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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

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A DISSERTATION

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Norman, Oklahoma

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DEPENDENCY NEEDS IN CHRONIC HALLUCINOGENIC

DRUG ABUSERS

APPROVED BY:

DISSERTATION COMMITTEE

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Dependency Needs in Chronic Hallucinogenic Drug Abusers

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Abstract

The purpose of the present study was to investigate the theory that chronic hallucinogenic drug users have abnormally high dependency needs. Twenty heavy hallucinogenic drug users and 20 persons who did not have a history of significant drug abuse were recruited from a population of patients who had applied for treatment at a community mental health center. The performance of these two groups was then compared on an experimental task defined so that it reflected on their ability to be self-reliant. It was predicted that the drug abuse group, when confronted with this task, would demonstrate an enduring motivation to fail at achieving self-reliance. However, an analysis of variance indicated that there were no significant differences between the groups. Although previous research has suggested that young drug abusers wish to be more dependent, the present results suggest that they do not actually act out this wish in overt behavior. Finally, informal observation suggested that the MacAndrew Alcoholism Scale might be a potentially useful instrument for identifying drug abusers in general, and not just the alcoholic.

Dependency Needs in Chronic Hallucinogenic Drug Abusers

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Drug abuse is not a new problem in our society and most available data indicate that the incidence of illicit drug use is rising (Blum and Associates, 1969a). While alcoholism and heroin addiction have long been concerns, a relatively new phenomenon has been the increasingly widespread use of so-called "soft" drugs (Blum and Associates, 1969b). This current drug scene seems to be characterized by the use of hallucinogenic drugs, either alone or in conjunction with other drugs. Scher (1966), for example, calls the use of psychedelic drugs, "the new epidemic."

Illicit drug use is a complex phenomenon and it may not always be associated with a particular type of addictive personality or even to psychological maladjustment in general (Lipinski, 1972). For example, Ausubel (1958) describes a type of drug use called "reactive addiction," in which essentially normal adolescents use drugs as "a non-specific aggressive response to the prolonged status deprivation to which adolescents are subjected to in our society." Also, Lipinski and Lipinski (1970) stress that there are three major levels of motivational factors in illicit drug use: "social or societal, peer group, and individual."

Weil (1972) believes that some persons use psychoactive drugs because "a desire to alter consciousness periodically is an innate, normal drive analogous to hunger or to the sexual drive." Finally, Blum (1972) points out that many young people who try hallucinogenic drugs do so on an experimental-like basis and do not become heavy users.

Most experts, however, agree that some form of psychological maladjustment underlies and precedes chronic and heavy drug use. The standard psychological view tends to emphasize the similarity between different forms of drug abuse, concentrating on the personality of the user instead of the choice of drugs. Traditional psychoanalytic theory, in particular, has tended to de-emphasize the choice of drug, noted the similarity between drug addiction and manic-depressive mechanisms, and has stressed strong oral needs in the etiology of drug dependence (Fenichel, 1945).

Other theorists, however, believe that chronic use of hallucinogenic drugs may involve particular psychological mechanisms. For example, Weider and Kaplan (1969) propose that "different drugs induce different regressive states that resemble specific phases of early childhood development." In particular, they feel that hallucinogens such as LSD produce a loss of ego integrity and create an experience of "fusion and merger,depersonalization, hallucinations, delusional ideation, and other symptoms." They relate these effects to the "transitional period from autism to symbiosis." Thus, the heavy hallucinogenic user may be a person who reacts to current frustration and threat with a regressive yearning for the lost objects of the early oral phase of development, and the psychedelic state provides a semblance of such a

reunion.

Torda (1969, 1970) also believes that the heavy user of hallucinogenic drugs is fixated in the oral phase of development. She believes that the parents of LSD-users attempted to shelter their children too much from frustration and anxiety. The result was a child who was especially sensitive to frustration, whose problem solving skills were underdeveloped, and who remained emotionally dependent on his parents. She believes that hallucinogens, such as LSD, provide an "illusion of being surrounded again by the accepting and anxiety-free atmosphere of his oral-sucking period."

In a somewhat similar vein, Sharoff (1969) believes that hallucinogenic drug abusers have "problems related to the achievement of self-esteem in a competitive and at times hypocritical and destructive society." Sharoff believes that the use of hallucinogens "enables them to substitute love for competition and at the same time feel through perceptual distortion that they have become in reality what they believe they are in imagination."

While theories concerning hallucinogenic drug dependency emphasize abnormal dependency needs resulting from a fixation in the oral period of psychosexual development, very little actual research on the etiology of this type of drug use is available. Several studies suggest that psychopathology usually preceeds heavy hallucinogenic drug use (Hekimian and Gershon, 1968; Blumenfield and Glickman, 1967; Smart and Fejer, 1969). Also, several clinical studies stress oral strivings as being central factors in this type of drug abuse. (Bowers, et al., 1967; Hartmann, 1969; Welpton, 1968). However, these clinical studies can,

at best, be considered only suggestive because they all suffer from small sample size and a lack of experimental controls.

Several studies, however, offer some support for the notion that young psychedelic drug users are emotionally and socially isolated. McAree, et al., (1969) found that their "marihuana only" and control groups were essentially similar, but that their "gross multiple drug user group" displayed significantly more pathology in general on the MMPI, particularly on the Sc (schizophrenic) scale, which they interpreted as reflecting schizoid personality characteristics. Smart and James (1960), using special scales for the MMPI, found that LSD users demonstrated "a greater tendency or desire to escape from restrictions, have a higher incidence of familial discord, more authority problems, and feel more socially alienated and self-alienated than the nonusers." Ahmed (1967), in his study of 140 lower soci-economic juvenile drug users, found that "the degree of involvement in drugs . . . varies inversely with: (a) the degree of conventional orientation, (b) the degree of intimacy in relationships with conventional adults, (c) the degree of achievements in the conventional world."

Difficulty in handling one's aggressive feelings may also be a pre-disposing factor in this type of drug abuse. For example, Edwards, et al., (1969), using the Rosenzweig and Comrey tests, found that heavy psychedelic users demonstrate increased "hostility" when compared to a control group.

Several studies suggest that a general readiness for change or an openness for new experience may well be an important factor in determining who will try hallucinogenic drugs (Blum and Associates, 1972; Brill et al., 1961; McGlothlin, et al., 1967). For example, in Blum's

intensive study of family dynamics of drug users they found that: "High risk families give greater freedom to children, form less cohesive family groups, show more evidence of alcohol use and the use of medications, and generally demonstrate more permissive attitudes than do low risk families. Blum feels that the "high risk parents have emphasized the child's adjustment, individuality, freedom, exploration, and change."

Finally, in a very interesting study using the Leary Interpersonal System to study both drug using and non-drug using psychiatric patients, Cohen, et al., (1971) drew several conclusions. For example, the "underlying character structure" of the drug using patient appears to be "angry, suspicious, and self-doubting." Overtly, the drug abuser is assertive, hostile, and narcissistic. However, unlike the non-drug using patient who strives to be more assertive and self-sufficient, the drug user would prefer being more passive and dependent. Both groups fail to identify with the image of their father. However, where the non-drug user tends to assimilate an image of a nurturant mother, the drug user is lacking in maternal assimilation. Furthermore, the drug users describe their mothers as "strong, managerial, and narcissistic." Cohen believes that this means the drug user has "experienced a gap in the tender, sensuous aspects of life," and that the drug user's family is probably characterized by "emotional environmental deprivation." These results seem to be consistent with the previously described theories of hallucinogenic drug use, in that they suggest oral types of frustrations and dependency strivings.

Thus, dependency needs and related conflicts are generally thought to be important etiological factors in both drug dependency in

general, and hallucinogenic drug dependency in particular. Booth (1969) has noted that similar traits are thought to play an important role in the etiology of alcoholism; and, in a well designed experiment, he demonstrated that alcoholics tend to avoid self-reliance and seek dependence. Similar traits are probably operative in hallucinogenic drug use, and the research by Cohen, et al., (1971) suggests that the young drug user secretly wishes to be more dependent. However, it has not been experimentally demonstrated that chronic hallucinogenic drug users actually "act out" their wish to avoid self-reliance and seek dependency, and the present study was undertaken to investigate this possibility.

Method

Subjects

Subjects for both experimental (drug abuse) and control (non-drug abuse) groups were recruited from the 18 to 30 year old white male population who applied for treatment at a community mental health center. Participation was voluntary, and subjects diagnosed as either retarded, brain damaged, or psychotic were excluded.

The experimental group consisted of subjects who had applied for treatment for problems related to drug abuse, had been diagnosed at their intake interview as drug abusers, and who, according to self-report, used hallucinogenic drugs at least 40 times in the previous year. Since the use of marihuana, a mild hallucinogen, is apparently becoming a widespread social phenomenon (HEW, 1972), a maximum of 20 was counted for marihuana use when determining the 40 incidents of hallucinogenic drug use. No attempt was made to exclude those subjects who also abused other psychoactive drugs since it seems to be the norm in the drug

culture to take a variety of drugs as opposed to just one type of drug.

In order to assure that control group subjects were not alcoholic as well as not heavy users of other psychoactive drugs, the MacAndrew Alcoholism Scale (MAS) was administered (MacAndrew, 1965); and only those subjects who scored 23 or below were included in the control group. Further, the control group consisted of persons who applied for treatment for problems unrelated to excessive drinking or drug abuse, and who gave no history of significant problems with either.

The final groups consisted of 20 subjects each, with a median age of 20 for the drug abuse group and a median age of 23 for the controls.

Experimental Procedure

The experimental procedure employed was exactly the same procedure employed by Booth (1969) in his study of alcoholics. This procedure is quoted below:

> The experimental task, which was a bogus instrument, was introduced to subjects as a Test of Self-Reliance. Instructions for the TSR stated that one's ability to self-reliant could be measured through his ability to recognize self-reliance in others. The TSR presented subjects with the task of selecting the single photograph of a person high in self-reliance from among three photographs--two of which ostensibly represented persons extremely low in self-reliance and one of which ostensibly represented a person extremely high in self-reliance. The measure of a subject's ability to be self-reliant was defined by the test instructions in terms of his ability to recognize the photographs of the highly self-reliant persons on the TSR. In order to provide a common definition of self-reliance for all subjects, the following descriptions of persons low in self-reliance and of persons high in self-reliance were stated in the test instructions, ostensibly to aid subjects in making their choices.
>
> Persons low in self-reliance. Person who are low in self-reliance are unable to find adequate strengths and positive resources within themselves for overcoming most of the problems they encounter and achieving success in life. It is often necessary for other persons to give them assistance or they cannot achieve success.

Persons high in self-reliance. Persons who are high in self-reliance are able to rely on themselves--that is upon their own inner strengths and positive resources--to overcome most of the problems they encounter and achieve success in life.

Subjects were tested individually, and each subject was given the printed instructions for the TSR which were also read aloud.

The experimental task consisted of 100 3½X3½ cards. On each card there were three individual photographs of college age males. The test was divided into five sections, with 20 cards presented in each section and with a one minute break period between each section. It was stated in the test instructions that since it was often difficult for persons to judge their performance on the TSR, their performance would be scored after each section of 20 cards and they would be allowed to record their own score and performance more accurately while taking the test. Thus, during each break period the examiner pretended to score the subject's performance for the previous section by comparing his responses with a bogus answer key. The examiner then reported a false, predetermined score along with the actual performance time for that section, and had the subject record both his score and his performance time on a scoring summary.

Actually there were no correct answers. The photographs were clipped randomly, in groups of three, from a college yearbook. They were in black and white and measured approximately 1X3 for each group of three. For presentation purposes the cards bearing the photographs were mounted in a display device manufactured by the Springfield Photomount Company which allowed the cards to be flipped over and displayed one at a time under a plastic cover. A separate photomount was used for each section of the test; so that five photomounts holding 20 cards each were used altogether. The photomount was placed flat on a table in front of the subject, and the examiner administered the test by flipping each card over so that the subject viewed the card on a flat plane while he made his choice. Following each response the examiner recorded that response and then flipped the next card over. In order to limit the length of time each subject was exposed to the cards it was stated in the test instructions that the maximum time allowed for each card would be ten seconds.

Experimental Conditions

In order to control for the effects of performance expectancies, four different experimental conditions employing different combinations of success and failure at self-reliance were used. This enabled the investigator to determine whether pre-existing needs with regard to dependency versus self-reliance perseveres regardless of the immediate

experience of success or failure on the experimental task.

Each of the four experimental conditions consisted of five drug abuse and five non-drug abuse subjects, assigned randomly. The subjects were then treated as Booth specified:

> In the High-High group subjects were consistently given feedback that they had performed well on the first four sections of the experimental task (feedback designed to elicit high performance expectancies) and were given similar feedback on the fifth section. Specifically, they received scores of 17, 16, 16, 17 and 17 respectively on the five sections of the experimental task.
>
> In the High-Low group subjects were consistently given feedback that they had performed well on the first four sections of the experimental task (feedback designed to elicit high performance expectancies) but were given feedback that they had performed poorly on the fifth section. Specifically, they received scores of 17, 16, 16, 17 and 3 respectively on the five sections of the experimental task.
>
> In the Low-Low group subjects were consistently given feedback that they had performed poorly on the first four sections (feedback designed to elicit low performance expectancy) and were given similar feedback on the fifth section. Specifically, they received scores of 3, 4, 4, 3 and 3 respectively on the five sections of the experimental task.
>
> In the Low-High group subjects were consistently given feedback that they had performed poorly on the first four sections of the experimental task (feedback designed to elicit low performance expectancy) but were given feedback that they had performed well on the fifth section. Specifically, they received scores of 3, 4, 4, 3 and 17 respectively on the five sections of the experimental task.

Dependent Variable

As previously mentioned, each subject was given the opportunity to retake section five of the TSR under the pretext of an administrative error. Booth's procedure for accomplishing this task is as follows:

> As soon as the subject had recorded his score for the fifth section of the test, the examiner, after a few moments pause during the period where he had previously reported the administration time for each section, feigned chagrin and announced that he had apparently neglected to start the stopwatch prior to beginning the fifth section of the test. After a few seconds deliberation he stated:
>
> There's only one thing I can think to do, since I have to have the time for each section. Would you mind too much if I asked you

> to do the last section over again? Why don't you just regard it as a completely new set of pictures; that is, make your choices as if you had not seen them before.
>
> Whereas one minute was allowed to elapse during the break between each of the first five sections of the experimental task, three minutes were allowed to elapse between the scoring and readministration of the fifth section.

The degree and direction of the subject's motivation in regard to achieving success or failure on the TSR is indicated by the number of responses he changes when permitted to retake section five. The subject's original score on section five was used to determine whether his motivation is directed toward success or failure at self-reliance.

Hypotheses

In general, it was predicted that, regardless of the performance expectancies elicited during the first four sections of the TSR, the drug abuse subjects as a group would demonstrate an enduring motivation to fail at the TSR, and the non-drug abuse subjects would demonstrate an enduring motivation to succeed.

More specifically, it was hypothesized that:

1. Within the High-High treatment category drug abusers will change more responses than non-drug abusers.

2. Within the High-Low treatment category, drug abusers will change fewer responses than non-drug abusers.

3. Within the Low-Low treatment category, drug abusers will change fewer responses than non-drug abusers.

4. Within the Low-High treatment category, drug abusers will change more responses than non-drug abusers.

It was further hypothesized that among the drug abuse group:

5. Subjects in the High-High and Low-High treatment categories

combined will change more responses than those in the Low-Low and High-Low treatment categories.

Finally, it was hypothesized that in the non-drug abuse group:

6. Subjects in the Low-Low and High-Low treatment categories combined will change more responses than those in the High-High and Low-High treatment categories combined.

Results

A 2X4 factorial analysis of variance was used to compare the drug abuse subjects and the non-drug abuse subjects across the four treatment categories.

Insert Table 1 about here

As expected, the F tests for both patient category effects and treatment category effects failed to reach significance at the .05 level, demonstrating that the results are neither additive across patient categories nor across treatment categories. It was also expected that a significant interaction effect would occur, but the results failed to verify this. In fact, it can be seen in Table 1 that the interaction effect does not even approach significance. Thus, the experimental hypotheses must be rejected. In other words, the drug abuse subjects do not appear to be significantly different from the non-drug abuse subjects with respect to their motivation to succeed or fail on the TSR. Table 2 shows the means for drug abusers and non-drug abusers within each of the treatment categories.

Insert Table 2 about here

It is interesting to note that the MacAndrew Alcoholism Scale was apparently sensitive to some of the traits of the drug abuse subjects. That is, MacAndrew considers a score of 24 and above to be in the alcoholic range, and 70% of the present drug abuse subjects scored within the alcoholic range. Since this was not part of the original experimental design, statistical tests were not run on this observation, but MacAndrew reports a rate of only 10 percent false positives in his sample of psychiatric outpatinets.

Discussion

The results of this study suggest that regular psychiatric outpatients and patients who are heavy hallucinogenic drug users do not differ in respect to avoiding self-reliance and seeking dependency. These results are somewhat surprising since most theories of etiology for drug abuse in general and hallucinogenic drug use in particular stress the importance of abnormal dependency needs and related conflicts.

Of course, the measuring instrument, the TSR, used in the present study may not be valid. But, if the test is not valid, then it would be very difficult to explain Booth's highly significant and consistent results. However, it is possible that the TSR is sensitive to only gross differences between groups.

The relative youth of the hallucinogenic drug user when compared to the chronic alcoholic may also be an important factor in explaining the present results. For example, the median age for Booth's alcoholic group was 42.5 whereas the median age of drug abusers used in the present study was 20. Fenichel (1945) conceptualizes drug dependency in general as a progressive regressive disorder. It might be that an older group

of alcoholics is more regressed in their psychological functioning, and, thus, tend to act out their abnormal dependency needs. The young hallucinogenic drug user may well wish to be more dependent and less self-reliant, as Cohen, et al., (1971) have suggested. However, the present study suggests that he doesn't necessarily act out this wish overtly. It is possible that if the relatively young drug abusers used in this study continued their heavy use of drugs for 10 or 15 more years, that they too might regress to the point of overtly seeking dependency.

However, hallucinogenic drug use appears to be self-limiting and it is highly unlikely that a person would chronically use hallucinogens over a period of years. McGlothlin and Arnold (1971) observed that their LSD users tended to either discontinue use or show a declining frequency of use over time. They give several possible reasons for this, including: (1) lack of physiological dependence, (2) rapid build-up of tolerance, (3) psychological satiation to the intense effects on emotions, perception, and thinking and, (4), lack of dependable effects. Further, informal evidence seems to indicate that multi-drug users, such as were actually used in the present study, also tend to discontinue or reduce use of hallucinogens over time (Scher, 1966).

Finally, an incidental observation from the present study is that the MacAndrew Alcoholism Scale seems to identify heavy hallucinogenic and/or multi-drug users. This informal observation, of course, needs to be verified experimentally. However, this seems to suggest at least some similarity between the personalities of alcoholics and the youthful multi-drug user, and it may be that the MAS is an effective instrument for identifying drug users in general and not just alcoholics.

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TABLE 1

Analysis of Variance for Comparing Drug Abusers and Non-Drug Abusers Across the Four Treatment Conditions

Source of Variance	df	MS	F	P
Subject Categories (Drug Abusers vs Non-Drug Abusers)	1	1.600	.1988	.6627
Treatment Categories	3	8.367	1.0394	.3894
Interaction	3	5.600	.6957	.5646
With (Error)	32	8.050		
Total	39	7.721		

TABLE 2

Mean Number of Responses Changed on Repeat

Performance of Section Five
(N=5 for Each Subgroup)

	High-High Group	High-Low Group	Low-Low Group	Low-High Group
Drug Abusers (N=20)	6.8	8.0	8.0	6.6
Non-Drug Abusers (N=20)	4.8	7.6	7.2	8.2

APPENDIX A

PROSPECTUS

PROSPECTUS

CHAPTER I

INTRODUCTION

Drug abuse is not a new problem in our society, and most available data indicate that the incidence of illicit drug use is rising (Blum and Associates, 1969a). Alcohol is, by far, our most abused drug, and there are an estimated five to six million alcoholics in the United States (Efrom and Keller, 1966). Traditional forms of drug abuse, such as alcoholism and heroin dependency, have been unduly concentrated in young, poor, urban males (Ball and Chambers, 1970; Blum and Blum, 1967; Cahalan, 1970). A relatively recent phenomenon, however, has been the increasingly widespread incidence of white, middle-class youth who are abusing the so-called "soft" or nonaddictive drugs (Allen and West, 1968; Blum and Associates, 1969b; M. Cohen and Klein, 1970; Freedman, 1966; McGrath and Scarpitti, 1970; Scher, 1966; Sharoff, 1969). This current drug scene seems to be characterized by the use of hallucinogenic drugs, either alone or in conjunction with other drugs (Ludwig and Levine, 1965; Scher, 1966). Scher (1966), for example, states that "the post-21-year-old white will tend to move toward the use today of the psychedelic agents rather than the opiates;" and calls the use of hallucinogenic drugs, "the new epidemic."

Accurate estimates of the use of illicit drugs among young people are probably impossible to obtain for several reasons. Among

the various difficulties are included: the rapidly changing drug scene; the reluctance of users to reveal their involvement with illicit drugs; and the fact that patterns and extent of drug use seems to vary considerably with social setting and geography (Blum and Associates, 1972). However, most surveys indicate that the use of illegal hallucinogenic and other psychoactive drugs is fairly widespread. (Carlin and Post, 1971).

For example, a recent report to Congress by the Secretary of Health, Education, and Welfare (1972) estimates that between 15 and 20 million people have used marihuana in the United States; that in the 12 to 17 year old age group, nearly one in four in the West and one in ten in other parts of the country have used this drug. A recent survey of the Dallas secondary level public schools, during the 1969-1970 school year, found that 28 percent of the seventh to twelfth graders reported having used psychoactive drugs other than alcohol or tobacco (Grossett, et al., 1971). Further, the Dallas survey suggests that between four percent and eight percent of the students were involved in frequent drug use. A survey of 600 school teachers and administrators in Dade County, Florida estimates that between five percent to ten percent of all seventh to twelfth grade students there are habitual drug users (Drugs and Drug Abuse Education Newsletter, 1972).

Blum (1972) reports on several surveys pertaining to student drug use. For example, he reports that at a West Coast university during the school year 1971, 69 percent of the undergraduates had used an illicit drug, 19 percent had tried LSD, and 21 percent were using marihuana regularly (weekly or more often).

Hallucinogenic Drugs Defined

Actually, there is no agreed upon term used to designate the so-called hallucinogenic drugs. Terms such as "psychedelic," "psychodysleptic," and "psychotomimetic," have all been used. What complicates this classification is that it is not the chemical or pharmacological properties that determine the inclusion of a particular drug. Instead, the effect of the drug is deemed important. All of the hallucinogenic drugs have the unique property of being able to induce specific subjective changes in human subjects. Cohen (1969) describes these drugs as follows:

> . . . a diverse group of drugs which alter mood, perception, thinking, and ego structure. In small doses they tend to be euphoriant and do not cloud consciousness. In larger amounts a spectrum of reaction forms is possible, ranging from horror to ecstasy, from absence of thought to a manicky flight of ideas, from intensification of color and depth to illusions and hallucinations, and from minor distortions of the body image to complete loss of ego boundaries.

Classifying hallucinogenic drugs on the basis of subjective effect as opposed to the chemical make-up has led to some confusion as to just what drugs one should include in this category. Furthermore, most lists of hallucinogenic drugs are incomplete because new drugs are constantly appearing, and because there are many relatively unknown and unused "psychedelic" drugs. Some of the more commonly listed hallucinogenic drugs include: LSD (d-lysergic acid diethylamide), Morning Glory Seeds, DMT (dimethyltryptamine), Peyote and mescaline, STP (2.5 dimethoxy-4-methylamphetamine), psilocybin, MDA (3.4-methylenadioxyamphetamine), and cannabis (marihuana, THC, and hashish).

Some controversy exists as to whether or not cannabis should

be classified as an hallucinogenic drug. (Snyder, 1970; Weil, 1972). Snyder (1970), while granting that potent preparations of cannabis can produce effects quite similar to other hallucinogens, states:

> However, the chemical structure of the major psychedelic drugs, while resembling each other, differ markedly from the structure of THC. Moreover, while tolerance to most psychedelic drugs exists and there is cross-tolerance among the different psychedelic drugs, tolerance develops minimally (if at all) to cannabis and there is no cross-tolerance between the psychedelic drugs and THC. These factors suggest that cannabis derivatives have a different mode of action in the brain from other psychedelic drugs.

However, most experts, including the World Health Organization (Isbell and Chrusciel, 1970) consider cannabis and its derivatives to be an hallucinogenic drug.

Drug Dependence

The World Health Organization (1969) defines "drug dependence" as:

> A state, psychic and sometimes also physical, resulting from the interaction between a living organism and a drug, characterized by behavioral and other responses that always include a compulsion to take the drug on a continuous or periodic basis in order to experience its psychic effects, and sometimes to avoid the discomfort of its absence. Tolerance may or may not be present. A person may be dependent on more than one drug.

"Physical dependence" or "addiction" involves the body developing "tolerance" to the drug and also the phenomenon of a withdrawal illness or abstinence syndrome when the drug is discontinued. "Psychic dependence," on the other hand, refers to the compulsive desire to take a drug without having developed a physical dependence. The type of drug dependence associated with hallucinogens is always psychic, never physical. But, as several writers have pointed out that psychic dependence is not necessarily an undesirable phenomenon (McGlothlin and

West (1968); Weil, 1972). For example, watching T.V., drinking Coca-Cola, even enjoying being with one's spouse can all involve psychic dependence as McGlothin & West (1968) have noted that the "harmfulness of such behavior should be based on the consequences of the activity rather than its existence." And there is much evidence to indicate that the chronic use of hallucinogens can be harmful.

Adverse Effects of Hallucinogenic Drug Use

The current drug movement began about 15 - 20 years ago with the introduction of mescaline and LSD into the intellectual, professional, and artistic communities (Blum, 1969). The use of hallucinogens, however, escalated considerably in the mid 1960's (Blum, 1969; Ungerleider and Fisher, 1967), and laws were passed making its possession illegal. The fact that before 1960, the use of hallucinogens such as LSD was limited may well have been the reason that Cohen (1960), after reviewing the situation in 1960, stated: "This inquiry into the adverse effects of the hallucinogenic drugs indicates that, with proper precautions, they are safe when given to a selected healthy group."

This viewpoint, stressing the short-term effects and relative safety of hallucinogenic drugs has been shared by a number of investigators. However, since 1960, a number of articles have appeared in the scientific journals which seem to question the above notion. Both psychosocial and physical dangers have been frequently cited. Also, this change in emphasis may well result from the increasing use of "black market" hallucinogenic drugs among teenagers in a setting involving self administration of a drug of unknown purity and unknown composition.

Physical Dangers

Recently, some writers have stressed the possibility of adverse physical effects which may result from the use of hallucinogens, particularly LSD. In 1967, Maimon Cohen and his colleagues first reported elevated levels of chromosomal breaks in persons who had been exposed to LSD in vivo and in utero (Cohen, 1967). These results, however, have been confirmed by some researchers and not by others (Egozcue and Irwin, 1968; Irwin and Egozcue, 1967; and Loughman, et al., 1967). Furthermore, the implications of these findings are vague. Cohen, himself, raises the possibility that LSD ingestion might subsequently be related to leukemia, birth defects, and spontaneous abortions, but he is also quick to point out that more research is needed before any definitive statement can be made. Yolles (1960) believes that whether or not the observed chromosomal abnormalities are dangerous depends largely on how long-lasting this damage is. Various viral illnesses cause similar changes in chromosomes, but the effects are short-term and are not associated with any pathological consequences. Thus, short-term chromosomal changes may not have any pathological significance. Finally, Irwin (1960), one of the early researchers in this field, states:

> Although we were careful to point out that the LSD group had also used a number of other drugs and that we found damage only in peripheral blood cells, our findings were exploited and grossly distorted by the lay press, which irresponsibly reported that LSD might cause leukemia and malformed children.

The possibility of hallucinogenic drug use causing organic brain damage has also been suggested but not confirmed. Several investigators have noted that the behavior of chronic high-dose users of LSD includes partial disorientation, memory gaps, and a dazed and

bewildered attitude; and these symptoms are often associated with organic brain dysfunction (Allen and West, 1968; Blacker, et al., 1968; Cohen and Edwards, 1969).

Cohen and Edwards (1969) used the Halstead-Reitan neuropsychological test battery, as well as other psychological tests, to study 30 subjects who had taken LSD 50 or more times. They found that visual spatial orientation was impaired in their LSD users, and then noted an inverse relationship between general intelligence and the number of LSD exposures. However, overall, their results gave no evidence of a generalized psychoneurological dysfunction attributable to taking LSD at least 50 times.

Blacker, et al., (1968) studied 21 chronic users of LSD (averaging 65 ingestions of LSD) with a series of cognitive and perceptual tests and EEG studies. Some of the observed behavior and some of their EEG findings were suggestive of minimal brain damage, but, in general, they felt their results were inconclusive.

Thus, possible adverse physical effects resulting from LSD and other hallucinogenic drugs has been noted, but never confirmed. Irwin (1970) perhaps, has summed up the situation best when he stated:

> The adverse physiological effects of LSD and other hallucinogens do not seem to be as severe as those which often follow the use of other psychoactive agents (including alcohol, barbiturates, amphetamines, and narcotics). The most interesting, and by and large, the most dangerous adverse effects of the hallucinogens are those which emerge in the psycho-social sphere.

Psycho-social Dangers

The literature on adverse effects of hallucinogenic drugs in the psycho-social sphere deals mainly with marihuana and LSD, the two

most popular hallucinogens. Although the possibility of hallucinogens causing long-term physical damage has not been confirmed, the fact that these drugs can have tragic psycho-social consequences has been unequivocally established (Cohen, 1966; Cohen and Ditman, 1963; Freedman, 1970; Hensala, et al., 1967; Irwin, 1970; Keeler, 1967; Keeler, et al., 1968; Rosenthal, 1964; Smith, 1967-68; Talbott and Teague, 1969; Ungerleider and Fisher, 1970; Ungerleider, et al., 1968; Ungerleider, et al., 1966).

Although many persons who experience adverse reactions have a previous history of psychological maladjustment (Ungerleider, et al., 1966), the occurrence of such side effects cannot be completely predicted by present methods of personality assessment (Cohen, 1960). Ungerleider and Fisher (1960) point out that some of the worst reactions to LSD have occurred in persons who appeared stable by every indicator, and persons with histories of severe psychiatric problems have been able to tolerate LSD without apparent adverse results. Adverse reactions may occur in persons who take LSD once as well as those who take the drug 50 or more times; and both persons who take only LSD as well as chronic multiple drug users seem susceptible. Furthermore, mild hallucinogens such as marihuana have also been associated with adverse reactions (Keeler, 1968; Keeler, et al., 1968; McGlothlin and West, 1968; Talbott and Teague, 1969).

Hallucinogens seem to bring about a state of dehabituation in which the individual becomes extremely suggestible to immediate environmental cues. Also, as Irwin (1970) has pointed out, a person who does not possess "the background of ability to deal with loosened ego boundaries, regression and gross alterations in one's sense of auto-

nomy . . . may maladapt." Thus, either lack of environmental support or pre-existing ego defects may bring about an adverse reaction after taking an hallucinogenic drug.

The most common adverse side effects are the acute ones. These include hallucinations, anxiety and panic, severe depression sometimes leading to suicide attempts, and confusion. Experienced clinicians usually recommend against hospitalization, if possible, with acute reactions (Irwin, 1970), for sudden changes in environment and inadvertently defining the person as having a psychiatric disability may potentiate the symptoms. In fact, Becker (1967) believes that most adverse effects from hallucinogens can be explained by the user's expectations before taking the drug and adverse social definitions for his subsequent experience.

The initially acute side effects sometimes progress into long term chronic conditions, such as prolonged anxiety and depressive reactions or a psychotic break. Most experts, however, believe that psychotic breaks are more likely to occur in individuals who were preschizoid and unstable personalities before taking the drug (Irwin, 1970).

A particular type of adverse reaction which has received much publicity is "flashbacks," which are spontaneous recurrences of the psychedelic or hallucinogenic state, after the drug has left the user's system (Horowitz, 1969). Although no precise data exists, it has been estimated that approximately 20 percent of illicit LSD and other hallucinogenic drug users experience some type of flashback experience (Horowitz, 1969; Snyder, 1970). However, not all users experience these recurring psychedelic states as being unpleasant, and the term "flash-

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back" is usually reserved for those episodes deemed unpleasant. While the occurrence of flashbacks can create panic in the person experiencing them, most experts have observed that they tend to go away with time.

It has been noted that flashbacks tend to be associated with either stress or relative sensory isolation, but what exactly causes them is unknown. Several theories have been advanced, including: (1) learning not to ignore stimuli that are normally filtered out; (2) brain damage; and (3) the same dynamics observed in traumatic neurosis where repressed ideas and feelings break through.

Amotivational Syndrome. This study, however, is most concerned with the chronic use of hallucinogens, which often leads to what has been called the "amotivational syndrome" (Allen and West, 1968; McGlothlin and West, 1968). This syndrome refers to the apathy and withdrawal often noted in chronic users of hallucinogens. Perhaps these changes in psychological and social functioning have been best described by McGlothlin and West (1968) when they stated:

> Such changes include apathy, loss of effectiveness, and diminished capacity or willingness to carry out complex long-term plans, endure frustration, concentrate for long periods, follow routines, or successfully master new material. Verbal facility is often impaired, both in speaking and writing.
>
> Such individuals exhibit greater introversion, become totally involved with the present at the expense of future goals, and demonstrate a strong tendency toward regressive, child-like magical thinking. They report a greater subjective creativity but less objective productivity; and, while seeming to suffer less from vicissitudes and frustrations of life, at the same time they seem to be subtly withdrawing from the challenge of it.

Etiological Factors in Hallucinogenic Drug Dependence

Illicit drug use in general is a complex phenomenon, and it may

not always be associated with a particular type of addictive personality, or even to psychological maladjustment in general (Lipinski, 1972). For example, Ausubel (1958) in his study of drug addicts, suggests that there are several types of narcotic addicts: (1) "primary addiction in which opiates have specific adjustive value for particular personality defects"; (2) addiction which is "only an incidental symptom of behavior disorder and has no adjustive value"; and (3) "reactive addiction in which drug use is a transitory developmental phenomenon in essentially normal individuals influenced by distorted peer groups." Ausubel believes that "reactive addiction" involves essentially normal adolescents who use drugs as "a non-specific aggressive response to the prolonged status deprivation to which adolescents are subjected to in our society," and that this type of addiction is usually transitory, self-limiting, and without lasting consequences.

Scher (1966) also believes that several factors can cause illicit drug use as he states:

> . . . it is a gross exaggeration, if not a misstatement, to classify uniformly all self-prescribing drug users as addicts--or even necessarily as 'abusers'--although there is certainly a tendency many times in this direction. So varied, complex, and changing is drug use, depending on shifting styles of use or abuse, altering availability, the introduction of new agents, changing group structure, membership, or mores in one location or different sections of the country, as well as police or legislative intensification, that the picture is one of kaleidoscopic twists, and turns at any particular moment.

Likewise, Lipinski and Lipinski (1970) state that a "single motivational factor rarely accounts for psychedelic drug use." They point out that three major types of motivational factors--"social or societal, peer group, and individual"--usually overlap and are all related in drug taking. While individual factors such as "curiosity" or "seeking

meaning" are sometimes decisive, Lipinski and Lipinski feel that an attempt to solve personal problems and feelings of inadequacy are perhaps the most frequent underlying motive.

Weil (1972) is perhaps the most outspoken in his belief that drug use is not necessarily a sign of pathology. He stresses that hallucinogenic and other drugs are simply tools that can be used constructively or destructively, and he postulates that a major reason for using psychoactive drugs is because: ". . . a desire to alter consciousness periodically is an innate, normal drive analogous to hunger or to the sexual drive."

Finally, Blum (1972) points out that many young people who try hallucinogenic and other drugs do so on an experimental-like basis and do not become heavy users. Indeed, Blum feels that experimenting with illicit psychoactive drugs can even have a growth producing effect:

> Illicit use can simply be a stage through which a child passes; it can even be a constructive event insofar as in trying something well-touted but finding it wanting the child becomes more convinced of his own values and judgements."

Theories

Most experts, however, agree that some form of psychological maladjustment underlies and precedes chronic and heavy drug use. In essence, the standard view is that the psychological make-up of the drug user differs from that of the nonuser, and that this difference constitutes the etiology of chronic drug use. The literature concerning drug abuse is vast, but it is mainly concerned with addiction to either alcohol or narcotics. Actually, very little has been specifically written about etiological factors in heavy hallucinogenic drug

use.

The standard psychological view tends to emphasize the similarity between different forms of drug abuse, concentrating on the personality of the user instead of the choice of drugs. Pearson and Little (1969), for example, reported unusual cases of "addiction" to benign agents such as water and nose drops and stress that the personality of the addict is what determines the nature of addiction. They feel that an "addict" always develops a "special psychological relationship with his addicting drug--a pathological dependency upon which he needs and without which he cannot deal with the stressful factors in his life situation." Likewise, Cameron (1963) has stated that ". . . the development of addiction . . . involves first of all an unstable personality plus the accident of introduction to the drugs." Thus, many writers view drug dependency as the same general phenomenon and attempt to explain heavy hallucinogenic drug use by hypothesis originally generated in the study of alcoholics and narcotic addicts.

Psychoanalytic theory has tended to de-emphasize the choice of drug, noted the similarity between drug addiction and manic-depressive mechanisms, and has stressed strong oral needs in the etiology of drug dependence (Fenichel, 1945; Rado, 1933; Rado, 1963). The classical psychoanalytic view is probably best presented by Fenichel (1945). He classifies the problem of drug addiction as being a form of "impulse neurosis," which has its roots in a fixation at the oral phase of psychosexual development. Impulse actions, in general, are ego-syntonic types of behavior that demand immediate gratification and have both a defensive and a need reducing purpose. The contention that the impulsive act is

also a defense is only accurate if one includes "depression" as being one of the dangers defended against. Overall, Fenichel regards addicts as representing the most clear-cut type of "impulse neurosis."

According to Fenichel, a person becomes an addict only when his need for the drug goes beyond a purely protective function, and instead comes to have a subtle, imperative significance. In other words, addicts use the effects of drugs:

> . . . to satisfy the archaic oral longing which is sexual longing. a need for security, and a need for the maintenance of self-esteem simultaneously. Thus the origin and nature of the addiction are not determined by the chemical effect of the drug but by the psychological structure of the patient.

Fenichel characterizes the typical drug addict as being fixated to a passive-narcissistic aim, in which other people become merely suppliers of gratification, and whose self-esteem is dependent on getting food and warmth. Drug addiction is also characterized as a progressive, regressive disorder, in which the addict gradually regresses to the state where the only important reality is that connected with the procurement of the drug.

In the typical psychoanalytic fashion, Fenichel stresses mainly psychological factors even when explaining the concept of "tolerance." That is, he believes that the miseries the addict is trying to avoid become subjectively magnified from the very fact that they are avoided, and this necessitates an even stronger defense. Furthermore, the harmful effects of drug taking, both psycho-social and physical, call for stronger measures of avoidance. In the end, Fenichel believes that the addict finds himself in a progressive visious manic-depressive-like cycle, in which the elation of the drug state is followed by the

depression of the morning after, and in which the depressive periods gradually overcome the ability to experience elation.

Like most theorists, Fenichel does not make major distinctions between the various types of drug dependency. However, different types of drug addicts may have additional characteristics. For example, alcoholics are similarly characterized as having an oral and narcissistic pre-morbid personality, but they are said to have a homosexual component as well. The alcoholic as a child supposedly experienced specific oral frustrations which resulted in the boys turning away from the mother to the father for gratification. This resulted in more or less repressed homosexual tendencies that are not only defended against by drinking, but also find a socially acceptable outlet in various drinking customs.

Weider and Kaplan (1969) agree with the standard psychoanalytic position of chronic drug use always being a consequence of ego pathology, and that drug taking involves regressive phenomena:

> The dominant conscious motive for drug use is not the seeking of 'kicks,' but the wish to produce pharmacologically a reduction in distress that the individual cannot achieve by his own psychic efforts. During early childhood, prior to the resolution of the Oedipus complex and the formation of the super-ego, the still incomplete psychic structure requires an ongoing object relationship to maintain homeostasis. The object compensates for the immaturity of the ego until its functions have developed. The adult borderline and psychotic personalities remain to a large extent dependent on their objects to supplement ego and superego functions. For many drug users, the drug serves that end. Some severely habituated users can safely become abstinent for long periods of time only in the confines of a regulated, protected milieu. The milieu replaces the drug as the homeostatic factor. Relapse, suicide, or psychotic episodes are the more usual sequelae to prolonged abstinence outside of the protective anaclitic environment.

However, Weider and Kaplan's main thesis is that "different drugs induce different regressive states that resemble specific phases of early childhood development." They point out that teenagers with their

physical discomfort, reawakened archaic conflicts, anxiety, and depression may be particularly susceptible to seeking a regressive type of conflict solution. While the drug user supplies the regressive tendency, the drug of choice can provide the particular type of regressive state that fills the drug user's needs. For example, Weider and Kapan relate the "dreamy lethargy" and "blissful satiation" of opiate intoxication to the "narcissistic regressive phenomenon of the symbiotic state," which occurs during the second half of the first year of life. They believe that the effects of amphetamines and cocaine parallel what Malher has called the "practicing period" of the "separation-individuation phase" which occurs during the middle of the second year.

Finally, Weider and Kaplan believe that hallucinogens such as LSD produce a loss of ego integrity and create an experience of "fusion and merger, depersonalization, hallucinations, delusional ideation, and other symptoms." They relate these effects to the "transitional period from autism to symbiosis." Thus, the heavy hallucinogenic user may be a person who reacts to current frustration and threat with a regressive yearning for the lost objects of the early oral phase of development, and the psychedelic state provides such a reunion.

With concepts very similar to the psychoanalytic formulation, Torda (1969, 1970) has attempted to explain the etiology of heavy hallucinogenic drug use--specifically, the LSD user. Based on her experiences with about 50 LSD users in both therapy and psychological testing, Torda states that all of these patients "suffered from rather severe, noncyclic depression." As Toda summarizes:

> The character trends of the LSD users reflected fixation points at the oral-sucking phase mixed with anal trends of somehwat less

> intensity. The strong oral trends consisted of magical thinking, pleasure seeking, low frustration tolerance, passive-dependent tendencies, imagination, creativity, generosity, optimism, and lack of pre-occupation with the future. The anal trends consisted mainly of ambition, perfectionistic tendencies, obsessive-compulsive defenses, and self-scrutiny. (Torda, 1969)

Torda believes that the sources of the above character trends can always be traced to the behavior of the parents. More specifically, she describes these parents as hard-working, loving parents who attempted to shelter their children from frustration and anxiety. However, their efforts backfired in the sense that what they produced was a child who was consequently especially sensitive to frustration, whose problem solving skills were underdeveloped, and who remained emotionally dependent on the parents.

For this type of individual, Torda believes that hallucinogens such as LSD create a particularly gratifying type of situation. That is, because of inadequately developed skills and low frustration tolerance, the potential LSD user often responds to stress with panic and depression.

> To escape panic and depression, the LSD user attempts by the consumption of hallucinogens, to recreat the illusion of being surrounded again by the accepting and anxiety-free atmosphere of his oral-sucking period.

Sharoff (1969) believes that hallucinogenic drug abusers form a quite distinct category from those who abuse either narcotics or alcohol and other non-narcotic sedatives. He believes that alcoholics and non-narcotic sedative abusers use their drug to resolve conflicts with sexuality and aggression by acting them out; and that narcotic addicts are reacting to a failure to achieve self-esteem by withdrawing. Like Torda, however, Sharoff believes that hallucinogenic abusers:

> . . . also have problems related to the achievement of self-esteem in a competitive and at times hypocritical and destructive society. The use of the drug here enables them to substitute love for competition and at the same time feel through perceptual distortions that they have become in reality what they believe they are in imagination.

Limentani (1968) and Levy (1968) agree that no clear-cut pattern of psychopathology is apparent in the problem of drug dependence. Limentani notes that the psychopathology of hallucinogenic and other forms of drug dependence is frequently "traced back to early states of deprivation and abnormal dependency needs." He also believes drug dependence is frequently associated with depressive states, particularly since aggression is the "constant companion" of depression. That is, Limentani feels that people often take drugs in an attempt to neutralize aggressive drives. Levy, however, believes that abusers of nonnarcotic drugs are "doing more than just avoiding the pains and conflicts of living." That is, he believes that use of hallucinogens often involves a search for "a more meaningful existence."

Research

Some research is available to throw light on the issue of whether or not psychopathology generally precedes heavy hallucinogenic drug use. Hekimian and Gershon (1968) studied a group of hallucinogenic abusers seeking psychiatric hospitalization and found that 50 percent would probably have been considered schizophrenic before taking drugs. Similarly, Blumenfield and Glickman (1967) studied 23 young male patients admitted to a psychiatric hospital as a result of LSD ingestion. Over 70 percent of the drug patients had had previous psychiatric treatment, with 80 percent being diagnosed as psychotic or "borderline," and these

difficulties seemed to pre-date the use of LSD. However, these were highly select groups and may not reflect the same degree of psychopathology as might be found outside of a psychiatric setting.

Smart and Fejer (1969) used paid volunteers that were apparently not psychiatric patients in their study. They compared 100 illicit LSD users (who were really multihabituated) with 46 matched non-user controls with a structured interview and a battery of psychological tests, including the MMPI. Their results indicate much more psychopathology among the LSD group, as 97 percent had "abnormal" MMPI profiles compared to 46 percent of the controls. Furthermore, their interview data suggest that this psychopathology pre-dated their drug use.

On the basis of a thorough clinical evaluation of 12 drug-taking adolescents in therapy, Hartmann (1969) discovered more pathology among the mothers than the fathers, and that a frequent conscious motivation for taking drugs was to avoid painful depression. His conclusions are consistent with psychoanalytic theory in that they classified 10 of the 12 youngsters as "orally fixated (or regressed) in their libido development."

Likewise, Bowers, et al., (1967) presented three clinical case studies of psychedelic users in psychotherapy. The projective test material suggests a central problem of "intense needs for interpersonal closeness and lack of access to meaningful affective experiences." The projective themes, for example, centered around "unfulfilled wishes for intimacy, fusion, and deep affective involvement."

Welpton (1968), in still another clinical study, used interview, observation, and projective testing to study the psychodynamics of 12

chronic LSD users. They found that:

> Their family histories revealed with remarkable consistency that their parents had failed to establish an intimate relationship, and their mothers had become intensively involved with the subjects to compensate. The families had been split into rivalrous factions with the subjects and their mothers on one side and their fathers and siblings on the other. They view their fathers as hated rivals who had disappointed their mothers and were not to be imitated. The subjects lived home-bound childhoods and had major difficulties trying to become independent adults. Their marriages and courtships were disappointing efforts to replace their lost intimacy with their mothers. They rejected their fathers as vocational models and focused their attention on artistic and creative endeavors with disappointing results.
>
> Psychological testing showed them to have major difficulties with sexual identification, dependency needs and controlling aggression.

Welpton felt that LSD use by these subjects represented an attempt "to temporarily break down self-object boundaries . . . (and) to merge with others in experiences of intense intimacy such as they had lost with their mothers."

Besides a lack of experimental controls, the sample size in all of the above three clinical studies is too small for generalizations. Thus, all of the above mentioned clinical studies can, at best, be considered only suggestive.

McAree, et al., (1969), however, offer some support for the notion that young drug users are emotionally isolated. Using the MMPI on a college population, they studied 30 gross multiple drug users ("all of whom reported varied and extensive use of all types of drugs as well as the use of psychedelic substances"), 19 marihuana only users, and 18 control subjects. The marihuana only group was found to be essentially similar to the controls, but the gross multiple drug user group displayed significantly more pathology in general on the MMPI, particularly

on the Sc (Schizophrenia) scale. Instead of psychosis, McAree, et al., interpreted the results as indicating that the heavy drug users had "schizoid personality characteristics (such) as withdrawal and poor interpersonal relationships, aloofness and an inability to express emotions."

Using the study cited previously by Smart and Fejer (1969), Smart and Jones (1970) did a further analysis of the MMPI results. They found that on special scales for the MMPI, LSD users demonstrated "a greater tendency or desire to escape from restrictions, have a higher incidence of familial discord, more authority problems, and feel more socially alienated and self-alienated than the nonusers."

Ahmed (1967) used a variety of techniques, ranging from a modified TAT to interviews, observations, and group discussions to study 140 lower socio-economic juvenile drug users. The majority of their sample was from minority groups. They found that "the degree of involvement in drug use by juveniles varies inversely with: (a) the degree of conventional orientation, (b) the degree of intimacy in relationships with conventional adults, and (c) the degree of achievements in the conventional world."

Thus, the results of several different studies seem to suggest that the heavy psychedelic drug user presents a picture of emotional maladjustment and social and/or emotional isolation.

Edwards, et al., (1969) seriously question the stereotype of the hallucinogenic drug user as being profoundly non-hostile. In a study of 30 heavy psychedelic users and 30 matched controls, using the Rosenzweig and Comrey tests, Edwards, et al., found the drug-dependent

group different only in respect to increased "Hostility." They conclude by suggesting that difficulty in handling one's aggressive feelings may be a predisposing factor in psychedelic drug abuse.

The above results seem to be the exact opposite from what has been reported by Blacker, et al., (1968). Blacker, et al., studied 21 chronic users of LSD and noted "that the group shared a set of magical-mystical beliefs and profound nonagressive attitudes." However, it should be noted that this was a clinical observation, not verified by psychological tests, and employing no control group. Edwards, et al., discovered increased hostility on the level tapped by psychological tests.

A general readiness for change or an openness for new experience may well be an important factor in determining who will try hallucinogenic drugs. For example, McGlothlin, et al., (1967), found that those persons who react favorably to the idea of taking LSD in an experimental setting prefer intuition to a conventional factual approach to problems, prefer unstructured instead of structured lives, and on the MMPI score significantly higher on the F, Pd, and Ma scales, which suggests unconventional values and ideas. The same type of traits have been noted for marihuana users. That is, Brill, et al., (1971) found that more frequent use of marihauan was significantly related to higher scores on a "stimulus seeking" scale and the Pd scale in the MMPI. Finally, Blum (1972), in an intensive study of the family dynamics of both drug users and non-users, found that: "High risk families give greater freedom to children, form less cohesive family groups, whos more evidence of alcohol use and the use of medications, and generally demonstrate

more permissive attitudes than do low risk families." Further: "The high risk parents have emphasized the child's adjustment, individuality, freedom, exploration, and change."

Cohen, et al., (1971) and Schooler and Cohen (1970) have done a rather intensive series of studies using the Leary Interpersonal Checklist. They studied 80 drug using patients referred to a drug-abuse clinic for treatment and a matched control group, also in psychiatric treatment. Although they do not specify the type of drug abuse involved, one would guess it would be multiple drug abuse including hallucinogens from the characteristics of the sample (53 males and 27 females, mean age of 19.2 years). Their results are complicated, and do not lend themselves to simple interpretation. For example, they suggest that the "underlying character structure" of the drug using patient is "angry, suspicious, and self-doubting." Overtly, the drug abuser is assertive, hostile, and narcissistic. However, unlike the non-drug using patient who ideally strives to be more assertive and self-sufficient, the drug user would prefer being more passive and dependent than they see themselves. In other words, the drug user would prefer not to act in such a way so that he would have to take personal or social responsibility. Both groups describe their parents as "self-reliant, responsible, and generally behaving in a socially desirable manner," and both groups show a significant trend in failing to identify with the image of their fathers. However, where the non-drug user tends to assimilate an image of a nurturant mother, drug users are lacking in maternal assimilation. In other words, drug users are disidentified with both parents. Furthermore, the drug abusers

describe the mother as being "strong, managerial, and narcissistic," and Cohen, et al., believe that this means the drug user has "experienced a gap in the tender, sensuous aspect of life while being exposed to a model of efficiency within a prescribed goal orientation." Further, they think the drug user's family can thus be described as being characterized by "emotional environmental deprivation." Finally, Cohen, et al., speculate that drug use may involve a desperate search for a "sense of belonging, even if only attained in imagery;" and that in general: "Abuse of illicit drugs may then become one route for appearing strong and self-assured while feeling a pseudointimacy with others engaging in the same behavior."

Summary

Chronic use of hallucinogenic and other drugs is a complex phenomenon. Etiological theories have stressed oral conflicts; and the chronic users have been characterized as being chronically depressed, emotionally withdrawn, but in need of affective closeness, and as having problems with both aggression and dependency. The research suggests that psychological maladjustment indeed precedes chronic hallucinogenic drug use, and that when compared to others, the chronic user is angrier, more alienated, and wishes to be more dependent.

Proposal

Although the literature concerning chronic users of hallucinogenic drugs is relatively meager, most theorists agree that various types of "oral conflicts" are important factors in this type of abuse. Also, some theorists believe that dependency on any drug for non-medical reasons, whether physically addicting or not, is a reflection

of similar personality problems (Fenichel, 1945; Pearson and Little, 1969). Furthermore, Booth (1969) has noted that many theorists consider dependency needs and related inner conflicts to play an important role in the etiology of alcoholism. Consequently, Booth proceeded to experimentally demonstrate that a significant personality trait in alcoholics is that they tend to avoid self-reliance and seek dependency. Similar personality traits are possibly involved in those persons who become psychologically dependent on hallucinogenic drugs. Indeed, the research by Cohen, et al., (1971) suggests that young drug abusers secretly wish to be more dependent. However, it has not been experimentally demonstrated that persons who abuse hallucinogenic drugs are motivated to actually avoid self-reliance and seek dependency.

The present study postulates that the person who is a heavy abuser of hallucinogenic drugs is motivated to seek and maintain a dependent status and avoid independence. Specifically, it is postulated that, when males who are heavy abusers of hallucinogenic drugs are presented with an experimental task which reflects on their ability to be self-reliant, and can choose success or failure on this task without having to explicitly accept responsibility for doing so, they will then demonstrate their motivation to fail at achieving self-reliance.

In order to test this hypothesis, Booth's experimental procedure will be carefully replicated. Thus, drug abuse and non-drug abuse subjects will be randomly assigned to one of four experimental conditions which reflect different combinations of success and failure at self-reliance, and then presented with an experimental task defined as a Test of Self-Reliance (TSR). Under the first experimental

condition (High-High), subjects will be told that they had performed well on the first four sections of the TSR (feedback designed to elicit high performance expectancy) and are given the same feedback on the final section. Under the second experimental condition (High-Low) subjects will be given consistent positive feedback on the first four sections of the TSR (feedback designed to elicit high performance expectancy), but will be told that they performed poorly on the final section. In the third experimental condition (Low-Low) subjects will be told that they performed poorly on the first four sections of the TSR (feedback designed to elicit low performance expectancy), and will be given similar feedback on the final section. Under the fourth experimental condition, (Low-High), subjects will be consistently given feedback that they had performed poorly on the first four sections of the TSR (feedback designed to elicit low performance expectancy), and will be given positive feedback on the final section.

In order to test the hypothesis that heavy abusers of hallucinogenic drugs are motivated to fail at tasks reflecting self-reliance, all subjects will be allowed to retake section five of the TSR under the pretext of an administrative error. The degree and direction of motivation to either fail or succeed at self-reliance is operationally defined by the number of responses the subject changes when he repeats section five. Thus, if a subject receives a low score on section five, he can confirm his failure by changing few responses, or he can strive for success by changing many responses when he retakes section five. Likewise, if a subject receives positive feedback on section five, he can confirm his success by changing few responses, or he can strive to

fail by changing many responses when section five is repeated.

It is predicted that regardless of the performance expectancies elicited during the first four sections of the TSR, that the drug abuse subjects as a group will demonstrate an enduring motivation to fail at the TSR, and the non-drug abuse subjects will demonstrate an enduring motivation to succeed.

Thus, it is hypothesized that when the drug abuse subjects are compared to the non-drug abuse controls with regard to the number of responses changed on the repeat performance of section five of the TSR, that:

1. Within the High-High treatment category, the drug abusers will change more responses than non-drug abusers.

2. Within the High-Low treatment category, drug abusers will change fewer responses than non-drug abusers.

3. Within the Low-Low treatment category, drug abusers will change fewer responses than non-drug abusers.

4. Within the Low-High treatment category, drug abusers will change more responses than the non-drug abusers.

It is further hypothesized that among the drug abuse group:

5. Subjects in the High-High and Low-High treatment categories combined will change more responses than those in the Low-Low and High-Low treatment categories combined.

Finally, it is hypothesized that in the non-drug abuse control group:

6. Subjects in the Low-Low and High-Low treatment categories

combined will change more responses than those in the High-High and Low-High treatment categories combined.

A .05 level of confidence is the minimum requirement to reject the null form of the above research hypothesis.

CHAPTER II

METHOD

Subjects

Both the experimental (drug abuse) and control (non-drug abuse) subjects will be recruited from the white male population between the ages of 18 and 30 who voluntarily apply for treatment at a community mental health center. Each group will consist of 20 subjects, and each subject will be recruited by having either his therapist or intake interviewer present him with the following printed statement:

RESEARCH PROGRAM
REQUEST FOR PARTICIPANTS

> This is a request for volunteers to participate in a research project being conducted by one of the members of our psychology staff. The purpose of this project is to learn more about the kinds of problems for which individuals seek help from the Mental Health Center. Your participation in the study would require no more than one hour of your time and would involve your taking some paper and pencil tests. The testing will be done individually--that is, not in a group--and the privacy of all participants will, of course, be fully protected. If you participate, the results of your performance will be discussed with you upon completion of the testing.
>
> Your participation in this study is sought on a voluntary basis and your decision will neither be related to your own therapy nor affect your eligibility for any other services available through the Mental Health Center. Your assistance in this study would be greatly appreciated and time can be arranged to suit your convenience.

In order to assure that the control group consists of persons

who are nonalcoholic, as well as not demonstrating a history of abuse of hallucinogenic drugs, the MacAndrew Alcoholism Scale (MAS) will be administered (MacAndrew, 1965). The MAS will also be administered to the experimental group in order to equalize treatment effects.

Subjects will be selected for the drug abuse group on the basis of their personal history of taking hallucinogenic drugs, which suggests that the person has established some psychological dependency on these drugs. No attempt will be made to exclude those subjects who also abuse other psychoactive drugs since it seems to be the norm in the drug culture to take a variety of drugs as opposed to just one type of drug. The major problem in selecting subjects for the experimental group is that apparently no commonly agreed upon operational definition for drug dependence or abuse exists. Therefore, it will be necessary to arbitrarily define what constitutes significant drug abuse. The criterion proposed for defining the drug abuse group in the present research is to select only those subjects who have applied for treatment for problems related to drug abuse, have been diagnosed at their intake interview as being drug abusers, and who have taken hallucinogenic drugs at least 40 times in the previous year, according to self report. Since marijuana is considered a mild hallucinogen, it will be included in the significant list of drugs; but since there is evidence which indicates that the use of marijuana is becoming a widespread social phenomenon, a maximum of 20 will be counted for marijuana use when determining the 40 incidents of hallucinogenic drug use.

The control group will consist of persons who have applied for treatment for problems unrelated to excessive drinking or drug abuse, who give no history of significant problems with excessive drinking or

drug abuse, and who fail to score within the alcoholic range on the MAS.

Those subjects who are diagnosed as either retarded, brain damaged, or psychotic on the basis of their intake evaluation will be excluded from both the experimental and control groups.

Experimental Procedure

The experimental procedure that will be used in this research will be exactly the same procedure employed by Booth in his study of alcoholics. This procedure is quoted below:

> The experimental task, which was a bogus instrument, was introduced to subjects as a Test of Self-Reliance. Instructions for the TSR (see Appendix B) stated that one's ability to be self-reliant could be measured through his ability to recognize self-reliance in others. The TSR presented subjects with the task of selecting the single photograph of a person high in self-reliance from among three photographs--two of which ostensibly represented persons extremely low in self-reliance and one of which ostensibly represented a person extremely high in self-reliance. The measure of a subject's ability to be self-reliant was defined by the test instructions in terms of his ability to recognize the photographs of the highly self-reliant persons on the TSR. In order to provide a common definition of self-reliance for all subjects, the following descriptions of persons low in self-reliance and of persons high in self-reliance were stated in the test instructions, ostensibly to aid subjects in making their choices.
>
> Persons low in self-reliance. Persons who are low in self-reliance are unable to find adequate strengths and positive resources within themselves for overcoming most of the problems they encounter and achieving success in life. It is often necessary for other persons to give them assistance or they cannot achieve success.
>
> Persons high in self-reliance. Persons who are high in self-reliance are able to rely on themselves--that is upon their own inner strengths and positive resources--to overcome most of the problems they encounter and achieve success in life.
>
> Subjects were tested individually, and each subject was given the printed instructions for the TSR which were also read aloud.
>
> The experimental task consisted of 100 3½X3½ cards. On each card there were three individual photographs of college age males. The test was divided into five sections, with 20 cards presented in each section and with a one minute break period between each section. It was stated in the test instructions that since it was often difficult for persons to judge their performance on the TSR, their performance would be scored after each section of 20

cards and they would be allowed to assess their performance more accurately while taking the test. Thus, during each break period the examiner pretended to score the subject's performance for the previous section by comparing his responses with a bogus answer key. The examiner then reported a false, predetermined score along with the actual performance time for that section, and had the subject record both his score and his performance time on a scoring summary.

Actually there were no correct answers. The photographs were clipped randomly, in groups of three, from a college year-book. They were in black and white and measured approximately 1X3 for each group of three. For presentation purposes the cards bearing the photographs were mounted in a display device manufactured by the Springfield Photomount Company which allowed the cards to be flipped over and displayed one at a time under a plastic cover. A separate photomount was used for each section of the test; so that five photomounts holding 20 cards each were used altogether. The photomount was placed flat on a table in front of the subject, and the examiner administered the test by flipping each card over so that the subject viewed the card on a flat plane while he made his choice. Following each response the examiner recorded that response and then flipped the next card over. In order to limit the length of time each subject was exposed to the cards it was stated in the test instructions that the maximum time allowed for each card would be ten seconds.

Experimental Conditions

In order to control for the effects of performance expectancies, four different experimental conditions which employ different combinations of success and failure at self-reliance will be used. This will enable the investigator to determine whether pre-existing needs with regard to dependency versus self-reliance perseveres regardless of the immediate experience of success or failure on the experimental task.

Each of the four different experimental groups will consist of five drug abuse and five non-drug abuse subjects. Subjects will be assigned to the various experimental conditions on the basis of random numbers assigned to the sequence in which they volunteer. The experimental groups will then be treated as Booth specified:

In the High-High group subjects were consistently given feedback that they had performed well on the first four sections of the experimental task (feedback designed to elicit high performance expectancies) and were given similar feedback on the fifth section. Specifically, they received scores of 17, 16, 16, 17 and 17 respectively on the five sections of the experimental task.

In the High-Low group subjects were consistenly given feedback that they had performed well on the first four sections of the experimental task (feedback designed to elicit high performance expectancies) but were given feedback that they had performed poorly on the fifth section. Sepcifically, they received scores of 17, 16, 16, 17 and 3 respectively on the five sections of the experimental task.

In the Low-Low group subjects were consistently given feedback that they had performed poorly on the first four sections (feedback designed to elicit low performance expectancy) and were given similar feedback on the fifth section. Specifically, they received scores of 3, 4, 4, 3 and 3 respectively on the five sections of the experimental task.

In the Low-High group subjects were consistently given feedback that they had performed poorly on the first four sections of the experimental task (feedback designed to elicit low performance expectancy) but were given feedback that they had performed well on the fifth section. Specifically, they received scores of 3, 4, 4, 3 and 17 respectively on the five sections of the experimental task.

Dependent Variable

As mentioned previously, each subject will be given the opportunity to retake section five of the TSR under the pretext of an administrative error. Booth's procedure for accomplishing this task is as follows:

> As soon as the subject had recorded his score for the fifth section of the test, the examiner, after a few moments pause during the period where he had previously reported the administration time for each section, feigned chagrin and announced that he had apparently neglected to start the stop watch prior to beginning the fifth section of the test. After a few seconds deliberation he stated:
>
> > There's only one thing I can think to do, since I have to have the time for each section. Would you mind too much if I asked you to do the last section over again? Why don't you just regard it as a completely new set of pictures; that is, make your choices as if you had not seen them before.
>
> Whereas one minute was allowed to elapse during the break between each of the first five sections of the experimental task,

three minutes were allowed to elapse between the scoring and re-administratration of the fifth section.

The degree and direction of the subject's motivation in regard to achieving success or failure on the TSR is indicated by the number of responses he changes when permitted to retake section five. If a subject is motivated to maintain his original score he will change few responses, but if the subject changes many responses, this would indicate that he is motivated to change his original score. The subject's original score on section five will be used to determine whether his motivation is directed toward success or failure at self-reliance.

The experiment will be over after the subject retakes section five, and the subject will then be debriefed about the true nature of the experiment.

Statistics

To test these hypotheses, a 2X4 factorial analysis of variance will be utilized, and the alpha level will be set at .05. The actual statistics will be computer analyzed, using the computer program "AVAR23" from the University of Oklahoma.

If the interaction effect in the analysis of variance is significant, the t-test for differences between means will be used to test the specific hypotheses.

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APPENDIX B

INSTRUCTION PAGE FOR TEST OF SELF-RELIANCE

PERSONALITY RESEARCH INSTITUTE
TEST OF SELF-RELIANCE

Instruction Page

This is a test which measures the extent to which a person can rely on himself--that is, his own inner strengths and positive resources--to overcome most of the problems he encounters and achieve success in life.

When the test begins, you will be shown several sets of cards. There will be twenty cards in each set, and the cards will be presented one at a time. Each card will bear three photographs. These photographs were selected because they represent persons who were classified, after extensive psychological assessment, as either extremely low or extremely high in Self-Reliance. Two of the photographs on each card are of persons who were found to be extremely low in Self-Reliance; the other photograph on each card is that of a person found to be extremely high in Self-Reliance.

Your task on this test is to select the single photograph which represents the Highly Self-Reliant person from among the three photographs on each card. It has been demonstrated that one's ability to pick out the photographs of the Highly Self-Reliant persons in this test is an extremely accurate measure of the degree of his own Self-Reliance. That is, those who achieve high scores on this test are persons who are themselves highly Self-Reliant; persons who achieve average scores are themselves within the average range with regard to their ability to be Self-Reliant; and, persons who achieve low scores have been found to be low in Self-Reliance.

Descriptions of persons who are very low in Self-Reliance and of persons who are very high in Self-Reliance are provided below to help you in making your choices. Read them carefully and keep them before you to refer to as you work the test.

Persons Low in Self-Reliance

Persons who are low in Self-Reliance are unable to find adequate strengths and positive resources within themselves for overcoming most of the problems they encounter and achieving success in life. It is often necessary for other persons to give them assistance or they cannot achieve success.

Persons High in Self-Reliance

Persons who are high in Self-Reliance are able to rely on themselves--

that is upon their own inner strengths and positive resources--to overcome most of the problems they encounter and achieve success in life.

Since it has been found that it is very difficult for persons to judge their performance on this test (that is, some persons who think they are doing very poorly are among the best performers, and some who think they are doing very well are among the poorest) your performance will be scored after each section of the test is completed, and you will be allowed to record your own score so that you can assess your performance accurately as you go. While this is a timed test, bear in mind that accuracy is more important than speed, and you should not hesitate to use the full time alloted for each card if you need to. The maximum time allowed for each card will be ten seconds.

APPENDIX C

SCORING SUMMARY FOR TEST OF SELF-RELIANCE

SCORING SUMMARY

Below are a series of scales. After you have completed each set of 20 cards, the examiner will score your performance on that set and have you record it below. To record your score place an "x" in the empty box above the score you receive. The examiner will also report your performance time following each section. Record your performance time on the line below the scoring scale.

Score for Section One

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Very Low				Low				Fair					High				Very High			

Time for Section One_____

Score for Section Two

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Very Low				Low				Fair					High				Very High			

Time for Section Two_____

Score for Section Three

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Very Low				Low				Fair					High				Very High			

Time for Section Three_____

Score for Section Four

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Very Low				Low				Fair					High				Very High			

Time for Section Four_____

Score for Section Five

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Very Low				Low				Fair					High				Very High			

Time for Section Five_____

APPENDIX D

INDIVIDUAL SCORES ON THE MacANDREW ALCOHOLISM SCALE

Individual Scores* on the MacAndrew Alcoholism Scale

Subject Number	Drug Abuser Scores	Non-Drug Abuser Scores
1	20	22
2	23	14
3	24	20
4	24	22
5	22	23
6	23	17
7	23	19
8	25	20
9	29	21
10	29	19
11	28	21
12	29	19
13	26	19
14	27	21
15	15	18
16	27	23
17	37	19
18	28	23
19	30	16
20	25	17

*A score of 24 or over is within the alcoholic range according to MacAndrew's scoring standard.

APPENDIX E

RAW DATA

RAW DATA

SUBJECT NUMBER	TREATMENT CATEGORY	Drug Abusers		Non-Drug Abusers	
		VOLUNTEER NUMBER	NUMBER OF RESPONSES CHANGED	VOLUNTEER NUMBER	NUMBER OF RESPONSES CHANGED
1	High-High	6	4	5	4
2	"	11	6	12	4
3	"	20	6	6	5
4	"	3	8	13	5
5	"	13	10	10	6
6	High-Low	9	4	1	2
7	"	16	6	2	7
8	"	17	7	16	8
9	"	7	10	7	10
10	"	1	13	9	11
11	Low-Low	2	3	4	2
12	"	5	7	20	4
13	"	14	9	18	8
14	"	12	10	11	9
15	"	10	11	19	13
16	Low-High	4	5	3	6
17	"	8	5	8	8
18	"	19	6	14	9
19	"	15	8	15	9
20	"	18	9	17	9

APPENDIX F

MEDIAN NUMBER OF TIMES EACH GROUP HAS USED THE FOLLOWING DRUGS IN THE LAST YEAR

Median Number of Times Each Group Has Used the Following Drugs in the Last Year

Type of Drug	Name	Drug Abuse Group	Non-Drug Abuse Group
I Hallucinogens	LSD	30	0
	Psilocybin	.5	0
	Peyote	.5	0
	Mescaline	17.5	0
	DOM (STP)	0	0
	THC	3.5	0
	Phencyclidine (PCP)	0	0
	Marihuana	250	1
	Hashish	40	0
	DMT	0	0
II CNS Stimulants	Amphetamines	15	0
	Methampetamines	10	0
	Cocaine	2.5	0
III CNS Depressants	Barbiturates	19.5	0
	Glue or Other Vapor-producing Solvents	0	0
IV Narcotics	Heroin	0	0
	Morphine	0	0
	Codeine	0	0
	Opium	1.5	0
	Methadone	0	0
	Meperidine or Demerol	0	0
	Dilaudid	0	0
	Numorphan	0	0