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PSYCHEDELIC DRUG FLASHBACKS: SUBJECTIVE REPORTS AND BIOGRAPHICAL DATA*

ROBERT E. MATEFY, CARLA HAYES and JERROLD HIRSCH
University of Bridgeport

Abstract—Subjects were psychedelic drug users experiencing recurrence of psychedelic drug effects (i.e. flashbacks) after they ceased taking the drugs and after a period of relative normalcy. They were asked to describe their flashbacks, events triggering them, and their personal theory of why flashbacks occur. Their drug taking history, motives for taking drugs, and personal changes due to drugs were compared with psychedelic drug users not having flashbacks. Flashbackers, non-flashbackers, and non-drug taking controls were compared on self-descriptive adjectives, extent they sought help for mental health problems, and various demographic data. One year later subjects were again interviewed to assess changes due to time. Subjective accounts are included to clarify findings regarding the flashback phenomena.

In the late nineteen sixties and early seventies the heavy illicit use of psychedelic, hallucinogenic or psychotomimetic drugs among high school and college age individuals seemed to have reached a peak. Users of such psychedelic drugs as lysergic acid dyethylamide (LSD), mescaline, and psilocybin were warned of their possible dangers. Some of the dangers noted were "bad trips," suicide, panic states, depression, anxiety, psychotic reaction, chromosomal defects, and brain damage. Coverage of persons in the Armed Services having long-term after-reactions to LSD administered experimentally (and often without their knowledge) by Federal agencies contributed to the dangerous aura of psychedelics; Frank Olsen's highly publicized suicide attributed to LSD after-effects is one such example. Unfortunately, although many individuals subsequently ceased to use these drugs, they continued to report recurrence of hallucinatory and related experiences and sensations markedly similar to those experienced under the influence of the psychedelic drug itself. Commonly called "flashbacks", these reactions can recur days, weeks, months, and even years after taking the drug and after a relative period of normalcy.

Based on previous studies (Matefy, 1973; Matefy & Krall, 1974), flashbacks can be defined as transient reminiscences of certain or all aspects of the psychedelic drug effects occurring after a period of relative normalcy. The fact that the subject returns to a normal state and experiences transient recurrence distinguishes flashbacks from psychotic or other adverse after effects. Flashbacks are not always spontaneous as often described in the literature. The recurrent episodes of perceptual and/or emotional states vary in severity and duration. The experiences are pleasant and sought by some, feared and avoided by others; most people have some combination of pleasant and unpleasant experiences. Personal descriptions of flashbacks range from frightening delusions and hallucinations, panic, depersonalization, bodily sensations, to pleasant geometric designs, hallucinations and perceptions, feeling relaxed and serene, becoming one with the world, etc.

Examples of flashbacks were presented by Horowitz (1969) from reports by patients in treatment for their adverse reactions. The first two are descriptions of perceptual illusions.

> Patient A: Now I often see a bright halo around people, especially at the dark edges—sometimes its rainbow colors—like during the trip.
> Patient B: Sometimes the sidewalk seems to bend as if its going downwards —even when I'm not on anything or it just kinda vibrates back and forth.

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The next patient reported a frightening visual hallucination of a dark scorpion on the back of his hand similar to the one he had during his trip. He claimed that he had ingested no drugs, but for several weeks since his last trip the scorpion continued to be seen during his flashbacks. Sometimes it changed position, but it was always brown or black in color. "It had many legs, and I was worried it might sting me."

A difficulty with these descriptions, of course, is that they emanate from patients under treatment for psychological problems often resulting from their drug usage. Generalizations about flashbacks experienced by relatively normal and functioning individuals may be limited.

Assessing the nature and frequency of flashbacks is difficult because of its subjective nature and because it is such a complex phenomenon. However, reports indicate that such recurrences are relatively common (Ungerleider *et al.*, 1968). Estimates range between 1 in 4 (Robbins *et al.*, 1967) to 1 in 20 (Horowitz, 1969) LSD users who have experienced flashbacks. In a 10 yr follow-up study of subjects who participated in an experimental or therapeutic setting where LSD was administered, almost 1 in 7 reported flashbacks (McGlothin & Arnold, 1971). Other after-effects, often adverse, were also reported. Apparently, LSD taken in supervised and legally sanctioned settings can also have unfortunate effects.

In this paper, one of a series displaying the findings of a 2 yr longitudinal study on flashbacks, the results of interviews with subjects discussing their flashbacks are cited. The aim was to systematically gather, from apparently normally functioning college students, subjective information about flashback experiences, conditions surrounding occurrence, and drug taking and other relevant biographical information. Where pertinent, the same questions were asked of psychedelic drug users not experiencing flashbacks and non-drug using controls. The subjects were again interviewed in a one year follow-up. Similarities and differences between the initial and follow-up responses are discussed.

METHOD

Subjects

A total of 87 subjects, 45 males and 42 females, participated in the first year research. Thirty-four were psychedelic drug users experiencing flashbacks (i.e. flashbackers), 29 were psychedelic drug users not experiencing flashbacks (i.e. non-flashbackers), and 24 were non-drug using control subjects. Seventeen flashbackers, 16 non-flashbackers, and 17 control subjects returned for the second year follow-up sessions. These paid volunteers were solicited by advertisements in the college newspaper, announcements over the college radio station, and posters throughout campus. Although randomly solicited, the subjects, college students with few exceptions, were comparable in age, sex, education, and grade level. (As will be indicated in the results, the two drug using groups did not differ in frequency and intensity of psychedelic drug usage.)

"Flashbackers" were defined as those subjects claiming to have experienced a flashback or flashbacks by responding positively to this question in the initial interview:

> "Some people, even when they are not taking psychedelics for some time, experience recurrences of the drug, commonly called flashbacks. Let me define flashbacks. They are recurrences of sensations, feelings, and thoughts which were previously experienced during the drug trip. These experiences recur at some time after the last ingestion of the psychedelic drug and after the last ingestion of the psychedelic drug and after a period of relative normalcy."

For purposes of corroboration, the subject was then asked to describe his or her typical flashback experience(s).

Procedure

Upon arriving at the laboratory for the first of four initial (as opposed to follow-up) sessions, the subject was instructed that: One will be asked to participate in four experi-

mental sessions which include various tests, interviews and tasks. The subject was free to withdraw or to discontinue at any time. The subject was reassured that all information was confidential, to be used only for research purposes. To guarantee anonymity, the subject was assigned a number used to identify all responses. Assurance was given that the subject was to be paid a stipend for current involvement as well as follow-up involvement. The subject was also told, to enhance honest responses and full effort, that all subjects were to be paid equal stipends, no matter what experimental group the subject was in. Participation in the study and payment for services did not depend on their experiencing flashbacks or even taking drugs.

The introductory instructions for the follow-up 1 yr later were substantially the same except that the subject was reminded repeatedly to answer questions in terms of his experiences since the experiment the year before.

The data were collected by structured interviews in an informal atmosphere by one of two experimenters trained in interviewing techniques. The interviews were interspersed among various psychological tests and other tasks. (The results from these other tests and tasks are discussed in subsequent papers.) The same sequence was followed for all subjects, and each subject had the same interviewer-experimenter throughout the four sessions. The two interviewers-experimenters were randomly assigned subjects within each group.

Each interview consisted of specific and open-ended questions devoted to specific topic areas such as: what actually happens during a flashback, their frequency, how predictable and pleasant are flashbacks, what triggers them off, drug taking history, what personal changes have occurred due to drugs, self-description, etc. Most of the interview questions were originally developed for this study or revised from an earlier study (Matefy & Krall, 1974). Questions about personal changes were adopted from a study by McGlothin *et al.* (1967). The adjective pairs for self-descriptions were either adapted from Jackson & Minton (1963) or chosen for their relevance to drug-involved and flashback subjects. The interviewers wrote down as well as tape recorded each subject's responses. They encouraged the subject to fully discuss each response and elaborate relevant spontaneous comments. The follow-up interviews repeated the same inquiries, with frequent reminders to respond in terms of the intervening year.

RESULTS

Incidence and prevalence of flashbacks

Responses to interview question concerning how frequent flashbacks occur and related issues are presented in Table 1.

LSD was overwhelmingly cited as the primary drug causing flashbacks, although one subject reported marihuana as the causal agent. Flashbacks occurred daily to a few times weekly for 21% of the subjects, two or three times monthly for 18%, and once a month to every few months for 43% of the subjects. Eighteen % reported not experiencing them anymore. When asked if their flashbacks were increasing or decreasing, 64% claimed they decreased since first experiencing them, compared to 18% reporting an increase. The delay between drug intake and flashback varied from within a few days or a week later to over 2 yr. The subjects were relatively evenly distributed over this range. Subjects continued to experience flashbacks for a long time, over 1–2 yr for 82%, although some of them may not be having them any more.

Of those flashbackers who returned for the follow-up interviews a year later, 18% still were experiencing flashbacks a few times weekly, 18% had them a few times monthly and 52% had them once a month or less. No one reported daily flashbacks anymore and 12% claimed experiencing none at all since the initial interviews.

Characteristics of flashbacks

The subjects were asked to characterize their most common flashbacks. They found this difficult because the vast majority (87%) stated that flashbacks were actually multi-

Table 1. Incidence or prevalence of flashbacks

	%
1. What drug primarily causes flashbacks?	
LSD	97
Marijuana	3
2. How often do flashbacks occur?	
Daily	6
Few times weekly	15
Few times monthly	18
Once a month or less	43
Not any more	18
3. Has the frequency increased, decreased or stayed about the same?	
Increased	18
Decreased	64
Same	18
4. How long between the first ingestion of the psychedelic drug and the flashback?	
Few days to week	24
Month	7
2–6 months	24
6 months–1 yr	10
Over 1 yr	21
Over 2 yr	14
5. When did flashbacks first start?	
Month ago	3
2–6 months	6
6 months–1 yr	9
Over 1 yr	38
Over 2 yr	44

dimensional, consisting of combinations of characteristics. In most cases subjects reported 2, 3, 4, 5, or more common themes; an average of about four characteristics were listed. Sometimes a flashback will have some or all four themes, or there would be 4 distinct flashbacks, each with unique qualities. Table 2 lists these themes in order of prevalence and displays the number of subjects responding "yes that is one aspect of my experience."

The most commonly reported flashback theme (14%) involved *perceptual illusions*—distortions of perceptions from sensory cues "like the shape of a tree that reminds you of a person, and for a brief moment or longer you think the tree is that person: or some noise reminds you of someone's voice and you get off on that." The second most frequently reported experience (13%) was *depersonalization*, which was defined as "a feeling of being outside oneself; seeming to be someone else, sitting back and watching yourself." The next most prevalent themes were *anxiety*, *tension*, or *panic* (11%) and *disorientation* or *confusion* (11%). Ten percent experienced a *union with the world (or universe)*— "feeling of union with things around you; feeling of oneness with the world (universe), expansive feeling" and *bodily sensations*. *Auditory hallucinations* (9%) and *visual hallucinations* (8%) which were distinguished from perceptual illusions by not appearing to have any identifiable cues ("image seemed to spring from nowhere") were the

Table 2. Most commonly reported flashback characteristic (In order of prevalence)

	No. of Ss reporting the experience	%
1. Perceptual illusions	20	14
2. Depersonalization	18	13
3. Anxiety, tension or panic	15	11
4. Disorientation or confusion	15	11
5. Union with the world	14	10
6. Bodily Sensations	14	10
7. Auditory hallucinations	13	9
8. Visual hallucinations	12	8
9. Unconscious thought	8	6
10. Feeling of depression	7	5
11. Paranoia	6	4

Table 3. Nature of flashbacks

1. Are flashbacks *exact* recurrences of drug experiences?	
Exactly the same	57
Very similar but not exactly the same	43
2. Would you call flashbacks fortunate or unfortunate experiences?	
Fortunate	56
Unfortunate	44
3. Would you call flashbacks threatening or non-threatening?	
Non-threatening	70
Threatening	30
4. In the past were flashbacks pleasant or unpleasant?	
Always or usually pleasant	37
Half and half	22
Always or usually unpleasant	41
5. Presently, are flashbacks pleasant or unpleasant?	
Always or usually pleasant	60
Half and half	20
Usually or always unpleasant	20
6. Do you feel flashbacks are somehow predictable?	
Always	0
75% of the time	4
50% of the time	11
25% of the time	21
Never	64
7. Do you have control over flashbacks?	
Totally or mostly within my control	36
Half and half	11
Totally or mostly out of my control	53
8. Can you distinguish flashbacks from reality?	
Always	75
Most of the time	18
Seldom can tell difference	7
9. How did you first learn about flashbacks?	
Expected a strange experience	15
Told or heard	62
Never knew until had them	23

next most prevalent themes. If auditory and visual hallucinations are pooled together, they represent almost 18% of the flashback experiences. When combined with illusions, perceptual experiences in general characterize the major portions (32%) of flashbacks. Least prevalent themes, ones reported by about 5% of the subjects, were *unconscious thoughts*, *depression*, and *paranoia*. There were no differences in the characteristics of the flashback experience after a years time. The subjects seemed to be having about the same kind as they did the year before; the characteristics had changed very little over time.

Nature of flashbacks

Responses to questions regarding the subjective nature of flashbacks are presented in Table 3. The majority of subjects (57%) thought their flashbacks were exact recurrences of their drug experiences, while 43% agreed that they were very similar but not exactly the same. When asked to rate their flashbacks in positive or negative value terms, a surprising number rated their experiences positively. For example, 56% found their flashbacks "fortunate" experiences and 70% perceived them as "non-threatening." Subjects also were asked if their flashbacks had *in the past* been pleasant or unpleasant, and 37% said that they were always or usually pleasant. When asked if flashbacks were *presently* pleasant, 60% responded favorably—suggesting a positive change in subjective impressions over time.

Subjects were asked to determine the degree to which flashbacks were predictable. The majority felt they were not or seldom predictable (85%). Neither did the majority of the subjects feel their experiences were controllable; 53% claimed that flashbacks were totally or mostly out of their control, while 36% reported that they were mostly within their control. To determine if flashbackers had difficulty differentiating their flash-

backs from reality, subjects were asked how often they were able to make the distinction. About 93% said that they could tell the difference most or all of the time. Finally, to assess how subjects learned about flashbacks. 77% were either told or expected something strange to happen. Only 23% never knew about flashbacks until they had experienced them. Expectancy and learning may play a role in generating flashbacks.

The nature of flashbacks did not change significantly after the year interval. Approximately the same proportion of flashbackers felt flashbacks were exact recurrences, fortunate experiences, non-threatening, unpredictable, distinguishable from reality, etc. As with the exact descriptions of flashbacks, the nature of the experience did not markedly alter over the period of 1 yr.

Events triggering flashbacks

Subjects were asked to recall the situations, moods, and agents they felt triggered their flashbacks. These factors are listed in order of prevalence in Table 4. Flashbackers were able to pinpoint precipitating events when asked specific questions about such triggering factors. Taking another drug like marihuana or alcohol (22%) and, on the one hand, pleasurable thoughts and situations (21%) and, on the other hand, anxiety-provoking thoughts and situations (20%) were the dominant factors triggering flashbacks. Other major events include contemplation (14%) and cues reminding one of past drug experiences (13%). Marihuana or alcohol, pleasurable experiences, anxiety or stress, contemplation, and cues reminding one of past drug experiences make up the bulk of triggering events as reported by flashbackers.

The follow-up results were substantially the same except that a significant number (53%) of those originally reporting flashbacks thought that deep thought and concentration played a larger role than they initially reported ($P < 0.05$).

Personal theory

When asked to share their personal theories about flashbacks, four major themes emerged as to why flashbacks occurred to these subjects. Most subjects had more than one theory. A cue reminding the subject of past "tripping" was reported by 58%, psychedelic drugs are released from the brain by 50%, learning or conditioning process 42%, and release of unconscious thoughts 38%. A cue associated with past drug trips and a learning or conditioning process, two closely related statements, comprised 43% of the total personal theories flashbackers used to explain their recurring experiences. In the follow-up subjects did not substantially change their minds. The dominant theories were again cues from the past, release of drugs from the brain, conditioning process, and release of unconscious thoughts and material.

Drug taking history

This set of responses by flashbackers was compared to responses by nonflashbacking drug users to discover possible differences in drug taking histories. The responses were subjected to Chi square analysis, the results of which are presented in Table 5.

Considering the flashbackers' responses alone, substantially the same number of subjects were heavily drug involved from anywhere up to 6 months to as long as over 2 yr. The greatest proportion of flashback subjects began taking psychedelics before high school. Very few began in junior-senior college or beyond. About two-thirds of

Table 4. Events triggering flashbacks (Order of prevalence)

1. Marihuana or Alcohol	22
2. Pleasurable thoughts and situations	21
3. Anxious thoughts or anxiety provoking situations	20
4. Contemplation	14
5. Cues reminding of past drug experiences	13
6. Boredom	8

Table 5. Drug-taking history

	Flashback Ss	Nonflashback Ss	χ^2 value
How long most heavily involved with drugs?			
Up to 6 months	20	32	1.48, ns
6–12 months	27	18	
1 yr	23	25	
2 yr	30	25	
When did you begin taking psychedelics?			
Before H.S.	23	15	2.95, ns
Fresh/soph H.S.	17	11	
Jr/sr H.S.	27	44	
Fresh/soph College	27	22	
Jr/sr College	3	4	
Post College	3	4	
When most heavily involved with drugs?			
High School	32	29	0.029, ns
College	68	71	
What drug did you first start taking?			
LSD	7	4	1.49, ns
Marijuana	87	88	
Other	6	8	

the subjects felt they were most heavily involved during their college years. The vast majority (87%) began their drug taking with marihuana.

Comparing responses between the two drug using subject groups reveals no significant differences in the drug taking history of the flashbackers or the non-flashback drug users. Another way of comparing flashbackers and non-flashbackers in terms of drug involvement is to employ the four distinct stages of use suggested by Sadava (1972): initial experimentation, casual, occasional and regular daily use. Subjects in the follow up were asked to categorize in the four levels their past as well as their recent drug use. Although relying on the subjects' estimates of past and present usage, again no significant differences in drug involvement between flashbackers and nonflashbackers were found.

Comparison of initial and follow-up results indicate that significant numbers of flashbackers stopped taking all types of drugs—LSD ($P < 0.003$), mescaline ($P < 0.01$), sedatives ($P < 0.01$), stimulants ($P < 0.03$), cocaine ($P < 0.01$) and heroin ($P < 0.01$). However, the nonflashbackers also stopped taking these drugs, including LSD in significant numbers. Drug taking in general, psychedelic and "hard," decreased significantly from the time of the initial interviews to the year follow-up. However, the use of marihuana did not change, both groups continued using it at about the same rate as they had reported the year before.

Reasons for taking drugs

In the original interviews, subjects were requested to give reasons for *initially* and *presently* taking drugs. Major *initial* reasons for the flashbackers to take drugs, listed in order of preference in Table 6 include curiosity, desire to get high, and increased self-awareness.

Although desire to get "high" and increase self awareness were still dominant reasons cited by flashbackers for *present* drug taking in the first study, curiosity played a very minor role. Social pressure was also less important. See Table 7.

The reasons for the nonflashbackers to take drugs were statistically comparable to reasons the flashbackers cited, as shown in Table 6 and 7. Psychedelic drug users, flashbackers versus nonflashbackers, cannot be differentiated in terms of their reasons to take drugs.

In the follow-up study, subjects in both groups still gave the same reasons for taking drugs that they did in the first interviews. Desire to get high, increased self awareness, anxiety and emotional relief, and kicks were seen as consistent reasons for both groups to take drugs one year later.

Table 6. Reasons for *initially* taking drugs (In order of preference)

	Flashback	Nonflashback	χ^2 value
1. Curiosity			
Yes	83	96	1.03 ns
No	17	4	
2. Desire to get high			
Yes	53	52	0.001 ns
No	47	48	
3. Increase self awareness			
Yes	53	52	0.06 ns
No	47	48	
4. Kicks			
Yes	30	28	0.01 ns
No	70	72	
5. Social pressure			
Yes	27	16	1.05 ns
No	73	84	
6. Escape from problems			
Yes	27	20	0.43 ns
No	73	80	
7. Relief of anxiety			
Yes	17	8	0.30 ns
No	83	92	
8. Relief of depression			
Yes	10	20	0.97 ns
No	90	80	

Personal changes due to drugs

We next asked flashback and nonflashback subjects to convey what, if any, changes occurred as a result of their drug experiences. The findings and results of Chi-square analysis are presented in Table 8.

The flashback subjects indicated as the chief changes a deeper appreciation of life's significance, greater introspection, enhanced understanding of self and others, increased interest in music, art, or nature, personal development noted by significant others, ability to be oneself, and a less materialistic or competitive attitude. The nonflashbackers indi-

Table 7. Reasons for *presently* taking drugs (In order of preference)

	Flashback	Nonflashback	χ^2 value
1. Desire to get high			
Yes	73	72	0.01 ns
No	27	28	
2. Increase self-awareness			
Yes	27	36	0.56 ns
No	73	64	
3. Relief of anxiety			
Yes	20	20	0.01 ns
No	80	80	
4. Escape from problems			
Yes	20	12	0.64 ns
No	80	88	
5. Kicks			
Yes	17	20	1.01 ns
No	83	80	
6. Relief of depression			
Yes	7	20	2.18 ns
No	93	80	
7. Social pressure			
Yes	7	0	1.73 ns
No	93	100	
8. It was illegal			
Yes	7	8	0.04 ns
No	93	92	
9. Curiosity			
Yes	3	16	2.65 ns
No	97	84	

Table 8. Personal changes due to drugs

What if any changes have occurred in you as a result of your drug experiences?	Flashback	Nonflashback	χ^2value
1. Deeper appreciation of significance of life			
Yes	83	73	0.87, ns
No	17	27	
2. Greater introspection and reflectiveness			
Yes	80	62	2.33, ns
No	20	38	
3. Increased interest in nature, art and/or music			
Yes	77	73	0.01, ns
No	23	27	
4. Enhanced understanding of self and others			
Yes	70	62	0.45, ns
No	30	38	
5. Personal development noted by others			
Yes	67	42	3.34, ns
No	33	58	
6. More able to be oneself			
Yes	60	61	0.01, ns
No	40	39	
7. Less materialistic			
Yes	57	35	2.72, ns
No	43	65	
8. Less competition			
Yes	53	38	1.24, ns
No	47	62	

cated substantially the same personal changes due to their drug experiences. The two subject groups could not be statistically differentiated on these dimensions. Follow-up data revealed no significant differences in the personal changes either subject group attributed to drugs. For both groups a deeper appreciation of life, greater introspection, interest in nature or the arts, enhanced understanding, personal development, etc. were still seen as prevalent changes even after a year's time.

Adjective checklist

Subjects in all three groups, including the non-drug using controls, were asked to decide which one of a pair of adjectives characterized them. The responses and Chi square analysis results are displayed in Table 9.

Compared to the other two subject groups (non-flashbackers and controls), the flashbackers described themselves as more frivolus than practical, spontaneous than controlled, outspoken than reserved. Flashbackers felt more assertive and active while the non-flashbackers felt more submissive and passive. The two drug groups combined felt

Table 9. Adjective check list

	Flashback	Nonflashback	Control	χ^2 value
Frivolous	61	27	22	10.11***
Practical	38	73	78	
Spontaneous	69	30	43	7.98**
Controlled	31	70	57	
Outspoken	65	27	52	7.94**
Reserved	35	73	48	
Assertive	85	42	78	12.30***
Submissive	15	58	21	
Active	73	38	87	13.73***
Passive	27	62	13	
Easygoing	73	77	35	11.11***
Ambitious	27	23	65	

* $P < 0.05$, d.f. = 2.
** $P < 0.02$, d.f. = 2.
*** $P < 0.01$, d.f. = 2.

Table 10. Need to seek help from mental health professionals

	Yes	χ^2 value
Have you consulted a professional for a mental health problem?		
Flashback	64	7.31, $P < 0.05$
Nonflashback	31	
Control	35	
Have you had psychological problems warranting treatment but did *not* seek help?		
Flashback	29	0.46, ns
Nonflashback	35	
Control	26	
Have you felt the need to seek help because of your flashbacks?		
Flashback	12	

more easy going while the control subjects described themselves as more ambitious. On all other adjective pairs, the three groups described themselves very much alike. This includes happy vs sad, extroverted vs introverted, introspective vs extrospective, restless vs calm, confident vs unsure, careful vs careless, curious vs indifferent, complex vs simple, sensitive vs insensitive, relaxed vs anxious, and objective vs subjective. In sum, the flashbackers described themselves differently than did the other subjects; they reported being more frivolous, outspoken, spontaneous, assertive and active. The follow-up data revealed much the same results, except that the flashbackers no longer saw themselves as more spontaneous than the other subjects.

The need to seek help from mental health professionals

All three groups were asked to report the extent to which they sought professional help for psychological problems. (See Table 10)

Significantly more flashbackers (64%) claimed that they consulted someone for mental health problems than did either the non flashbackers (31%) or the controls (35%). However, there were no differences among the three subject groups when asked if they had problems for which they did *not* seek help. For the flashback subjects, the major problems requiring mental health care were related to drugs, crisis and marital issues. Few (12%) reported that flashbacks, per se, was an incentive for counseling. In the follow-up, all three groups were relatively evenly divided in terms of who sought mental health care and who did not ($\chi^2 = 1.07$, d.f. = 2, ns) and who had a problem warranting help although no help was sought ($\chi^2 = 4.01$, d.f. = 2, ns).

Demographic data

Although the Ss were not intentionally matched in terms of demographic factors, such variables as educational level, sex, age, hobbies, father's occupation did not distinguish flashbackers from nonflashbackers or controls.

DISCUSSION AND CONCLUSION

According to relatively normal functioning college students who experience flashbacks, LSD is the overwhelming primary causal drug. One cannot predict when flashbacks will be experienced after LSD is ingested; it can occur within a few days, in some cases over a year or two. Flashbacks can occur daily but the majority of subjects claim they occur once a month to every few months and they have decreased since first experienced. In a previous study conducted in 1972 (Matefy & Krall, 1974), a different set of subjects reported more frequent flashbacks. It seems that just as LSD usage has waned so has the frequency of flashbacks. However, subjects keep experiencing, though less frequently, recurrences of LSD effects for a long time. The majority

of subjects said they recur for over 1–2 yr. Follow-up interviews one year later revealed that all but two returning flashbackers were still experiencing flashbacks to some degree. It should be recalled that most of these returnees were already having flashbacks for a long time when interviewed initially.

Most subjects described their flashbacks as exact or almost exact reminiscences of their drug experiences. Asked to characterize their flashbacks, the majority describe them as containing several themes; an average of four were reported. Sometimes the themes were combined in the same flashback, other times the themes were represented by four distinct flashbacks experiences at different times under diverse conditions. The most common characteristic of flashbacks was *perceptual experiences* (i.e. illusions and hallucinations). This supports Matefy & Krall's (1974) finding that "hallucination" was the most prevalent phenomena. (In that study the term "hallucinations" was not differentiated into separate perceptual experiences as it was here.) One subject discussed his auditory hallucination flashback and also his degree of control over it.

> That's a lot of high little sounds (makes sound to illustrate). Really strange. Electronic sounds like if someone was playing an oscillator, turns it way up high and then slowly brings it way down low and flutters it a little and then takes it back up again. But that's sort of fun 'cause you can control that.

Another flashbacker in describing a perceptual illusion or distortion said

> Well, I'm taking acid, right? and maybe about a year later... the distortions came... perceptual illusions like. I see things that... well I'd look into a bale of hay, say, and I'd see something inside that really was not there... something like a face... like the head was formed in such a way that it looked like a horse made out of hay... a little toy horse.

The second most common theme was *depersonalization* or feeling of being outside oneself, sitting back and watching. Two subjects described the feeling this way.

> I was in bed, I was just feeling like I was, I had no identity, I don't think I was me! I felt like my face was all different faces, different people's faces.

> Like I would be sitting here and you would be talking to me, maybe, and I would just like space off into my own thoughts and be somewhere else. Just free and easy. I kinda can't help it.

A sense of depersonalization was intertwined with a visual hallucination in the following flashback described by the following subject who also conveyed the pleasantness of his experience.

> I had flashbacks when I'd lay in bed and just get intense colors. Intense colors... Like maybe I'd have a tie-dye sheet on my wall and when I'd lay on my bed it moves. It breathes, almost. And its good. Colors and a spacie feeling they always go together. Like I'm in another place watching all this.

Other common themes were *feelings of anxiety and tension, disorientation and confusion, union with the world,* and *bodily sensations.* One subject described the disorientation that occurs with certain flashbacks.

> When the walls wave you're disorientated (laughs). You can be confused because for a few moments there, at the beginning, you don't realize what's happening. You think you drank too much or smoked too much... you know? Your first initial response is to correlate it to a natural phenomena (i.e. an LSD high).

In describing his "union with the world—universe" flashback, one subject said

> One time on acid I remember becoming the universe. My consciousness was the universe. And for just a split second, occasionally, that same kind of sensation would occur which usually feels good.

Another describes "bodily sensation" flashbacks this way:

> It's like, almost like vibrators in your body, like you feel your leg... some sort of inner vibrators that you feel come on. The flashback only lasts two or three seconds.

The flashbacks seem to change little over time. Those subjects still experiencing flashbacks in the follow-up were reporting the same kinds of flashbacks they were having the year previously. They recognized their experiences as "flashbacks" and did not confuse these unusual altered consciousness states with their usual "reality." A surprising number of subjects found flashbacks pleasant and non-threatening. (Recall that the subjects were adjusted and functioning college students for the most part, not psychiatric patients from whom many past descriptions of flashbacks were obtained.) The majority of subjects initially described their flashbacks in favorable terms and continued to describe them favorably in the follow-up. Perhaps reflecting the unfamiliarity of flashbacks for many drug users in 1972, Matefy & Krall (1974) found that fewer subjects (37%) viewed their flashbacks as pleasant in response to the exact same interview questions given here. Most flashbackers in this study said their flashbacks were not within their control, which repeats Matefy & Krall's (1974) finding about flashback's unpredictability. It also seems that usually the unpredictable nature of flashbacks rather than specific content made them unpleasant. Most subjects more or less accepted flashbacks as an inevitable consequence of their present or past life style but they became frightened whenever realizing they had little control over them. The following description illustrates this point quite well.

> You can't adjust to them... I mean most things in life you have some control over, you know when they're going to happen. This (flashbacks) you have no control over and you don't know when it is going to happen, so there will always be a certain element of fear and disorientation... You know, I can't sit back and enjoy... I have no control over it... If you could say "I don't want to have a flashback right now," you know? I mean, at a party the unpleasant aspect is the uncertainty or that you have no control over when it happens. I guess it could become more unpleasant if it did happen at an instant that could endanger me or someone else.... You have some control over it when you take a drug. This (the flashback) you have no control over.

Expectancy may play a role since a great majority of subjects knew about flashbacks before taking psychedelics by either being told or somehow expecting it to happen.

> I first heard about flashbacks... one of my best friends told me that. He told me that he had a flashback, that's why he quit acid.

> I must have learned years ago when I first heard about acid. I think I always thought that, well, intense things would happen... like everything would keep repeating.

Despite the flashbackers' belief that their unusual experiences were unpredictable, they were able to pinpoint precipitating events when asked specific questions about them. Apparently, feeling high again on marijuana or alcohol can serve as cue to past associations with the original drug highs (Matefy 1973). In describing how marijuana triggers flashbacks, one subject also shared a common feeling among flashbackers—that

these experiences have always been with them and that some people just turn their minds to them.

> When you're stoned you're just sort of sitting there and you can start thinking about... I just call it talking yourself into a flashback. You know, mind control and all that...' cause the colors are always there, it's just whether you see them or not. You know, they're always there. You will always be able to perceive certain colors unless you're color blind. So all you gotta do is stimulate these things that you want to see. They're always there. It's like getting stoned all over again.

Other dominant triggering events include cues reminding one of past experiences, anxiety or stress, pleasurable thoughts, and contemplation. In the follow up, subjects indicated that deep thoughts and contemplation played a larger role than they perceived initially. These results essentially support the observations of others (for example, Shick & Smith, 1970).

In terms of the theories of flashbacks given by those experiencing them, the most widely held involved some sort of conditioning process or a cue associated with a past drug high—such as listening to certain acid rock music, being in the company of drug partners, getting intoxicated. Drugs released from brain storage and release of unconscious thoughts or materials were also prevalent theories. These hunches were repeated as dominant theories in the follow-up. In Matefy & Krall (1974) recall of drug related cues and release of unconscious material were also primary theories. Perhaps reflecting increased knowledge about flashbacks and what causes them, brain defect was not listed as a primary theory by subjects in the present research project although it was by subjects in the earlier Matefy & Krall study conducted in 1972.

Smart & Bateman (1967) suggested that there may be a connection between spontaneous recurrences and frequency of LSD usage. No evidence to support this was found in our present or past research. Flashbacks may occur after one or two drug ingestions or after three hundred. Also, we have consistently found no significant differences in psychedelic drug involvement between subjects experiencing flashbacks and those who don't. The follow-up did reveal that significant numbers from both groups stopped taking all types of drugs except marijuana.

There were no substantial differences between flashbackers and nonflashbackers in reasons for taking drugs. Desire to get high, increase self awareness, anxiety and problem relief were the main reasons for both drug using groups. Follow-up data indicated the same motives for getting high. Curiosity and social pressure became less important over time.

Both groups felt that the same long-lasting personal changes occurred to them: greater appreciation of life's significance, greater introspection, enhanced self and other understanding, appreciation of the arts and nature, and less materialism or competitiveness. Even after a year's time, the subjects still reported these were the primary personal effects of drugs. Matefy & Krall (1974) found that flashbackers reported their drug experiences expanded their self awareness more so then did the non-flashbackers.

When asked to reveal their opinions of themselves, flashbackers described themselves somewhat differently than did the other subjects. They reported being more frivolous, outspoken, spontaneous, assertive and active than did the non-flashbackers and controls. Follow-up descriptions were different only in that the flashbackers no longer viewed themselves as more spontaneous.

Significantly more flashbackers reported they consulted someone for mental health problems than did the non-flashbackers and controls, although very few claimed that flashbacks were the specific reason. Drug related, crisis and marital problems were given as chief incentives to seek help. The differences in need for help did not prevail in the follow-up; all three subject groups were comparable.

Finally, flashbackers, non-flashbackers, and controls were comparable in terms of demographic factors, education, sex, age, hobbies, and father's occupation. The same

was found by Matefy & Krall (1974) except in that study there seemed to be significantly more flashbackers with professional fathers and non-flashbackers with fathers in managerial and labor ranks. That finding was not replicated in the present study.

REFERENCES

Horowitz, M. J., Flashbacks: Recurrent intrusive images after the use of LSD. *Americal Journal of Psychiatry*, 1969, **126**, 147–151.

Jackson, D. N., & Minton, H. L., A forced-choice adjective preference scale for personality assessment. *Psychological Reports*, 1963, **12**, 515–520.

Matefy, R. E., Behavior therapy to extinguish spontaneous recurrences of LSD effects: A case study. *Journal of Nervous and Mental Disease*, 1973, **156**, 226–231.

Matefy, R. E., & Krall, R. G., An initial investigation of the psychedelic drug flashback phenomena. *Journal of Consulting and Clinical Psychology*, 1974, **42**, 854–860.

McGlothlin, W. H., & Arnold, D. O., LSD revisited: A ten year follow-up of medical LSD use. *Archives of General Psychiatry*, 1971, **24**, 35–49.

McGlothlin, W., Cohen, S., & McGlothlin, M. S., Long lasting effects of LSD on normals. *Archives of General Psychiatry*, 1967, **17**, 521–532.

Robbins, E., Frosch, W. A., & Stern, M., Further observations on untoward reactions to L.S.D. *American Journal of Psychiatry*, 1967, **124**, 393–395.

Sadava, S. W., Stages of college student drug use: A methodological contribution to cross-sectional study. *Journal of Consulting and Clinical Psychology*, 1972, **38**, 298.

Shick, J. F., & Smith, D. E., Analysis of the LSD flashback. *Journal of Psychedelic Drugs*, 1970, **3**, 13–19.

Smart, R. G., & Bateman, K., Unfavorable reactions to LSD: A review and analysis of the available case reports. *Canadian Medical Association Journal*, 1967, **97**, 1214–1221.

Ungerleider, J. T., Fisher, D. D., Goldsmith, S. R., Fuller, M., & Forgy E., A statistical survey of adverse reactions to LSD in Los Angeles County. *American Journal of Psychiatry*, 1968, **125**, 352–357.