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SUMMARY OF ARI RESEARCH ON DRUG AND ALCOHOL ABUSE

Douglas A. Ramsay

**Army Research Institute for the Behavioral and
Social Sciences
Arlington, Virginia**

May 1975

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20. job, and a low opinion of the Army and its immediate leadership. These factors accord with the drug users' values--resentment of authority, rejection of traditional American culture, and generally hedonistic outlook. Users perceived the company-level leaders as distant, inconsiderate, and not friendly. The company leaders, in turn, felt that drug use was a function of the user's individual personality and membership in a subculture and not of the Army social/organizational environment.

Conceptual models based upon the cumulative data have been developed as part of the continuing research effort. Tangible and more immediately profitable methods of preventing and reducing drug abuse have emerged, however:

(1) present only factual information as part of drug abuse education programs; (2) emphasize human relations programs; (3) lend training and command support to company-level leadership; and (4) encourage participation in active sports and in participation in mood-changing techniques such as transcendental meditation as alternatives for drugs.

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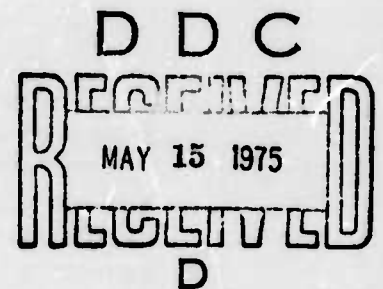
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SUMMARY OF ARI RESEARCH ON DRUG AND ALCOHOL ABUSE

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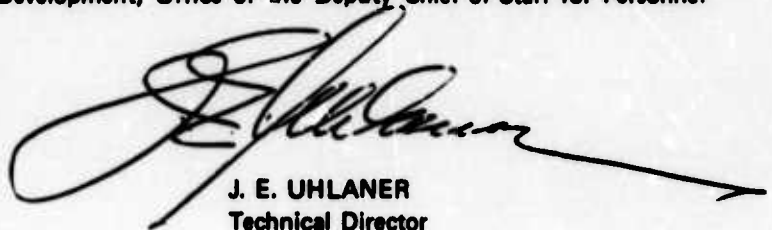
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FOREWORD

The Social Processes Technical Area of the Army Research Institute (ARI) is concerned with problems of social dynamics and interactions to help the soldier better adjust to the modern Army and provide field commanders with techniques to increase unit competence. Programs in the Technical Area deal both with systematic research over wide areas and with immediate and specific problems, in this case the abuse of drugs in the Army.

In 1971, the Army responded to its strongly felt and urgent need to curb illicit use of drugs in the military with massive programs for the identification and treatment of addicted soldiers. These programs included educational efforts designed to deter drug use, as well as detection by urinalysis, detoxification treatments, punishment, and rehabilitation. Since severe drug problems routinely entail medical attention, especially in the management of detoxification, the Office of the Surgeon General was given responsibility for research in the areas of biochemical identification, detoxification, and rehabilitation. The Army Research Institute for the Behavioral and Social Sciences, then under the Office of the Chief of Research and Development and now a field operating agency of the Office of the Deputy Chief of Staff for Personnel, was assigned responsibility in the areas of etiology and education/prevention of drug abuse.

The present publication summarizes ARI research on drug abuse. ARI formulated the initial research program primarily as an applied effort to furnish information and guidance to the Army; basic technological research was also included for the development of measuring instruments, procedures, and appropriate designs--the fundamental tools required to perform sophisticated research in a difficult problem area. Research is conducted under Army RDTE Project 2Q163101A752, "Drug Abuse and Discipline," FY 1974 Work Program. The research is conducted as an in-house effort augmented by contracts with organizations selected as having unique capabilities and facilities in this area, and is responsive to special requirements of the Director of Human Resources Development, Office of the Deputy Chief of Staff for Personnel of the U.S. Army.



J. E. UHLANER
Technical Director

SUMMARY OF ARI RESEARCH ON DRUG AND ALCOHOL ABUSE

BRIEF

Requirement:

To summarize ARI research, 1971-1975, on the behavioral and social aspects of drug and alcohol abuse in the Army, in order to provide information and guidance to the Army on deterrence or elimination of illicit drug use by Army personnel.

Procedure:

The research has been divided into several programs: Determination of the extent and nature of drug and alcohol abuse in the Army and assessment of the effectiveness of drug-education programs in preventing abuse; investigation of the relationship of Army social and organizational factors such as leadership and morale with drug abuse; investigation of the relationships between drug and alcohol abuse and company-level leadership; and exploration of constructive alternatives to drug abuse. Data were gathered using anonymous self-report questionnaires and by selected in-depth individual interviews or group discussions.

Findings:

The use of mood-changing substances appears to be widespread in the Army, with one survey reporting 40% of the enlisted men using marijuana within the month, a third of them using alcohol daily or every other day, and users of harder drugs, while far fewer and seldom actually addicted, using a wide variety of substances. Anonymous self-report questionnaires appeared to provide more information than urinalysis on the prevalence of illicit drugs. Military drug education programs, like civilian ones, are not effective deterrents.

A study of social-organizational influences on drug abuse, which compared otherwise similar units having unusually high and unusually low drug use, found that drug abuse was significantly associated with low morale, boredom, and dissatisfaction with job, officers, and the Army. Certain value-attitude profiles among enlisted men, including rejection of authority and standard American culture, and an anti-work ethic are associated with drug use, increasingly so as the differences increase between these values and the values and attitudes of the commanders. Drug users typically viewed their commanders more negatively than non-users in the same unit did. Commanders of units with high drug use tend to feel that drug use is a function of an individual's personality and subculture, while commanders of units with low drug use tend to regard it as a result of the individual's Army environment. No correlation was found between amount of alcohol consumed and any social-organizational or value-attitude factor.

Exploration of constructive alternatives to drugs tested the effect on drug use of instruction in karate (an example of an active skill) and in transcendental meditation (TM-an example of a non-drug mood-changing technique). Karate lessons did not affect drug use in the several months of the experiment, but frequent, deep meditation appeared to produce a significant reduction of drug intake.

Utilization of Findings:

Operational programs designed to reduce or maintain drug use below the level at which efficiency is impaired appear to be more realistic than attempts to eradicate drug use entirely. The extent to which drug/alcohol use among Army personnel actually impacts on performance efficiency has not yet been determined.

Further exploration is underway on the relationships between drug/alcohol use and social-organizational aspects of the military environment which are amenable to change. Army drug education programs should be limited to simply presenting facts, but human relations programs should be expanded, possibly by counseling, to help young enlisted men with personal problems. A handbook is being written to help installation drug-control officers meet Army requirements and provide feedback on effectiveness. Company-level commanders need increased command support and training, including help in communicating with their men; an on-going project is providing company-level leaders with techniques to handle a variety of social problems including drug abuse.

Offering alternatives such as TM or karate is worth further study simply because the cost is low and the payoff potentially great.

SUMMARY OF ARI RESEARCH ON DRUG AND ALCOHOL ABUSE

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SUMMARY OF ARI RESEARCH ON DRUG AND ALCOHOL ABUSE

BACKGROUND

Early in 1971, reports were received concerning the use of heroin in Vietnam by American soldiers. The Army, on the basis of its own studies in Vietnam,^{1,2} had begun to develop measures designed to cope with the problem. When the President, in June 1971, declared that drug abuse constituted a problem of major proportions for the country, the Army was prepared to begin urinalysis in order to identify Army drug users stationed in South Vietnam within a matter of days. Concurrently with the effort to identify drug users and treat addicted soldiers in Vietnam, the Department of the Army was formulating policy for field units throughout the world to design and implement comprehensive programs at each U.S. Army installation. These programs were aimed at the identification and treatment of personnel with drug and alcohol problems and included education efforts designed, in part, to deter illicit drug use.

REVIEW OF ARI DRUG AND ALCOHOL RESEARCH

Beginning in mid-1972, ARI initiated several major research efforts in the area of drug and alcohol abuse. They focused on the areas mentioned above, as being within the purview of the mission assigned to ARI.

Assessment of Prevention-Education Programs

Starting in 1971, commanders in the field had been instructed to develop drug prevention programs to make Army personnel, especially enlisted men, aware of the consequences and personal dynamics of drug abuse.³ These programs were as varied as they were numerous, since each installation was responsible for the development of its own program.

ARI launched a major effort to go out in the field and assess the impact of a selected cross section of programs in the United States, Germany and Korea.⁴ Survey research and interview techniques were used

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- ¹ Baker, S. L. Drug abuse in the United States Army. Bulletin of the New York Academy of Medicine, 1971, 47, 541-549.
 - ² Stanton, M. D. Drug use in Vietnam. Archives of General Psychiatry, 1972, 26, 279-286.
 - ³ Department of the Army, Alcohol and Drug Abuse Prevention and Control Plan (HQDA ADAPCP), 3 September 1971.
 - ⁴ Cook, R. F., and A. S. Morton. As assessment of drug education-prevention programs in the US Army. ARI Technical Paper 261, January 1975. (AD A003 308)

to determine 1) the exposure of enlisted men to drug education-prevention programs and 2) the changes in drug use, if any, subsequent to that exposure. In most cases, this represented retrospective data, although in one case the information was gathered both before and after the initial introduction of a program at the installation. In all, 16 posts were visited and over 1,700 enlisted men were administered questionnaires.

The implicit purpose of the Army's drug education courses is to prevent, reduce, or stop the use of harmful substances. Success of the first aim can only be assessed by longitudinal studies and consequently was beyond the scope of the present cross-sectional study. In terms of the other aims of the programs, the present research found no evidence that Army programs affected alcohol and drug use of those exposed to the programs differently from those who did not receive alcohol and drug education. This finding emerged about the same time that civilian studies were reporting similar results and, in some instances, were demonstrating counterproductive results, i.e., increased drug use by youths who had received drug education lectures versus those who had not.^{5,6}

The failure of programs to stem the use of illicit drugs is not particularly surprising, given the typical format of many which focused on the alleged dangers of drug use. Cigarette consumption continues to increase some 10 years after the Surgeon General's report on the link between smoking and cancer and the subsequent massive public education campaigns; mere airing of the dangers has had no discernible effect. Programs which emphasize real and alleged dangers of drug use have not worked very well.⁷

The findings of this study and others in the literature suggested several changes in current Army programs and allocation of resources:

1) Reducing the objectives of educational programs in ways that recognize the limits of didactic instruction for changing attitudes, motivations, and behavior. This means limiting the aims of programs to imparting factual information.

⁵ Richards, Louise. Psychological sophistication in current drug abuse education. In J. R. Wittenborn (Ed.), Communication and drug abuse. Springfield, Ill.: Charles C. Thomas, 1970.

⁶ Swisher, J., J. Crawford, R. Goldstein, and M. Yura. Drug education: Pushing or preventing? Peabody Journal of Education, 1971, 55, 68-75.

⁷ Wald, Patricia M., and Annette Abrams. Drug education. In Wald, Patricia M., and P. B. Hutt, Co-chairmen. Dealing with drug abuse: A report to the Ford Foundation. New York: Praeger Publishers, 1972, pp. 123-172.

2) Strengthening the capability of Army resources for helping young enlisted persons cope with personal problems. This means strengthening the human relations program, possibly by increasing counseling resources.

3) Providing training and command support for enabling and encouraging the leadership structure, especially at the company level, to increase its communication with lower grade enlisted persons and to recognize their needs for greater satisfaction with life through meaningful work, opportunities for personal growth, and desired off-duty activities.

Research on Social-Organizational Forces Influencing Drug Abuse in the Army

ARI research has been largely oriented towards environmental influences on drug abuse, for two major reasons. First, the role of the immediate environment in drug use has not been extensively researched, and most of what we purport to know about its dynamics comes from a mixture of anecdotal evidence and theoretical speculation. Second, and more important, an institution like the Army can do little to change the central characteristics of an individual, but it can modify the quality of his social and organizational environment--the job he performs, the manner in which he is supervised, and the recreational alternatives available to him. While the immediate social environment may account for only a relatively small proportion of the variance in drug behavior, it constitutes that portion of the variance which can be directly influenced by the Army.

In mid-1972 a research effort was begun with the major objectives of 1) investigating the relationship of social and organizational factors such as leadership, morale, and job satisfaction to drug use in Army Table of Organization & Equipment units and 2) analyzing patterns of drug use of enlisted men in terms of periods of initiation, levels of involvement, and reasons for shifts in patterns of drug use.

The research approach called for an extreme comparisons design in which company-sized units which had severe rates of drug abuse were compared with those which had low rates of abuse. In order to categorize units along a drug-use continuum, reliable and valid estimates of prevalence had to be obtained. An initial attempt was made to obtain prevalence estimates through examination of arrest records, voluntary referrals for treatment, and urinalysis but was abandoned because these data bases failed to provide information on enough companies at any one post. Instead, prevalence of drug abuse was estimated from responses to an

anonymous self-report questionnaire.^{8,9,10} A total of 398 TO&E units in the U.S., Germany, and Korea were surveyed (17,141 enlisted men). A drug use value was computed for each unit, taking into account the number of marijuana users, hard-drug users and nonusers in the unit. This value was compared with the mean use value for the post or division, and the unit was located on a Drug Abuse Prevalence Index. Based on this analysis, 36 units were identified as low drug-use units and 36 as high drug-use units. For each of these units, a 251-item instrument, which included background questions, a personality scale, and 19 social/organizational (S/O) scales, was administered to all available enlisted men. The 19 S/O scales dealt with factors such as morale, job satisfaction, opinions of officers and non-commissioned officers, consideration of commanding officers and First Sergeants, group intimacy and opinions of the Army.¹¹

In order to achieve the second objective, a separate research effort was implemented. Individual in-depth interviews were held with a stratified random sample of 266 Army enlisted personnel, grades E1 through E5, at six posts in the U.S.¹² Each individual's drug-use history was traced from the time of his first reported use of drugs to the time of the interview. The interviewees were also asked their reasons for use of drugs, for changes in frequency of use (both increases and decreases), and for cessation of use.

The results of the first part of this investigation revealed that leadership factors, job satisfaction, morale, and the enlisted man's opinion of the Army are related significantly to the level of drug use in a unit. In high drug-use units, commanders are reported to be less considerate, less friendly, and more difficult to approach than commanders in low-use units. Commanders in high-use units disagree with commanders in low-use units as to the reasons for drug use and tend to play down the effects of environmental influences on drug use, giving greater emphasis to the roles of personality and subculture membership. The enlisted men in low drug-use units have a generally higher opinion of their officers.

⁸ Hurst, P. M., R. F. Cook, and D. A. Ramsay. Assessing the prevalence of illicit drug use in the Army. ARI Technical Paper, 1975 (in press).

⁹ Luetgert, M. J., and Ann H. Armstrong. Methodological issues in drug usage surveys: Anonymity, recency, and frequency. International Journal of Addictions, 1973, 8, 683-689.

¹⁰ King, F. W. Anonymous versus identifiable questionnaires in drug usage surveys. American Psychologist, 1970, 25, 982-985.

¹¹ Walizer, D. G., and R. F. Cook. Illicit drug use in the Army: A social-environmental analysis. ARI Technical Paper (in preparation).

¹² Ramsay, D. A., R. F. Cook, and R. S. Hostetter. Polydrug use patterns of US Army personnel. ARI Technical Paper (in preparation).

The enlisted men in high use units report less satisfaction with their jobs, viewing them as boring, unimportant, and often not the job of their choice. Their overall morale is lower than in low-use units and they are more homesick, bored, and lonely. Their counterparts in low-use units have a higher overall opinion of how the Army is run or its treatment of enlisted men.

The in-depth interviews with enlisted men showed that about 50% had used illicit drugs on a regular basis at some time. Detailed analysis of the use histories of illicit drugs culminated in a typology which rejected "experimentation", i.e., trying a drug once or twice, as a basis for classification. The resulting classification identified three groups: 1) Multiple users--those who had used two or more drugs; 2) marijuana-only users--those who may have tried other drugs but were primarily marijuana smokers; and 3) non-users--those who may have merely tried but not used regularly one or more drugs. Analysis of the multiple-user group showed that the current pattern of illicit drug use in the Army rarely involves the use of a single drug for extended periods of time. Instead, drugs are frequently switched with increases and decreases in use mainly a function of availability. Contrary to the widespread belief that users of harder drugs (especially opiates, barbiturates, and other sedative hypnotics) are addicted or dependent, it was found in this sample that they are, for the most part, occasional users or "chippers."

The Role of Company-Level Leadership in Preventing Drug Abuse in the Army

As evidence began to accumulate on the association between drug use and the social and environmental climate in the Army, a separate research effort was begun to examine more closely the role of leadership factors in drug and alcohol problems. A two-phase research effort was initiated in which the first phase was designed to determine whether, in fact, company-level leadership was significantly related to differential levels of drug use and alcohol consumption.¹³ If such were found to be the case, the second, future phase would be to design, implement, and assess ameliorative methods which might be taught to leaders at various levels in the company to reduce drug use and excessive alcohol consumption. Two main hypotheses were formulated at the outset:

1) Rates of drug use and excessive use of alcohol in company-size units vary with the leadership style of NCOs and officers within these units.

2) Units which have a wide disparity between the values and attitudinal orientations of NCOs and officers versus enlisted men will have higher rates of drug use and excessive use of alcohol.

¹³Eckerman, W. C., and R. F. Cook. The role of company-level leadership in preventing drug abuse in the Army. ARI Technical Paper (in preparation).

The research methodology used was similar to that of the preceding study. Companies were selected from the ends of the drug-use continuum, excluding those from the middle. Four installations were chosen as study sites, two in the United States and two in Europe. At each site, six companies were selected for study, three high in drug use and three low in drug use, for an overall total of 24 companies. There were two types of data gathering devices. 1) A self-administered questionnaire was completed by all personnel in the selected companies. The questionnaire contained 103 separate indices covering value-attitude variables, leadership dimensions, and organizational climate and effectiveness, as well as drug and alcohol use scales, drug attitude and knowledge scales, and personal and Army background variables. 2) In addition, small group discussion sessions were held with company commanders, 1st sergeants, platoon leaders, platoon sergeants, squad leaders, and selected squads. Discussions centered around such issues as sources of conflict between enlisted men, NCOs, and officers; differences in Army personnel compared to earlier time periods; levels of drug use and excessive use of alcohol; and recommended solutions to these problems.

With the squad as the primary unit of analysis, the research revealed that certain value-attitude profiles for enlisted men--including indices of generational conflict, anti-work ethic, rejection of authority and of traditional American culture, hedonism, and attitudes towards drugs--are associated with drug-use levels. In addition, discrepancy scores between value-attitude positions of enlisted men and their respective leaders also are related to drug usage in squads. At the company level, senior NCOs and officers in high and low use companies were found to differ in their expressed values and attitudes.

A number of global measures of organizational effectiveness and climate were obtained. In general, these showed that enlisted men in high drug-use squads perceived their companies as being at a low level of technological readiness. They felt that they were receiving insufficient information and that decisions were made at less than an optimal level. They felt also that they had little influence over what goes on in the company and had less input into the formation of objectives set by the company. They indicated a lower level of satisfaction with a wide array of aspects of Army life including: the other people in their squads, their immediate supervisors, the nature of their jobs, their company, their pay, their current progress in the Army, and their potential for advancement.

Analysis of the results from scales relating to leadership behavior showed that drug use within squads did not appear to be associated with enlisted men's perceptions of their squad leader's behavior, but it was related to perceived leadership behavior for all other major levels, i.e., platoon leaders and sergeants, 1st sergeant, and company commander.

An important variable seemed to be work facilitation (the degree to which various leaders help them achieve work goals), which was significantly associated with squad drug use levels at the platoon sergeant, platoon leader, 1st sergeant, and commander level. Of interest was the finding that the simple frequency of meetings in which leaders talk over work-related problems with their subordinates was also related to drug use levels between squads.

The results relating organizational effectiveness and leadership variables to drug use levels were subjected to further analysis because of the possibility of alternative interpretations. For example, possibly the lower average perceptions of leadership behavior by enlisted men in high-use squads could simply reflect a generalized negativism among the drug users who make up a larger proportion of these squads, while the nonusers in these squads view their leaders more favorably. Separating the data for users and nonusers showed that, indeed, drug users were accounting for the relationship between drug usage and leadership indices. In fact, for a number of indices, mean values for nonusers were in the opposite direction from those for drug users.

The question remains as to why leadership is perceived differently by drug users and nonusers in the same units. Because of the correlational nature of the research design, no causal relationships can be established in the absence of field experiments, but several alternative interpretations may be advanced. Perhaps the type of person who uses drugs in the Army may be relatively negative about all aspects of the Army and possibly about any restrictive setting. Perhaps high drug-use squads may have become that way through normal assignment procedures unrelated to drug-taking behavior. Regrettably, the questionnaire did not delve into the initiation of drug taking nor changes in amount of use since joining the unit, questions which might have shed more light on the relationship between perceived leadership and drug usage.

An alternative explanation is not that drug-using enlisted men perceive the same leader behavior differently than nonusers do, but rather that they are indeed treated differently. This interpretation is partially borne out by the results of small group discussions which indicated that NCOs were often aware of how serious the drug problem was in their unit and who among the enlisted men were involved. This interpretation, then, suggests that drug use among enlisted men may result in punitive supervisory practices (a negative component of leadership) rather than more positive leadership behavior designed to reduce such drug usage.

Given the exploratory and correlational nature of this inquiry into the relationship between drug use and value-attitudinal measures of perceived leadership, no definitive answers can be provided. The alternative causal models described above are clearly speculative but suggest field experiments designed to test the directionality of some of the associations among variables identified in the research.

A further major concern was to determine the degree to which perceived leadership characteristics and value-attitude conflicts among Army personnel are associated with differential degrees of alcohol consumption. Through a series of subquestions, measures of alcohol consumption were established within the framework of a Quantity-Frequency (Q-F) index.^{14,15,16} The Q-F index combines estimates of the amount of absolute alcohol consumed at a single setting with measures of the frequency of these occurrences. In order to make comparisons between squads, mean scores for enlisted men on the Q-F index were converted into squad level means. The resulting distribution of squads was then divided into four relatively equal groups covering the continuum of light to heavy drinking. The association of these categories with leadership, social background, and value-attitudinal indices was analyzed by a one-way analysis of variance.

The results of this analysis were entirely different from those for the drug usage analysis. Not a single one of the leadership, social background, and value-attitudinal variables revealed a significant relationship with the squad level quantity-frequency alcohol scores. It would appear from this analysis that drinking, especially excessive drinking, bears a markedly different relationship to perceived leadership behavior and value-attitudinal orientation than does illicit drug use.

Interpretation of these results must be made in light of the differences between definitions of illicit drug use and excessive alcohol use. Excessive alcohol use is defined normatively, while any use of illicit drugs constitutes abuse. Although there are recent indications of early addiction of alcohol among young people, the traditional account of alcohol abuse referred to a long-term progression.¹⁷

Constructive Alternatives to Drug and Alcohol Abuse

The research reviewed to this point has documented fairly extensive use of psychotropic drugs, including alcohol, within the Army and has explored some of the relationships surrounding that use. There has been a growing interest in finding innovative ways to stem initiation of drug use and to provide more socially and legally acceptable ways of attaining

¹⁴ Straus, R., and J. D. Bacon. Drinking in College. New Haven: Yale University Press, 1953.

¹⁵ Mulford, H. A., and D. E. Miller. Drinking in Iowa. II. The extent of drinking and selected sociocultural categories. Quarterly Journal of Studies on Alcohol, 1960, 21, 267-278.

¹⁶ Maxwell, M. A. Drinking behavior in the state of Washington. Quarterly Journal of Studies on Alcohol, 1952, 13, 219-239.

¹⁷ Jellinek, E. M. The disease concept of alcoholism. Highland Park, N.J.: Hillhouse Press, 1960.

those psychological states now achieved by many who use drugs. If individuals use drugs to reduce anxiety, satisfy affiliation needs, or alter consciousness, then non-drug experiences which meet those same needs may constitute viable substitutes. The experiences of the past several years, both in the military and civilian communities, have shown that exhortations and harangues have had little impact on youthful drug taking and experimentation. Professionals working in the area have increasingly realized that more sophisticated approaches are needed, approaches which focus on providing sets of alternatives to drug-induced mood alteration. One set of suggested "alternatives" includes the intentional altering of psychological states by means other than drugs, e.g., through techniques such as transcendental meditation, yoga, and biofeedback; or on the more active side, participation in sports, crafts, or a martial art such as karate. The research effort attempted to test experimentally the observation that individuals who become involved in some of these activities decrease their drug and alcohol consumption.^{18,19,20}

Male community-college students were enlisted, through monetary inducement, to participate in a research effort entitled "Life Styles in the Seventies." They were told that it would involve two long test sessions, one at the beginning and one at the end of the spring semester. Those who completed the first questionnaire were then given the opportunity to receive, at no cost to themselves, instruction in either karate or Transcendental Meditation (TM) as part of what was ostensibly an unrelated research effort. The follow-up questionnaire, given several months later and offered to all original enrollees, made it possible to follow those who did or did not volunteer for the instruction and those who started instruction and dropped out. Also, not all who volunteered were selected, creating a control group consisting of those who expressed an interest in these activities but who were not given an opportunity to participate.

A self-administered questionnaire was completed by the respondents. The questionnaire contained some 68 psychosocial and behavioral scales which divided into five broad categories: 1) drug usage, 2) reported life changes, 3) biographical variables, 4) general outlook and mood, and 5) personality and adjustment. Attendance at karate training was

¹⁸ Myers, T. I., and D. A. Ramsay. An experimental study of constructive alternatives to drug and alcohol abuse. ARI Technical Paper (in preparation).

¹⁹ Benson, Herbert, and R. K. Wallace. Decreased drug abuse with transcendental meditation: A study of 1,862 subjects. In C. J. D. Zarafonetis (Ed.) Drug abuse--Proceedings of the international conference. Philadelphia: Lea and Febiger, 1972, pp. 369-376.

²⁰ Shafii, Mohammed, Richard Lavelly and Robert Jaffe. Meditation and marijuana. American Journal of Psychiatry, 1974, 131, 60-63.

monitored during the entire semester. Since TM instruction was concluded within a month, follow-up telephone interviews established the frequency with which the subject had been practicing TM in the months intervening between initiation and final interview. For both karate and TM students, interviewers also asked for general reactions to the training, what progress the student felt he was making, and in the case of those who dropped out, the reasons for stopping.

Analysis of the data addressed several basic questions:

1. Who tends to volunteer for TM and karate, and what distinguishes him from the non-volunteer?
2. Do those who become deeply involved experience beneficial psychological changes and reduce their involvement in drugs?

The results of this research revealed the following: Volunteers for karate training were lower in self-esteem and more emotional and impulsive than the non-volunteers. The non-volunteers lacked a positive self-image of physical prowess; the volunteers rated themselves higher on strength, endurance and steadiness and precision of movement. The differences between the groups, although significant, were not large, and little of the variance was accounted for.

For those who continued with karate training through at least more than half of the training sessions, there was no evidence that participation modified significant drug involvement. Of course, the longitudinal time frame was relatively short. There were some indications that involvement with karate helped to improve self-esteem, mood states, and feelings of self-sufficiency.

Volunteers for TM training were markedly different from non-volunteers. Particularly, they were more heavily into drugs. The general outlook/mood scales and personality/adjustment indices loosely defined two types of volunteers. One type could be described as an unhappy, anxious introvert while the other was an open-minded, experience-seeking non-conformist. Even though the volunteers as a group were more heavily into drugs, those who continued to meditate frequently throughout the study period had lower initial drug involvement.

The meditators showed a significant reduction in drug use on the end-of-semester test, unlike the controls or those who started TM instruction but quit. The frequent meditators showed a greater positive shift on life change scales. They reported being more serene, creative, energetic, efficient, and perceptually alert. Also, the frequent meditators felt somewhat freer, more spontaneous and impulsive than before TM training.

Although the period covered was admittedly short for a longitudinal study, the findings suggest that "deep" TM involvement does, in fact, result in beneficial changes in mood and outlook with attendant significant

decreases in drug involvement. The short time frame was possibly an unfair restraint on the karate students since several years of practice are required for more than beginning mastery of the technique.

CONCLUSIONS AND FUTURE RESEARCH PLANS

Drug use among Army personnel, especially within the lower enlisted ranks, is an ubiquitous phenomenon. For example, the survey of over 17,000 enlisted men revealed that approximately 40% had used marijuana or hashish (cannabis) at least once in the month before administration of the questionnaire and a third had had alcohol daily or every other day.²¹ A substantial number of men reported using other substances such as hallucinogens (13%), amphetamines (15%), barbiturates (11%), cocaine (8%), and opiates (8%). However, with the exception of alcohol and cannabis, the majority reported use of these drugs only 1-6 days per month. Additionally, the percentages cited above overlap in that many users report using several different drugs. Drug addiction in the classical sense of daily intake, then, is rare in relation to the number of persons using potentially addicting drugs. Given the cross-sectional nature of the research reviewed, it is impossible to determine whether those reporting drug use are in the early stages of addiction or are, in fact, representative of stable use patterns in which recreational use of a variety of drugs protects against deep involvement with addictive substances. With the exception of alcohol, which apparently has a more insidious, long-term route to addiction,²² young soldiers are reporting that harder drugs are used in ways which reduce the risk of addiction.

The findings relating drug use to organizational and environmental factors, including leadership variables, cannot be unambiguously interpreted. There are suggestions, however, that drug use may be reduced by programs which address such issues as leadership style, improvement of the physical and social environment, and provision of alternative patterns of behavior for whatever is now being supplied by drug abuse. Regardless of what intervention techniques are employed, it would be naive to assume that all soldiers will stop using all drugs. However, programs which reduce drug use may well reduce the risk of soldiers becoming seriously involved with drugs beyond the point where they are able to function. Offering alternatives such as TM or karate is worth further study simply because the cost is low and the payoff potentially great.

²¹ Hurst, Cook, and Ramsay, 1975, op. cit.

²² Jellinek, 1960, op. cit.

In keeping with the general approach to research in this area, future efforts will be directed towards exploring relationships between alcohol/drug use and aspects of the military environment, both social and organizational, which are amenable to change. One such effort, now in progress, is designed to provide leaders at the company level with techniques for coping more effectively with a variety of social problems, including drug and alcohol abuse. Another effort, although not experimental, involves the production of a handbook for installation alcohol-and-drug control officers detailing ways in which their programs can meet Army regulation requirements, provide feedback on effectiveness, and change to meet challenges of the future. In recognition of the fact that alcohol is probably the most serious drug problem confronting the Army, research currently in the planning stage will attempt to document the institutional and organizational factors supporting alcohol use and abuse in the Army. Although drug and alcohol use may well impact adversely on the performance and combat readiness of U.S. Army personnel, few data are available to document these effects. In order to address this issue, preliminary research will be conducted to assess the effects of drug and alcohol abuse on performance.

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