

Marijuana and LSD Usage Among Male College Students: Prevalence Rate, Frequency, and Self-estimates of Future Use ✓

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THERE ARE many questions society needs to have answered concerning the use of hallucinogenic drugs. For these questions there are at present practically no scientific answers. Within the limits of one population, the 1967 graduates of a men's liberal arts college, this article attempts to answer the following questions concerning two such drugs, marijuana and LSD: How prevalent is the use of these drugs? What is the frequency of usage? When and where have students first tried these drugs? What are the predictions of both users and non-users about their future use of marijuana and LSD?

The concern over the use of hallucinogenic drugs has been documented in the public press, learned (and *sometimes* scientific) journals, and on radio and television. This concern has, in the manner typical of emotional controversy, shed more heat than light. Since heat and darkness are peculiarly conducive to some forms of growth, society has witnessed the mushrooming proliferation of the laws of felony. Legislatures have taken a blindfolded, Justitia-like approach to a presumed problem of individual behavior of an unknown magnitude resulting in undetermined individual and social consequences of an unassessed duration. If the behavioral realities are currently unspecifiable, the same cannot be said of some state and federal laws that are overly specific in their designations and that eliminate judicial discretion by their provisions for mandatory sentencing.

The more articulate proponents of the use of such drugs extol the humanistic, mind-expanding, and even divine-

ly revelatory benefits to be derived from these preparations. With equal fervor the opponents—the neoprohibitionists who know sin when they imagine it—sound the alarm regarding the devilish and mind-shattering detrimental effects inevitably associated with any use of any such agent.

The hallucinogens—and it is undoubtedly a social and conceptual disservice to lump together such diverse chemical substances with such diverse effects, both established and hypothesized—appear to constitute a social problem. In taking social, and especially legal, action in an attempt to resolve what is perceived as a social problem, society is acting on the basis of a broadly shared, profound, and regrettable ignorance. The (ab)use of hallucinogens has been attributed particularly to college students. But how many college students are “users”? What is meant by user? Is the one-puff experimenter included? How many experimenters are likely to become drug-

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dependent? What effects can one say with some objective feeling of certainty are produced by the drugs? Under what conditions? Short-term effects? Long-term effects? Are there beneficial effects? What kinds? At what costs? What are the harmful effects and from what drugs taken in what amount? How frequent are these harmful effects? In whom do they occur? How severe are they? How do possible benefits and detrimental effects balance off? To what extent do current harsh laws have a deterrent effect upon potential users? How many of the citizenry, young and old, have come to grief solely as a function of these laws? What are the individual and social effects of violations of the felony laws regarding drugs—especially if the prevalence rate of use of the hallucinogens is high—with special reference to attitudes toward the law in general?

Thus far, the scientific and medical literature has, almost exclusively, focused upon the misuse, rather than the use, of drugs. Published reports on the effects of these drugs on human beings have usually cited single cases or a collection of cases; at best, they have been incidence studies recording the number of cases that have appeared in a psychiatric outpatient service or in a state or other mental hospital. Although the usefulness to fellow practitioners of the single case or incidence approach is not here being questioned, the following points, at least, *must* be made: (1) it is impossible to generalize from patients to users in general; (2) it is impossible even to guess at the rate of psychiatric complications or other ensuing behavioral difficulties as long as the prevalence or baseline frequency of use, *per se*, remains unknown; and (3) *post hoc, ergo propter hoc* reasoning must be carefully avoided, since, even if the prevalence of use were known, the precise role of the drugs in the etiology of behavioral disturbance in the drug user is *not* immediately obvious.

Many facets of the apparent prob-

lems are relatively new. It is patent that it is difficult to obtain the data that will begin to answer the highly relevant, social questions concerning drug use. The difficulties of data collection are multiplied weekly by hasty acts of despairing legislatures, spectacular police raids, psychiatric horror stories—not all of which turn out to be hoaxes—and the shortsighted rush into print, for public relations purposes, by administrative bodies of institutions of higher learning. No single report, especially at this very early phase of scientific investigation, can hope to answer all of the questions; yet, it would appear to be imperative to attempt a scientific answer to these and related questions. The present study is offered as one of the many necessary contributions that might help society to emerge from the swamp in which it is currently floundering.

METHOD

The entire population ($N=730$) of students who received the BA degree in June, 1967, from Dartmouth College was sent a brief, simple, one-page questionnaire (see Appendixes 1 and 2) approximately one month after graduation. The questionnaire recipients were asked to indicate for both marijuana and LSD whether they had used the drug and, if so, the number of times, and date and place of first use; they were also asked to estimate the probability of use in the future. A final pair of questions asked for their estimates of the percentage of undergraduates who had used such drugs. Each questionnaire was identifiable by means of a conspicuous code number. About one month after the initial solicitation, another memorandum and a duplicate copy of the questionnaire were sent to nonrespondents. Despite the identifiability of the questionnaires and despite possible—and understandable—concern about admitting to past behavior of an illegal nature, the recent graduates were exceptionally cooperative. In a

large measure, this bespeaks a remarkable loyalty to, and trust in, the institution on the part of these recent alumni.¹ In all, 576 questionnaires were returned—78.9 percent of the population surveyed. The total includes six “cooperative paranoids,” who completed the form and returned it with the code number either cut off or obliterated.

RESULTS²

Prevalence

Respondents who indicated that their initial use of an hallucinogenic drug occurred subsequent to Commencement, 1967, were classified as non-users for that drug. This was done to keep a uniform cutoff date and to limit the study to the drug behavior of undergraduates. For purposes of determining prevalence rates, a “user” is here defined as having smoked marijuana, or taken LSD, on one or more occasions. It is recognized that such a definition includes the “one-shot” experimenter as well as the frequent, heavy user or the possibly drug-dependent person, but, for purposes of elementary analysis here and at the present stage of lack of knowledge, such a crude grouping seems to be initially desirable, or even necessary. More refined and conceptually meaningful definitions will be appropriate to a more elaborate and more precise analysis at a later stage.

Table 1 summarizes the prevalence findings. Slightly more than one-fifth of the respondents had smoked marijuana. Less than four percent of the respondents had taken LSD; all of these users had also smoked marijuana. Hence, somewhat less than one-fifth (16.7%) of those who returned the

Table 1
PREVALENCE OF USE OF MARIJUANA
AND LSD

<i>Total Respondents</i>	<i>N (576)</i>	<i>%</i>
Users of marijuana only	96	16.7
Users of marijuana and LSD*	21	3.7
Users of neither	459	79.7

* In this population all LSD users were also users of marijuana; the LSD users constituted 17.9% of all marijuana users.

questionnaires had smoked marijuana but had not taken LSD.

Prevalence and Incidence.—In the Mental Health Division of the College Health Service no systematic inquiry is made of the student patients regarding drug usage. “A number” of the patients make casual reference to such usage; an extremely small, if distressing, proportion of the student population suffers from acute disturbances apparently associated with the use of hallucinogenic drugs. As a *rough estimate*, these drug-induced, acute disorders perhaps represent 4 percent of the patient population seen in the Mental Health Division, or about 0.3 percent of the total undergraduate body. When this estimate is compared with the prevalence findings in Table 1, two conclusions are self-evident: (1) the number of students presenting drug problems to a health service is a completely inadequate measure of the prevalence of drug usage on that campus; and (2) only a very small proportion of users suffer from pathological drug reactions of such a magnitude as to result in their being seen in a college or university health service. One would expect that the proportion would be even smaller in a metropolitan area where alternative health facilities are available.

Interinstitutional Comparison.—These findings indicate a prevalence rate markedly above that reported for Brooklyn College in a study by Pearlman. The difference in rate may be due to any of several factors. The Pearlman survey was made two years

¹ It would be difficult for the author to overstate his appreciation and indebtedness to the questionnaire respondents; their trust has not been betrayed.

² Credit for thorough and patient labor is gratefully given to Steven M. Friedman (Dartmouth '63), who served for two summers and one academic year as a research assistant and who obviously did the data analysis upon which this article is based.

prior to the present one and evidence below indicates that, for the present population at least, drug usage is a recent and recently increasing phenomenon. Furthermore, since only about one-half of the Brooklyn graduates responded to the questionnaire request, the ever-present and worrisome problem of representativeness may be raised. Finally, the general nature of the two institutions is quite different, especially since nearly 90 percent of the Brooklyn students were commuters who lived at home with their parents. The Dartmouth prevalence rate of use of marijuana is very similar to rates found at Yale (18%) and at Wesleyan (20%) by Imperi, Kleber, and Davie, and at California Institute of Technology (19.8%) by Fells. The prevalence rate of use of LSD at Dartmouth falls in between the rate at Yale (2%) and at Wesleyan (7%) and noticeably below the undergraduate prevalence rate (9.2%) at Caltech. It should be noted that the Caltech, Wesleyan, and Yale studies surveyed the entire undergraduate populations (or a random sample of the total population) in contrast to the Dartmouth study, which surveyed only those who had just completed their senior year. The Caltech data indicate that the prevalence of use of both marijuana and LSD is lower among senior students than among juniors and sophomores. Hence, it may be that the prevalence rate among all Dartmouth undergraduates is systematically underestimated.

Frequency

The distribution of frequency of use of both drugs appears in Table 2.

Marijuana.—The data in this table reveal that 45.3 percent of the total marijuana group had smoked marijuana only one or two times; if one excludes the LSD users from the total group, then somewhat over one-half (53.1%) had smoked marijuana only one or two times. Two-thirds of the total user group had smoked on five or

Table 2
FREQUENCY OF USE OF MARIJUANA
AND LSD

	Use of Marijuana		Use of LSD
	Users of Marijuana Only (N = 93)	Users of Marijuana and LSD (N = 21)	(N = 21)
Frequency			
1-2	51	2	9
3-5	23	2	5
6-10	11	2	2
11-15	5	0	2
16-20	2	0	2
21-25	1	1	0
26-50	2	4	0
51+	1	10	1
Median frequency range	1-2	26-50	3-5

fewer occasions; and over three-quarters (77.1%) of the non-LSD users had smoked marijuana five or fewer times. Although these data suggest that the bulk of the marijuana smokers might be viewed as experimenters or very light users, this conclusion requires modification in the light of analysis of frequency in relation to the date of initial use (see below).

At the other end of the frequency continuum, Table 2 suggests that the undergraduates who have also used LSD tend to have been heavier smokers of marijuana; nearly one-half (47.6%) of this group had smoked marijuana on more than 50 occasions—in contrast to the single heavy user (about 1%) in the group who had used marijuana only. The LSD users who were also heavy marijuana smokers (more than 50 times) constituted 9.4% of the total marijuana smokers.

LSD.—A similar frequency pattern is found with the use of LSD. Over two-fifths (42.9%) of the LSD users had taken that drug no more than two times. Five students (23.8%) in the LSD group had used the drug more than 10 times.

Interinstitutional Comparison.—Because of differences in methods of

collecting and reporting data in different investigations, comparisons between institutions on the relative frequency of usage of drugs are difficult to make. However, the following comparisons appear to be accurate. The frequent users of marijuana (more than 10 times) at Dartmouth (22.2% of all marijuana users) occur at about the same rate as those at Yale (19%), but at markedly below the Wesleyan rate (40%). Imperi, Kleber, and Davie speculated that the differences between Yale and Wesleyan might lie in the greater isolation and fewer social facilities at the latter institution. It is this writer's impression that few, if any, Dartmouth undergraduates would bow to Wesleyan on either of these two proffered variables. Data from the Caltech study are presented in a slightly different form so that direct comparisons are not possible; however, it appears that the rate of frequent use at the California institution is somewhat closer to the Wesleyan rate than to the rates at the other two schools.

Respondent Estimates of Undergraduate Drug Usage.—Although the format of Questions 9 and 10 on the survey instrument (see Appendix 2) leaves something to be desired in terms of ready analysis, these items were sufficiently open-ended to permit expression of the wide variety of opinions held by the respondents. About 15 percent of the respondents, understandably enough, did not attempt to estimate the extent of use of the two drugs by undergraduates. The range of opinions expressed by the others almost covers the entire range permitted by the form of the questions. Rather to this writer's surprise there was a gross similarity in estimates between the users and non-users with respect to both drugs; this is due, in part, to the wide range of views expressed by all groups. Some of the extreme, if minor, differences are worth noting. For example, more than 10 percent of the non-users thought that *no* undergraduates had smoked

marijuana and about 25 percent of the non-users felt that no students at this institution had used LSD. There was some tendency for those who used only marijuana to estimate more habitual use of marijuana than was suggested by either the non-users or LSD users. In general, the marijuana users seemed to be somewhat more accurate or realistic than were the non-users.

Initial Use

The questions of when and where hallucinogenic drugs are first taken is of some general interest. The findings here, of course, are limited to one, all-male, relatively isolated college of moderate size. Until additional, comparable investigations are made at both similar and differing institutions, generalization of any of these findings to other colleges and universities is done at some risk. In addition to the date of first use of marijuana and LSD, the most recent graduates were asked to indicate whether their first use had occurred (1) at Dartmouth, (2) in the home community, or (3) elsewhere.

Marijuana.—Since all of the respondents did not answer all of the questions, the size of the populations upon which subsequent tables and discussion are based varies slightly. In Table 3 initial use of marijuana is analyzed in terms of both time and place categories. It will be seen that for the users of marijuana only, such smoking is a relatively recent phenomenon in this population. Over one-half (55.9%) first smoked during the period encompassed by their senior year; two-fifths of this total group (40.1%) first used marijuana during the last few months of their college careers (January-June, 1967). For these smokers who started during their senior year, the most likely site of initial use (69.8%) was their undergraduate college; or, alternatively, in the group of marijuana-only users who first started smoking at college, over three-quarters of them (78.7%) began during the senior year. For the nearly one-half (44.2%) who

Table 3

TIME AND PLACE OF INITIAL USE OF MARIJUANA

	Dartmouth		Home Community		Elsewhere		Totals	
	N	%	N	%	N	%	N	%
<i>Users of Marijuana Only (N = 95)</i>								
April-June, 1967	17	17.9	0	0.0	5	5.3	22	23.2
Jan.-March, 1967	12	12.6	3	3.2	1	1.1	16	16.9
Sept.-Dec., 1966	8	8.4	3	3.2	4	4.2	15	15.8
Prior to Sept., 1966	10	10.5	12	12.6	20	21.1	42	44.2
Totals	47	49.5	18	18.9	30	31.6	95	100.0
<i>Users of Marijuana and LSD (N = 20)</i>								
April-June, 1967	1	5.0	0	0.0	0	0.0	1	5.0
Jan.-March, 1967	1	5.0	0	0.0	0	0.0	1	5.0
Sept.-Dec., 1966	4	20.0	0	0.0	0	0.0	4	20.0
Prior to Sept., 1966	1	5.0	7	35.0	6	30.0	14	70.0
Totals	7	35.0	7	35.0	6	30.0	20	100.0

first used marijuana prior to their senior year, the beginning dates scatter back to one instance in 1961; for this group the onset of smoking occurred largely in the mid-1960s and tended to take place in some setting other than at their college.³

Of the respondents who had used both marijuana and LSD, one stated that he had used LSD prior to smoking marijuana; 18 of the 21 LSD users had smoked marijuana before their use of LSD. The remaining two LSD users started both drugs during the same month. In general, the marijuana smokers who had also used LSD began smoking earlier than the users of marijuana only, and they were about evenly divided in site of initial use among

college, home community, and "elsewhere."

LSD.—Just over one-half (52.4%) of the LSD users started with that drug during the last few months of their senior year, and nearly all of the recent beginners first took the drug at college (see Table 4). Regardless of the date of initial activity, about three-fifths of the students who used LSD took it first while at college. The remaining LSD users tended to have first taken the drug "elsewhere" and as far back as early 1965.

Interinstitutional Comparison.—Although the surveys at Wesleyan and Yale were made about four months prior to the present survey, the findings at all three institutions are roughly similar with respect to the recency of initial drug use. Since the prevalence rate at Dartmouth is about the same as

* Dartmouth had few transfer students during the years in question.

Table 4

TIME AND PLACE OF INITIAL USE OF LSD (N = 21)

	Dartmouth		Home Community		Elsewhere		Totals	
	N	%	N	%	N	%	N	%
April-June, 1967	2	9.5	0	0.0	0	0.0	2	9.5
Jan.-March, 1967	8	38.1	0	0.0	1	4.8	9	42.9
Sept.-Dec., 1966	1	4.8	2	9.5	0	0.0	3	14.3
Prior to Sept., 1966	2	9.5	1	4.8	4	19.1	7	33.3
Totals	13	61.9	3	14.3	5	23.8	21	100.0

at Yale and Wesleyan, especially for marijuana usage, it is a reasonable inference that during 1967 the prevalence rate at Dartmouth was lagging behind the other two institutions—perhaps as a function of (1) geographical isolation and/or (2) the restriction of those surveyed to recent graduates, thus omitting underclassmen whose rate might be higher. The following point should be made explicit: All these findings are based upon data collected in 1967; in the data collected at one point in time, there is no evidence to indicate, or to deny, that the prevalence rate is a fixed one. However, additional survey data were collected in the winter of 1967-1968 and still further data are currently (summer, 1968) being collected. Although analysis of these data is incomplete, it is compellingly clear that the prevalence rate of the use of marijuana is markedly rising.

Experimenters Versus Frequent Users

Since many of the users started only a few months, or even weeks, prior to the closing date for the collection of these data, there are real difficulties in distinguishing between the "one-shot" experimenter and the frequent user. However, for present purposes, I am defining an "experimenter" as one who used marijuana only one or two times and whose initial date of use was several months prior to this survey; the date of February 1, 1967, was arbitrarily selected as the cutoff date. Thus, a marijuana experimenter is defined here as one who has smoked on no more than two occasions and who first started more than four months before Commencement, 1967. On this basis, the data indicate that there were 30 experimenters (26.5%) in the total marijuana group who gave their initial date of use ($N = 113$). I am here defining as "frequent users" those who have smoked marijuana 11 or more times. By this definition, 26 of the total user group of 117 (22.2%) were frequent users. Of the total user group, 17 (14.5%) reported that they had

smoked marijuana more than 25 times. These data are limited to self-reports of behavior by the respondents and, of course, yield no direct information upon such important matters as psychological dependency or habituation.

There were no marijuana users who were only experimenters in the group of students who had also used LSD. (Although Table 2 indicates that two LSD users had smoked marijuana on only one or two occasions, in each case the date of initial use of marijuana was *after* the cutoff date employed in defining experimenters.) Of the 21 LSD users, 15 (71.4%) were frequent users of marijuana. In point of fact, no LSD respondents reported using marijuana between 11 and 20 times; the 15 frequent marijuana users all had smoked on more than 20 occasions, and 66.7 percent of all LSD users stated that they had smoked marijuana more than 25 times.

Again employing the limited and arbitrary definitions of "experimenter" and "frequent user," the data describe three of the respondents as LSD experimenters (14.3% of the total LSD group). Five (23.8%) are categorized as frequent users of LSD.

Self-estimates of Future Use

The questionnaire recipients were asked to indicate, in one of five choices, how probable it was that in the future they would use (1) marijuana and (2) LSD. The choices offered and summaries of the responses are set forth by groups in Table 5. There is a steady progression in the likelihood of future use of both drugs from non-users to marijuana-only users to LSD users. Most of the non-users evidenced little intention of engaging in the use of either hallucinogen.

Marijuana.—Among the non-users, 35.3 percent rated the use of marijuana as inconceivable and a total of 80.1 percent regarded indulging in marijuana as either inconceivable or unlikely. Only 7.1 percent of this group pre-

Table 5

SELF-ESTIMATES OF FUTURE USE OF MARIJUANA AND LSD

Responses	Users of Marijuana Only		Users of Marijuana and LSD		Users of Neither	
	N	%	N	%	N	%
Marijuana						
Inconceivable	0	0.0	2	9.5	159	35.3
Unlikely	31	32.3	2	9.5	202	44.8
50-50 chance	18	18.6	2	9.5	58	12.9
Very probable	23	24.0	1	4.8	21	4.7
Undoubtedly will	24	25.0	14	66.7	11	2.4
Totals	96	100.0	21	100.0	451	100.0
LSD						
Inconceivable	34	37.0	5	25.0	255	56.5
Unlikely	45	48.9	4	20.0	184	40.8
50-50 chance	7	7.6	0	0.0	9	2.0
Very probable	5	5.4	6	30.0	3	0.7
Undoubtedly will	1	1.1	5	25.0	0	0.0
Totals	92	100.0	20	100.0	451	100.0

dicted that they would either probably or undoubtedly smoke marijuana eventually. Yet, nearly one-half of the marijuana-only group rated as very probable or definite their future use of marijuana. Almost three-quarters (71.5%) of those marijuana users who had also taken LSD predicted that they would smoke marijuana in the future. This last finding certainly suggests that the use of LSD does not result in a cessation of interest in the milder hallucinogen.

LSD.—In contrast with marijuana, many fewer respondents expected to indulge in LSD. None of the non-users stated that they would undoubtedly take LSD and less than one percent indicated that taking the more powerful drug was very probable; an additional two percent gave themselves a

50-50 chance. Only 6.5 percent of the marijuana-only group estimated that it was very probable or definite that they would take LSD. There is an interesting split in the group of LSD users. None of them elected the option of the 50-50 chance. Fifty-five percent said it was very probable or certain that they would use LSD again; the remaining 45 percent reported that future use of LSD was for them inconceivable or unlikely. This finding suggests that, for whatever reasons, the LSD user is more polarized in his attitude toward the use of that drug than are the other respondents.

Self-estimates and Frequency of Usage

Inevitably, one wonders about the relationship of frequency of use to self-estimates of the probability of future

Table 6

SELF-ESTIMATES OF FUTURE DRUG USE BY MARIJUANA-ONLY USERS IN RELATION TO FREQUENCY OF PAST USE*

	Frequency of Marijuana Use			
	1-2		11+	
Self-estimates of future marijuana use	N	%	N	%
Inconceivable or unlikely	25	49.0	0	0.0
Very probable or undoubtedly will	15	29.4	8	72.7
Self-estimates of future LSD use	N	%	N	%
Inconceivable or unlikely	45	91.8	7	70.0
Very probable or undoubtedly will	3	6.1	1	10.0

* See Table 2 for frequency N's.

Table 7
SELF-ESTIMATES OF FUTURE DRUG USE BY USERS OF BOTH MARIJUANA
AND LSD IN RELATION TO FREQUENCY OF PAST USE*

	Frequency of Marijuana Use				Frequency of LSD Use			
	N	1-2		11+	N	1-2		11+
		%	N	%		%	N	%
<i>Self-estimates of future marijuana use</i>		(N = 21)					(N = 21)	
Inconceivable or unlikely	1	50.0	2	13.3	2	22.2	1	20.0
Very probable or undoubtedly will	0	0.0	13	86.7	5	55.6	4	80.0
<i>Self-estimates of future LSD use</i>		(N = 21)					(N = 20)	
Inconceivable or unlikely	2	100.0	4	28.6	7	77.8	1	20.0
Very probable or undoubtedly will	0	0.0	10	71.4	2	22.2	4	80.0

* See Table 2 for frequency N's.

use. Further analysis of the data provides some indications about the nature of such relationships.

Predictions of Marijuana-Only Users.—A summary of the findings for the marijuana-only group will be found in Table 6. Of those in the marijuana-only group who had smoked only one or two times, (see Table 2) nearly one-half said it was inconceivable or unlikely that they would smoke it again. Within this marijuana-only group, there were 11 students who had smoked on more than 10 occasions; eight (72.7%) of these frequent users estimated future marijuana use as very probable or certain. The marijuana-only users who had smoked marijuana only one or two times overwhelmingly indicated the unlikelihood of their trying LSD. Even the majority of the small group of frequent marijuana-only users responded that the use of LSD was either inconceivable or unlikely.

Predictions of LSD Users.—Self-estimates of future drug use by users of both marijuana and LSD are summarized by frequency of past use in Table 7. It should be emphasized that the percentages in Table 7 may be misleading because of the small number of subjects involved. With that warning, it is clear that those who have smoked marijuana more frequently are more inclined to continue; and, those who have smoked marijuana frequently are much more likely to predict their fu-

ture use of LSD. Users of LSD, whether heavy or light, tend to anticipate future use of marijuana. This is not so clearly the case regarding self-estimates of future use of LSD. Those who have taken LSD one or two times tend to report they do not expect to use it again, and by almost the same percentage as the frequent users report that they *do* expect to use it again. Especially in view of the small number involved in Table 7, it is of interest that one heavy user of both marijuana and LSD (more than 50 times each) reported that future use of either hallucinogen was inconceivable.

Drug "Experimenters" Redefined

Earlier in this article, an experimenter was defined, on the basis of behavioral criteria alone, as one who had used the drug not more than two times and who had at least four months after his initial introduction in which to increase his usage to more than two occasions. It is now possible to add an attitudinal or self-predictive variable to further refine the concept of the experimenter. The addition of the defining factor of a self-estimate of inconceivable or unlikely future use may permit a more accurate designation of some users as experimenters. By applying the attitudinal criterion to the 30 subjects behaviorally defined as marijuana experimenters, the number is reduced to 17. The attitudes of the

other 13 toward additional marijuana smoking were as follows: a 50-50 chance—6; very probable—5; and definitely planned—2. Of the newly defined 17 experimenters, 7 rated use of LSD as inconceivable and 10 rated it as unlikely. These 17 marijuana experimenters represent 14.5 percent of the total marijuana users and about 3 percent of the total population of respondents.

Of the original three behaviorally defined LSD experimenters, two rated future use of LSD as inconceivable, and one rated it as unlikely. All three, then, could still be classified as LSD experimenters. Of these three, one rated the probability of future marijuana use as inconceivable, one rated it as unlikely, and one rated it as certain.

DRUG DEPENDENCE

It is assumed here that among the conscious, or near-conscious, and superficial motives operating in any person when he first takes a drug may be curiosity, daring (defiance?), interest and willingness to try a new experience, a desire not to be left out, and a variety of other nonpathological motives. It is hardly inconceivable that in some instances of initial drug use, these basically benign motives may be primary and critical. Since the hallucinogens are not addictive drugs, use of them on one or two occasions does not *necessarily* lead the user down a short-cut pathway to Hell. Yet, one *may* become dependent upon drugs (among other things). Drug dependence, of course, may be a matter of great individual and social concern. It also poses an intriguing set of scientific puzzles in the prediction of human behavior. It seems to this writer that the scientific study of drug dependence would require a complex host of psychological, sociological, and biological variables, hopefully related by relevant theory.

As mentioned earlier in this report, data of the kinds presented here do not lend themselves to any direct interpretation concerning drug dependence.

One could hypothesize that a crucial variable in eventual drug dependence would be the nature of the subjective experience of the individual during his introductory phase of drug usage. No item in the present questionnaire attempted to explore the possible range of subjective reactions, although such an aspect of drug usage can be initially approached by the questionnaire method, as is documented by the Imperi, Kleber, and Davie survey. However, the present study does offer, with its concept of the empirically defined experimenter, the beginning of a method of isolating those users who are least likely to become drug dependent. Once such a group has been identified, it should then be possible to define it more completely in relation to the variables relevant to the concept of drug dependence. Such a group of subjects would constitute one pole of a drug dependence continuum among drug users. By employing similar (and similarly elaborated) techniques, it should be possible to define the occasional to frequent user who is also not drug dependent. Appropriate development of such procedures might eventually yield factors sufficient to the problems of prediction of drug dependence.

FUTURE RESEARCH

To end on the same note on which this article began: Sound research on *any* aspect of the "drug problem" is not simply scientifically desirable; it is socially imperative. Hence, "suggestions for further research" could be inundating. These final remarks, therefore, are restricted to some of the present investigator's plans.

Because of the method employed in the collection of the basic data reported here, it is now possible to relate the various groupings of respondents to additional variables already established for all, or nearly all, of the respondents. Thus, for example, it is anticipated that future analyses will be directed toward examining the relevance of drug usage categories to such factors

as academic ability, academic achievement, personality characteristics, and selected items in the subject's background.

Data collected in the winter of 1967-1968 offer still additional kinds of information. Since these data are not limited to a single undergraduate year, they may provide some indication of patterns of usage during the college years. The method of data collection should contribute to an understanding of the role of anonymity in requesting information about illegal behavior related to the use of hallucinogens.

Also, this later investigation inquired about a variety of attitudes and behaviors which may prove to have relevance to the issues involved in the use of hallucinogens. Finally, the study conducted in the summer of 1968, essentially a replication of the earlier one on which this report is based, will undoubtedly address itself to changes in prevalence rate and perhaps to other changes in patterns of usage.

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Appendix 1

MEMORANDUM ACCOMPANYING DRUG-USE QUESTIONNAIRE

DARTMOUTH COLLEGE HEALTH SERVICE

FROM: Francis W. King, Ph.D., Clinical Psychologist

TO: June 1967 Graduates of the College

This is a frank appeal for your assistance on a matter on which only you can shed any light. I am asking for your help and for maybe as much as two minutes of your time on behalf of the students who will be returning to, or entering, college in the fall.

With all of the writings, fears, hopes, and plain gossip about the use of the so-called hallucinogenic or psychedelic drugs, the only thing we completely lack is facts. We do not even know the most elementary fact—the incidence and frequency of the use of such drugs. The enclosed form is designed to take as little of your time as possible and still to provide us with a start on some facts. A few of you will recognize the form as a slight revision of the blank you filled out last term at the request of a student research assistant. He felt that some of you were reluctant to fill out such a form because of some apprehension about what "the College authorities might do." Although that apprehension was groundless then, it is my hope that since you are now fully beyond any jurisdiction of the College authorities, you will assist me by completing the questionnaire.

Even though I realize that some of you might prefer an un-coded questionnaire, I have put a code number on each sheet so that I may make a follow-up of questionnaires that are not returned—and, also, so that I may make some estimate of the representativeness of the sample in the event that I do not obtain complete returns. The code list which matches names and numbers is kept in a special locked cabinet to which I have the only key. *Analysis of the replies will be completely anonymous.* It is difficult to see how, at this point, anyone can realistically fear that it might be against his best interests to cooperate in this research project. If you have an aversion to questionnaires, I not only apologize, I share the aversion. However, I honestly do not see how such information can be obtained otherwise. And, with all of the extreme and contradictory statements made about the use of such drugs these days, I think the time is long overdue when we had some simple elementary facts.

The facts are very much needed. You have the facts. I merely want to pull the facts together so that at least some of us will know what we are talking about on this subject.

I shall appreciate it very much if you will take a moment or two and check off the items on the enclosed form and return it to me in the addressed, stamped envelope.

Thank you very much.

PLEASE DO NOT PUT YOUR NAME ON THE ENCLOSED FORM

Appendix 2

DRUG-USE QUESTIONNAIRE*

Code No. _____

1. Please indicate the number of times you have used marijuana:
☐ never ☐ 1-2 times ☐ 3 or more (about _____) times
 2. When did you first use marijuana? (approximate date) _____
 3. Where did you first use marijuana? ☐ does not apply.
☐ at Dartmouth ☐ in home community ☐ elsewhere
 4. Please indicate how many times you have used LSD:
☐ never ☐ 1-2 times ☐ 3 or more (about _____) times
 5. When did you first use LSD? (approximate date) _____
 6. Where did you first use LSD? ☐ does not apply
☐ at Dartmouth ☐ in home community ☐ elsewhere
 7. How probable is it that you will use marijuana in the future?
 8. How probable is it that you will use LSD in the future?
- | | | |
|--------------------------|------------------|--------------------------|
| ☐ | inconceivable | ☐ |
| ☐ | unlikely | ☐ |
| ☐ | 50-50 chance | ☐ |
| ☐ | very probable | ☐ |
| ☐ | undoubtedly will | ☐ |

In the blanks below, please estimate the percentage of Dartmouth undergraduates best described by each of the phrases regarding the use of:

- | 9. Marijuana | 10. LSD |
|--|---------|
| _____ never have and probably will not | _____ |
| _____ never have but might | _____ |
| _____ have experimented with it | _____ |
| _____ use occasionally to frequently | _____ |
| _____ use habitually | _____ |

Please use the remaining space below and on the reverse side for (a) any comments you care to make on other drugs you have used, or (b) any suggestions concerning what constructive responses the Health Service might make concerning the use of hallucinogenic or psychedelic drugs.

* There was no title on the questionnaire as mailed.

REFERENCES

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| <p>EELS, KENNETH W. "Marijuana and LSD: A Survey of One College Campus," <i>J. Counseling Psychology</i>, in press.</p> <p>IMPERI, LAELIAN L., KLEBER, HERBERT D., and DAVIS, JAMES S. "Use of Hallucinogenic Drugs on Campus," <i>J. Amer. Med. Assn.</i></p> | <p>(1968) 204:1021-1024.</p> <p>PEARLMAN, SAMUEL. "Drug Experiences and Attitudes Among Seniors in a Liberal Arts College," <i>NASPA, J. Assn. Deans and Administrators of Student Affairs</i> (1967) 4: 121-126.</p> |
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