technical specialty (designated striker), job satisfaction, career attitude, and achieving military honors.

Also, past disciplinary problems (demotions, times on report, captain's masts, courts-martial, times in the brig, arrests before age 16, etc.) were powerful predictors of post-treatment failure. Not only the number of disciplinary actions but the ages at which they occurred were important factors in post-treatment performance--occurrence at a younger age was associated with failure.

Pre-enlistment school achievement and adjustment were significant factors in post-treatment success-failure. Being a high school graduate generally was a favorable indicator but did not discriminate for all types of facilities. Low school grades and trouble in school because of alcohol were both discriminating for all types of facilities but were somewhat weaker indicators than most of those already mentioned. Similarly, a group of variables that reflected referral and treatment experiences were generally discriminating, but differences in success-failure were not great.

Prognostic ratings given by staff counselors at the end of treatment were highly predictive of success-failure.

Special scales based upon combinations of questionnaire items that reflected severity of alcoholism, severity of sociopathy, family history of alcoholism and psychiatric disorder, and age when first experienced serious problems because of drinking generally discriminated success-

failure in the younger population.

Older Alcoholics

Fewer biographical variables discriminated success-failure among the older population. The reasons for this are obvious--the success rate for the older population overall was very high (88%), and the variance on both the criterion variable and the predictor variables tended to be small. This was especially true for the Drydock population which had a success rate of 92% and tended to be homogeneous on predictor variables.

Again, as in the younger population, age, length of service, and pay grade were the most discriminating variables. For Services and Centers, being non-rated (pay grades E-1 and E-3) was more predictive of post-treatment failure than any other condition. Marital status was highly discriminating in the older population but not in the younger.

Pre-treatment job satisfaction was a significant factor in post-treatment success, particularly for Centers and Services, and considering the Navy a career also was highly predictive of success.

A number of disciplinary history items were discriminating with respect to success-failure at all types of facilities for older men: time in a civilian jail; wandered from place to place with no job; disciplinary action pending at time of admission to rehabilitation; missed time on the job because of drinking; demoted because of drinking, and unauthorized absence because of drinking. Therefore, although disciplinary records of these older enlisted men were generally good--indeed much better than the disciplinary records of the younger population, the occurrence of disciplinary episodes, whether directly associated with drinking or not, lowered the probability of post-treatment success in this population.

Other variables that had a negative influence on successful outcome were trying to stop drinking (but failing), having hallucinations because of alcohol, and drinking during treatment. Drinking coffee had a positive relationship with success, presumably reflecting identification with Navy customs and traditions.

Special scales derived from combinations of questionnaire items to reflect severity of alcoholism, severity of sociopathy, and age at which serious alcohol problems were first experienced all discriminated success-failure at all types of facilities.

Combined Predictor Variables for the Younger Population

The results shown in the Appendix strongly suggested that a combination of pay grade and disciplinary items might provide an effective means of differentiating younger participants in terms of success-failure. Therefore, the discriminating power of a number of disciplinary items was

tested for lower pay grade participants considered as separate groups, that is, pay grades E-1 and E-2 in one group and pay grade E-3 in another group. For purposes of this analysis the three types of facilities were combined.

Table 1

Items That Discriminate Success-Failure for Younger Men in Lower Pay Grades

	Pay Grades E-1 and E-2			Pay Grade E-3		
Age	Success	Failure	Percent Success	Success	Failure	Percent Success
17-18	45	115	28.1	15	17	46.9
19	89	129	40.8	65	32	67.0
20-22	157	229	40.7	223	129	63.4
> 22	53	65	44.9	109	61	64.1
	$\chi^2 = 10.45$; df = 3; $p < .02$			4.34; 3; p ns		
Times on Report						
0-3	218	272	44.5	285	129	68.8
4-7	96	163	37.1	97	66	59.5
More than 7	29	100	22.5	27	44	38.0
	$\chi^2 = 21.40$; df = 2; $p < .001$			25.94; 2; $p < .001$		
Captain's Masts						
0	111	132	45.7	147	62	70.3
1-3	187	273	40.6	218	126	63.4
More than 3	46	132	25.8	45	51	46.9
	$\chi^2 = 18.03$; df = 2; $p < .001$			15.75; 2; $p < .001$		
Courts-Martial						
0	316	458	40.8	396	216	64.7
1 or More	28	80	25.9	16	39	29.1
	$\chi^2 = 8.85$; df = 1; $p < .01$			27.11; 1; $p < .001$		
Time in Jail						
Less than 24 hours	243	298	44.9	307	145	67.9
1-7 Days	82	165	33.2	82	64	56.2
More than 7 Days	19	75	20.2	23	30	43.4
	$\chi^2 = 25.40$; df = 2; $p < .001$			16.39; 2; $p < .001$		
Demoted						
Never	246	345	41.6	327	164	66.6
Other	97	190	33.8	79	73	52.0
	$\chi^2 = 4.97$; df = 1; $p < .05$			10.67; 1; $p < .01$		
Disciplinary Action						
Never	136	170	44.4	190	92	67.4
Other	208	366	36.2	215	145	59.7
	$\chi^2 = 5.65$; df = 1; $p < .02$			3.98; 1; $p < .05$		

Results are shown in Table 1. It can be seen that indeed further discrimination is achieved by considering the disciplinary records of the lower pay grade groups separately. For example, the item Times on Report achieves a high degree of discrimination for both the E-1 and E-2 group and the E-3 group and provides a simple but powerful method for classifying younger participants in terms of potential for post-treatment success, before referral to rehabilitation.

DISCUSSION

The results make it apparent that it should be possible to develop simple but powerful screening methods for younger candidates for referral to alcohol rehabilitation. Presently, large numbers of younger participants (41%) do not complete their obligated service successfully after undergoing rehabilitation. The large costs in rehabilitation services and lost work time involved are unacceptably high and could readily be reduced by implementing simple screening procedures of the type suggested by the present study.

It would not appear that disciplinary history would be an important factor in referral decisions for older men except in cases where repeated or serious offenses have resulted in demotion to pay grades E-1 to E-3.

The findings confirm the proposition that personnel characteristics at the time of entering rehabilitation are important determinants of treatment outcome. Many of the variables in the biographical questionnaire were discriminating for both young and old participants and for all types of facilities. However, it is clear that application of pre-rehabilitation screening and referral procedures would only prove effective in the younger population. For this group large savings in rehabilitation costs and manpower losses could be realized by implementing simple techniques such as those suggested by the present study.

REFERENCE

1. Kolb, D., Coben, P., and Heckman, N. Patterns of drinking and AA attendance for Navy enlisted men following treatment. Military Medicine, in press.

Items That Discriminate Post-Treatment Success-Failure

YOUNGER POPULATION

	Centers			Services			Drydocks		
Age	Success[a]	Failure[a]	Percent Success[b]	Success	Failure	Percent Success	Success	Failure	Percent Success
17-18	9	40	18.4	15	28	34.9	35	63	35.7
19	55	56	49.5	45	48	48.4	80	65	55.2
20-22	178	140	56.0	142	122	53.8	265	146	64.5
23-25	127	80	61.4	137	51	72.9	189	59	76.2
Total	369	316		339	249		569	333	
	$\chi^2 = 30.9$; df = 3; $p < .001$			31.8; 3; $p < .001$			54.1; 3; $p < .001$		
Years of Service									
2 or less	180	199	47.5	169	182	48.2	314	247	56.0
3-4	118	83	58.7	97	52	65.1	151	54	73.7
5 or more	60	31	65.9	69	15	82.1	104	31	77.0
Total	358	313		335	249		569	332	
	$\chi^2 = 13.3$; df = 2; $p < .01$			36.9; 2; $p < .001$			33.3; 2; $p < .001$		
Pay Grade									
E-1, E-2	91	184	33.1	83	143	36.7	160	182	46.8
E-3	124	76	62.0	103	64	61.7	171	92	65.0
E-4 to E-9	134	43	75.7	146	37	79.8	229	47	83.0
Total	349	303		332	244		560	321	
	$\chi^2 = 86.9$; df = 2; $p < .001$			78.3; 2; $p < .001$			86.7; 2; $p < .001$		
Job Satisfaction									
Very dissatisfied	47	87	35.1	40	60	40.0	79	65	54.9
Dissatisfied/Don't care/d.k.	109	97	52.9	95	88	51.9	162	135	54.6
Satisfied/Very satisfied	200	129	60.8	200	99	66.9	326	131	71.3
Total	356	313		335	247		567	331	
	$\chi^2 = 25.3$; df = 2; $p < .001$			25.7; 2; $p < .001$			26.8; 2; $p < .001$		
Navy Career									
Yes	119	69	63.3	119	51	70.0	165	73	69.3
No	231	237	49.4	214	190	53.0	391	250	61.0
Total	350	306		333	241		556	323	
	$\chi^2 = 10.5$; df = 1; $p < .01$			14.2; 1; $p < .001$			5.2; 1; $p < .05$		
Military Honors									
No	228	225	50.3	199	177	52.9	368	258	58.8
One or more	129	87	59.7	137	72	65.6	200	72	73.5
Total	357	312		336	249		568	330	
	$\chi^2 = 5.2$; df = 1; $p < .05$			8.8; 1; $p < .01$			17.7; 1; $p < .001$		

[a]Frequencies

[b]Percent success in terms of post-treatment criterion.

APPENDIX

	Centers			Services			Drydocks		
Designated Striker	Success	Failure	Percent Success	Success	Failure	Percent Success	Success	Failure	Percent Success
Yes	168	142	54.2	145	99	59.4	263	154	63.1
No	107	137	43.8	111	125	47.0	176	135	56.6
Not applicable	79	30	72.5	78	20	79.6	121	37	76.6
Total	354	309		334	244		560	326	
	χ^2 = 25.0; df = 2; p < .001			30.6; 2; p < .001			18.0; 2; p < .001		
Reduced in Pay Grade									
No	247	173	58.8	251	160	61.1	454	224	67.0
Yes	111	135	45.1	84	89	48.6	112	108	51.1
Total	358	308		335	249		567	332	
	χ^2 = 11.7; df = 1; p < .001			7.8; 1; p < .01			17.9; 1; p < .001		
Times on Report									
0-3	216	151	58.9	246	134	64.7	416	196	68.0
4-7	107	87	55.2	71	70	50.4	117	97	54.7
More than 7	35	72	32.7	20	45	30.8	33	38	46.5
Total	358	310		337	249		566	331	
	χ^2 = 23.0; df = 2; p < .001			30.1; 2; p < .001			21.2; 2; p < .001		
Captain's Masts									
0	102	58	63.8	131	71	64.8	228	104	68.7
1-3	204	170	54.6	171	124	58.0	298	178	62.6
More than 3	53	84	38.7	35	54	39.3	41	49	45.6
Total	359	312		337	249		567	331	
	χ^2 = 19.0; df = 2; p < .001			16.5; 2; p < .001			16.4; 2; p < .001		
Courts-Martial									
0	334	269	55.4	317	220	59.0	547	297	64.8
1 or more	25	44	36.2	20	29	40.8	22	35	38.6
Total	359	313		337	249		569	332	
	χ^2 = 9.1; df = 1; p < .01			6.1; 1; p < .05			15.8; 1; p < .001		
Times in Brig									
0	312	233	57.2	298	204	59.4	522	279	65.2
1 or more	47	80	37.0	39	45	46.4	47	53	47.0
Total	359	313		337	249		569	332	
	χ^2 17.0; df = 1; p < .001			4.9; 1; p < .05			12.6; 1; p < .001		
Arrests Before Age 16									
0	291	223	56.6	274	181	60.2	465	251	64.9
1 or more	68	87	43.9	63	68	48.1	102	80	56.0
Total	359	310		337	249		567	331	
	χ^2 = 7.8; df = 1; p < .01			6.1; 1; p < .05			4.9; 1; p < .05		
Time in Jail									
Less than 24 hours	247	168	60.0	255	145	63.8	430	211	67.1
1-7 days	86	96	47.2	66	73	47.5	111	86	56.4
More than 7 days	26	52	33.3	16	31	34.0	28	35	44.4
Total	359	313		337	249		569	332	
	χ^2 = 24.9; df = 2; p < .001			22.7; 2; p < .001			17.6; 2; p < .001		

	Centers			Services			Drydocks		
Missed Work Time	Success	Failure	Percent Success	Success	Failure	Percent Success	Success	Failure	Percent Success
Never	130	87	59.9	105	60	63.6	224	114	66.3
20 or older	95	72	56.9	92	49	65.2	123	53	69.9
17-19	133	153	46.5	139	138	50.2	216	163	57.0
Total	359	312		336	247		563	330	
	χ^2 = 9.0; df = 2; p < .02			12.1; 2; p < .01			11.0; 2; p < .01		
Demoted									
Never	261	197	57.0	278	171	61.9	476	247	65.8
20 or older	59	50	54.1	35	33	51.5	50	33	60.2
17-19	39	64	37.9	22	43	33.8	27	50	42.5
Total	359	311		335	247		563	330	
	χ^2 = 12.4; df = 2; p < .01			19.5; 2; p < .001			18.4; 2; p < .001		
Went AWOL									
Never	235	181	56.5	243	147	62.3	436	214	67.1
20 or older	77	67	53.5	53	52	50.5	81	59	57.9
17-19	47	63	42.7	40	49	44.9	46	56	45.1
Total	359	311		336	248		563	329	
	χ^2 = 6.6; df = 2; p < .05			11.6; 2; p < .01			20.3; 2; p < .001		
Disciplinary Action									
Never	142	83	63.1	164	91	64.3	306	150	67.1
Yes	217	229	48.6	171	157	52.1	257	180	58.8
Total	359	312		335	248		563	330	
	χ^2 = 12.6; df = 1; p < .001			8.7; 1; p < .01			6.6; 1; p < .02		
GCT[c]									
22-44	64	68	48.5	45	44	50.6	74	48	60.7
45-54	130	117	52.6	106	94	53.0	179	136	56.8
55-64	109	94	53.7	115	64	64.2	198	85	70.0
65-74	39	19	67.2	45	18	71.4	66	21	75.9
Total	346	298		311	220		517	290	
	χ^2 = 1.8; df = 3; p ns			11.58; 3; p < .01			17.3; 3; p < .001		
Years of Schooling									
8-11	101	107	48.6	82	98	45.6	140	139	50.2
12 or more	261	209	55.5	255	151	62.8	425	194	68.7
Total	362	316		337	249		565	333	
	χ^2 = 2.8; df = 1; p ns			15.2; 1; p < .001			28.2; 1; p < .001		
School Grades									
A-C	308	242	56.0	293	202	59.2	494	265	65.1
D-F	41	59	41.0	39	43	47.6	65	53	55.1
Total	349	301		332	245		559	318	
	χ^2 7.7; df = 1; p < .01			3.9; 1; p < .05			4.4; 1; p < .05		
School Problem									
Yes	96	101	48.7	80	91	46.8	110	78	58.5
No	218	151	59.1	189	98	65.8	364	170	68.2
Total	314	252		269	189		474	248	
	χ^2 - 5.6; df - 1; p < .02			16.1; 1; p < .001			5.8; 1; p < .02		

[c]Data from Master Enlisted Tape.

	Centers			Services			Drydocks		
Referred by	Success	Failure	Percent Success	Success	Failure	Percent Success	Success	Failure	Percent Success
CO, XO	72	87	45.3	44	42	51.2	93	64	59.2
MO, Other	124	96	56.4	120	85	58.5	188	101	65.1
Self, Counselor	121	71	63.0	106	62	63.1	195	82	70.4
Total	317	254		270	189		476	249	
	χ^2 = 15.3; df = 2; p < .001			3.3; 2; p ns			5.2; 2; p ns		
Prognosis									
Excellent, Good	117	65	64.3	83	41	66.7	214	80	72.8
Fair	102	84	54.8	112	63	64.0	128	72	64.0
Poor	39	47	45.3	46	63	42.2	56	58	49.1
Total	258	196		241	167		398	210	
	χ^2 = 9.0; df = 2; p < .01			17.8; 2; p < .001			20.6; 2; p < .001		
Drank in Treatment									
Never	209	134	60.9	216	135	61.5	289	128	69.3
Once or more	60	71	45.8	23	32	41.8	107	79	57.5
Total	269	205		239	167		396	207	
	χ^2 = 8.8; df = 1; p < .01			7.6; 1; p < .01			7.9; 1; p < .01		
Alcoholic[d]									
Non-alcoholic	150	102	59.5	164	103	61.4	336	169	66.5
Mild	128	117	52.2	118	77	60.5	155	104	59.8
Moderate, severe	79	90	46.8	50	68	42.4	71	55	56.4
Total	357	309		332	248		562	328	
	χ^2 = 6.93; df = 2; p < .05			13.42; 2; p < .01			6.21; 2; p < .05		
Sociopathy[d]									
None, mild	226	178	55.9	217	119	64.6	387	183	67.9
Moderate, severe	120	109	52.4	102	109	48.3	157	129	54.9
Total	346	287		319	228		544	312	
	χ^2 = .74; df = 1; p ns			14.07; 1; p < .001			13.89; 1; p < .01		
Family History[d]									
Low pathology	280	218	56.2	264	170	60.8	464	239	66.0
High pathology	77	89	46.4	69	73	48.6	96	81	54.2
Total	357	307		333	243		560	320	
	χ^2 = 4.85; df = 1; p < .05			6.57; 1; p < .02			8.46; 1; p < .01		
Age Alcohol Problem[d]									
17, 24 or older	252	181	58.2	262	150	63.6	461	234	66.3
18-23	107	130	45.2	72	98	42.4	101	94	51.8
Total	359	311		334	248		562	328	
	χ^2 = 10.49; df = 1; p < .01			22.20; 1; p < .001			13.83; 1; p < .001		

[d]Variable derived from combination of several questionnaire items.

OLDER POPULATION

	Centers			Services			Drydocks		
Age	Success	Failure	Percent Success	Success	Failure	Percent Success	Success	Failure	Percent Success
26-29	206	70	74.6	176	57	75.5	221	35	86.3
30-34	345	41	89.4	221	23	90.6	284	20	93.4
More than 34	352	21	94.4	206	8	96.3	195	6	97.0
Total	903	132		603	88		700	61	
	χ^2 = 58.0; df = 2; p < .001			46.8; 2; p < .001			18.9; 2; p < .001		
Years of Service									
4 or less	57	42	57.6	41	31	56.9	49	23	68.1
5-10	206	73	73.8	166	45	78.7	219	37	85.6
11-16	426	35	92.4	222	9	96.1	318	15	95.5
More than 16	277	3	98.9	172	1	99.4	140	1	99.3
Total	966	153		601	86		726	76	
	χ^2 = 158.3; df = 3; p < .001			114.5; 3; p < .001			72.0; 3; p < .001		
Pay Grade									
E-1 to E-3	67	68	49.6	44	45	49.4	46	28	62.2
E-4	92	37	71.3	67	14	82.7	62	15	80.5
E-5	232	34	87.2	140	14	90.9	196	21	90.3
E-6 to E-9	551	14	97.5	338	11	96.8	405	11	97.4
Total	942	153		589	84		709	75	
	χ^2 = 234.4; df = 3; p < .001			149.3; 3; p < .001			100.3; 3; p < .001		
Marital Status									
Married, widowed	576	56	91.1	346	22	94.0	452	26	94.5
Separated, divorced	251	46	84.5	171	36	82.6	178	32	84.8
Single, never married	137	49	73.7	81	28	74.3	97	18	84.3
Total	964	151		598	86		727	76	
	χ^2 = 38.8; df = 2; p < .001			36.0; 2; p < .001			22.4; 2; p < .001		
Job Satisfaction									
Very dissatisfied/Don't care/don't know	158	48	76.7	91	41	68.9	102	21	82.9
Satisfied, other	804	105	88.4	508	45	91.9	625	55	91.9
Total	962	153		599	86		727	76	
	χ^2 = 19.6; df = 1; p < .001			51.0; 1; p < .001			9.8; 1; p < .01		
Time in Jail									
Less than 24 hours	673	85	88.8	449	46	90.7	542	39	93.3
One day or more	293	68	81.2	150	40	79.0	185	37	83.3
Total	966	153		599	86		727	76	
	χ^2 = 12.0; df = 1; p < .001			17.3; 1; p < .001			18.6; 1; p < .001		
Wandered, No Job									
No	862	115	88.2	550	62	89.9	655	60	91.6
Once or more	103	38	73.0	50	24	67.6	72	16	81.8
Total	965	153		600	86		727	76	
	χ^2 = 24.0; df = 1; p < .001			29.9; 1; p < .001			8.8; 1; p < .01		

	Centers			Services			Drydocks		
Disciplinary Action Pending	Success	Failure	Percent Success	Success	Failure	Percent Success	Success	Failure	Percent Success
Yes	104	30	77.6	64	26	71.1	100	23	81.3
No	858	121	87.6	531	60	89.9	623	52	92.3
Total	962	151		596	86		723	75	
	χ^2 = 10.1; df = 1; p < .01			24.9; 1; p < .001			14.8; 1; p < .001		
Missed Work Time									
Age 17-27	496	112	81.6	313	65	82.8	383	29	93.0
Never, 28 and over	464	41	91.9	285	20	93.4	342	47	87.9
Total	960	153		598	85		725	76	
	χ^2 = 13.0; df = 1; p < .001			17.5; 1; p < .001			5.9; 1; p < .02		
Demoted									
Never	712	86	89.2	473	52	90.1	586	54	91.6
Other	250	67	78.9	124	32	79.5	140	22	86.4
Total	962	153		597	84		726	76	
	χ^2 = 20.6; df = 1; p < .001			12.5; 1; p < .001			4.0; 1; p < .05		
AWOL									
Never	624	75	89.3	381	38	90.9	535	41	92.9
Other	337	77	81.4	215	46	82.4	191	35	84.5
Total	961	152		596	84		726	76	
	χ^2 = 13.6; df = 1; p < .001			10.9; 1; p < .001			13.2; 1; p < .001		
Tried to Stop									
Age 17-27	240	76	76.0	189	38	83.3	189	30	86.3
Never, 28 or over	717	77	90.3	407	47	89.6	535	46	92.1
Total	957	153		596	85		724	76	
	χ^2 = 39.2; df = 1; p < .001			5.6; 1; p < .02			6.2; 1; p < .02		
Hallucinations									
No	779	112	87.4	477	58	89.2	622	56	91.7
Once or more	185	41	81.9	119	27	81.5	104	19	84.5
Total	964	153		596	85		726	75	
	χ^2 = 4.7; df = 1; p < .05			6.1; 1; p < .05			6.3; 1; p < .05		
Drank in Clinic									
Never	596	71	89.4	370	58	86.4	387	25	93.9
Once or more	44	18	71.0	26	9	74.3	70	10	87.5
Total	640	89		396	67		457	35	
	χ^2 = 17.9; df = 1; p < .001			3.9; 1; p < .05			4.2; 1; p < .05		
Alcoholic[a]									
Non-alcoholic	307	38	89.0	200	10	95.2	324	21	93.9
Mild	296	41	87.8	205	35	85.4	229	23	90.9
Moderate, severe	330	73	81.9	186	39	82.7	172	31	84.7
Total	933	152		591	84		725	75	
	χ^2 = 9.16; df = 2; p < .02			17.32; 2; p < .001			12.71; 2; p < .01		

[a]Variable derived from a combination of several questionnaire items.

	Centers			Services			Drydocks		
Sociopathy[a]	Success	Failure	Percent Success	Success	Failure	Percent Success	Success	Failure	Percent Success
None	452	52	89.7	299	26	92.0	360	21	94.5
Mild	339	53	86.5	202	26	88.6	234	31	88.3
Moderate, severe	148	38	79.6	84	30	73.7	113	21	84.3
Total	939	143		585	82		707	73	
	$\chi^2 = 12.16$; df = 2; $p < .01$			26.51; 2; $p < .001$			14.65; 2; $p < .001$		
Age Alcohol Problem[a]									
17, 28 or more	611	79	88.6	396	36	91.7	519	38	93.2
18-27	328	73	81.8	198	48	80.5	207	38	84.5
Total	939	152		594	84		726	76	
	$\chi^2 = 9.65$; df = 1; $p < .01$			18.05; 1; $p < .001$			14.79; 1; $p < .001$		
Cups of Coffee									
1 or less	129	40	76.3	105	25	80.8	117	25	82.4
2-4	210	50	80.8	150	26	85.2	161	19	89.4
More than 4	623	62	90.9	344	35	90.8	443	32	93.3
Total	962	152		599	86		721	76	
	$\chi^2 = 33.6$; df = 2; $p < .001$			9.9; 2; $p < .01$			15.2; 2; $p < .001$		

(14) NAVHLTHRSCHC-80-10

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER: 80-10	2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER: (9)	
4. TITLE (and Subtitle): (6) Causal Factors in Alcohol Rehabilitation Success or Failure.	5. TYPE OF REPORT & PERIOD COVERED: Interim rept.
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): (10) E. K. Eric Gunderson [redacted] Douglas Kolb	8. CONTRACT OR GRANT NUMBER(s): (16) M0096PN (17) M0096PN0001
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Naval Health Research Center, P.O. Box 85122, San Diego, California 92138	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: P.O. #N0002278F088AFZ and W.U. #M0096-PN.001-1034
11. CONTROLLING OFFICE NAME AND ADDRESS: Naval Medical Research and Development Command, Bethesda, Maryland 20014	12. REPORT DATE: Mar [redacted] 80 (11)
	13. NUMBER OF PAGES: ~~18~~ (12) 19
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office): Bureau of Medicine and Surgery, Department of the Navy, Washington, D.C. 20372	15. SECURITY CLASS. (of this report): UNCLASSIFIED
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Alcohol rehabilitation
Treatment effectiveness
Disciplinary problems
Navy enlisted personnel

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Younger participants in alcohol rehabilitation have much lower effectiveness rates after treatment than older participants, and an increasing proportion of men entering treatment are younger. The purpose of this study was to examine in detail a large number of biographical and personnel characteristics that may be discriminating with respect to post-rehabilitation success. Such examination may contribute to better understanding of underlying causal factors.

Responses to 129 biographical questionnaire items were related to post-

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S/N 0102-LF-014-6601

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rehabilitation effectiveness for younger and older populations at Alcohol Rehabilitation Centers, Services, and Drydocks separately. Many items were discriminating for both younger and older groups, and a combination of pay grade and disciplinary record proved to be a highly effective method of differentiating younger participants in terms of success-failure. Differences in success rates among the three types of rehabilitation facilities appeared to be largely due to differences in population characteristics.