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Marijuana Intoxication: Common Experiences

CHARLES T. TART
Department of Psychology,
University of California,
Davis, California 95616

As a guide to future experiments, the chief experiential effects of marijuana have been elucidated with the help of a detailed questionnaire given to seasoned marijuana users whose experiences, it seems, are almost entirely pleasant.

THE widespread use of marijuana, chiefly among college students, has raised important ethical, social and scientific questions and has stimulated some research. There is a risk, however, that studies will be unrepresentative of the effects of marijuana as it is actually used. One pitfall is the attempt to study "pure" effects in which extraneous sources of variation are minimized. Thus the report on one otherwise excellent laboratory study[1] says the "... greatest effort was made to create a neutral setting ... verbal interactions between staff and subjects were minimum and formal ...".

An adequate understanding of marijuana intoxication which focuses on particular effects experienced by a particular person must take into account (1) long term characteristics of the user—his personal and physiological idiosyncrasies; (2) immediate expectations and desires about what will happen during intoxication; (3) past experiences with marijuana and other psychoactive drugs as well as learned skills for modifying the drug experience; (4) immediate emotional state; (5) the social and physical setting; (6) the amount of marijuana used; and (7) chemical variations of the marijuana used. (Many of the marijuana users I interviewed insisted that certain samples of marijuana were qualitatively different from one another, and brought about different effects—laughter or sedation, for example.) During intoxication, these variables may alter as, for example, a user's companions direct his attention to new effects. Knowledge of how these variables affect marijuana intoxication is meagre, and is based almost exclusively on anecdotal accounts[2–5].

Some of the effects of marijuana may be evident only when the variables mentioned above have certain values. Other effects, which may be called "pure drug effects", may be caused exclusively by the pharmacological action of the drug. Both types are equally "real" and interesting. The traditional "neutral" setting of the laboratory, however, can provide a very limited configuration of determining variables: thus many potential effects will not show up in the laboratory situation, so that the picture of marijuana intoxication obtained there may be only partial. Indeed, it has been argued that the laboratory positively inhibits many important human manifestations[6–9].

These disadvantages can be overcome, however, if the investigator knows the entire normal range of effects of marijuana. My purpose here is to record this range for the benefit of future investigations. I designed a questionnaire on the basis of what I had read and learned from informal interviews with marijuana users. The questionnaire was answered by experienced marijuana users with respect to all their experiences over the preceding six months. The variables I have referred to would have been operative throughout their ranges, giving an adequate sample of the potential effects as well as the pure drug effects.

Informal interviews, chiefly with students, were carried out for two years to find out what marijuana intoxication was like. The results were combined with other descriptions of effects (see ref. 10) to give 206 descriptions of possible effects. The descriptions made up the chief part of a large questionnaire. The respondent was asked to say how often he had experienced each possible effect during the preceding six months. (The restriction to the last six months of use was intended to reduce lapses of memory. Respondents were also asked to estimate the smallest degree of intoxication necessary to experience each effect on a five-point scale: these data and more detailed analyses will be presented elsewhere.) If the description made no sense to him, he could skip it; otherwise he was asked to estimate frequency in one of five categories: (1) never; (2) rarely; (3) sometimes (between 10 and 40 per cent of time); (4) very often (more than 40 per cent of time); and (5) usually (almost always). The rest of the questionnaire consisted of questions on background (age, sex, education and experience with other psychoactive drugs).

The questionnaires were distributed by students, who were asked to pass the questionnaires on until they reached experienced marijuana users; this method was intended to ensure anonymity. A stamped return envelope was attached to each questionnaire and, of about 750 questionnaires, 153 were returned.

A letter that went out with the questionnaire was written colloquially and used the drug culture terminology. It explained the purpose of the study, asked the respondents to be as accurate as possible, and offered to make results available to anyone who wanted them after a year. It asked that only people who had used marijuana at least a dozen times should fill in the questionnaire, to avoid problems of adaptation.

Methodological Questions

Are the answers valid? For example, can the respondents adequately assess their experiences? Allowing for

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the difficulty of putting precise words to inner experiences, it seemed from the informal interviews that educated marijuana smokers could give fairly articulate descriptions; and the respondents in this study were highly educated. Comprehensive interviews to determine a more adequate vocabulary are needed, but most of the possible effect descriptions seemed understandable and conveyed what the users wished to express. To check carelessness or deliberately bizarre answers, I added fourteen extra descriptions of possible effects randomly among the original 206. They constituted a validity scale by referring to unheard-of effects. Any questionnaire with six or more positive responses to them was to be rejected without further analysis; three were in fact rejected, leaving 150 that could be used.

A further objection: might the respondent overstress positive effects in order to justify his drug use? One cannot be certain, but two steps were taken to reduce the possibility. First, the accompanying letter was designed to appear sympathetic to marijuana use, so there was no need to win over the investigator. Second, the letter appealed to the respondents' curiosity about other users' experiences and to their loyalty to other users: because it promised to make the results available, the respondents would benefit by being accurate. Negative, unpleasant effects, are, nevertheless, under-represented in the replies, and interpretations should take account of the lack. By definition, an "experienced" marijuana user is an enthusiast; it would be somewhat perverse to indulge continually in criminal behaviour that is personally unpleasant.

Because my purpose is to ascertain the common effects of marijuana intoxication rather than the effects in specific populations, I describe here only major characteristics of the sample. The respondents were chiefly young Californians (67 per cent), with some East Coast respondents (11 per cent); 87 per cent were under 30 years old. There were twice as many males as females. 67 per cent were students, and 71 per cent unmarried. Only 7 per cent had had no college training, and 21 per cent had pursued graduate work or had earned advanced degrees. Only 4 per cent had been arrested for possessing marijuana. Many of the respondents were interested in self-improvement: 36 per cent reported that they practise some sort of discipline for spiritual or personal growth. 74 per cent of the sample had smoked marijuana for between six months and three years; the average frequency of use during the preceding six months ranged from "almost every day" (19 per cent) to "once a week or more" (42 per cent) to less than once a week (39 per cent). 72 per cent had tried more powerful psychoactive drugs such as LSD-25 at least once, 47 per cent of them in the six months covered by the questionnaire. Few (7 per cent) had used hard narcotics or dangerous stimulants (amphetamine or methedrine by injection). The respondents had used marijuana to alter their state of consciousness more than twice as frequently as alcohol in the preceding six months.

I classify the results into three categories: first, a large number of effects that may be considered common; second, a smaller number of effects that occur so frequently that they may be considered characteristic (these are shown by an asterisk in the list of "common effects"); third, some infrequent effects that seem at face value to be very significant. "Common" is here defined as being rated as "Sometimes", "Very Often", or "Usually" by at least 50 per cent of the respondents; "characteristic" as being rated "Very Often" or "Usually" by at least 50 per cent of the respondents.

The descriptions of possible effects within the "common effects" category are given in the wording of the questionnaire, except that the qualifying phrase "the effect is more pronounced during marijuana intoxication ['while stoned'] than normally" is usually omitted to save space, and some parts of the descriptions are omitted if the meaning is not thereby affected. The descriptions are put into sixteen classes, although some are relevant to more than one class. Within each class, the descriptions begin with the most common; the figures given are the total percentages of respondents putting an effect into the "Sometimes", "Very Often", or "Usually" categories.

Common Effects

Visual effects: (1) I can see patterns, form, figures, meaningful designs in visual material that does not have any particular form when I'm straight, that is just a meaningless series of lines or shapes when I'm straight, 85*. (2) If I try to visualize something . . . I see it in my mind's eye more sharply. . . , 81*. (3) When looking at pictures they may acquire an element of visual depth, a third dimensional aspect. . . , 72. (4) Things seen are seen more sharply in that their edges, contours stand out more sharply against the background, 72. (5) I can see new colours or more subtle shades of colour . . . , 70. (6) There is a sensual quality to vision, as if I were somehow "touching" the objects or people I am looking at, 59. (7) . . . things in the periphery of my vision look different when I'm not looking directly at them . . . , 58. (8) My visual perception of the space around me is changed so that what I'm looking at is very real and clear but everything else I'm not focusing on visually seems further away or otherwise less real or clear, 58.

Auditory effects: (1) I can hear more subtle changes in sounds, for example, the notes of music are purer and more distinct, the rhythm stands out more, 99*. (2) I can understand the words of songs which are not clear when straight, 85*. (3) When listening to stereo music or live music, the spatial separation between the various instruments sounds greater, as if they were physically further apart, 82*. (4) If I try to have an auditory image . . . it is more vivid . . . , 73. (5) With my eyes closed and just listening to sounds, the space around me becomes an *auditory* space, a space where things are arranged according to their sound characteristics instead of visual, geometrical characteristics, 65. (6) The sound quality of my voice changes, so that I sound different to myself when I talk, 63.

Touch effects: (1) My sense of touch is more exciting, more sensual . . . , 86*. (2) Touch sensations take on new qualities . . . , 85*. (3) Some surfaces feel much smoother, silkier, 77. (4) Some surfaces feel much rougher, irregular . . . and the roughness or graininess forms interesting patterns, 73. (5) The temperature of things . . . takes on new qualities, 69. (6) I can experience vivid tactual imagery . . . , 60. (7) Objects seem heavier, more massive when I lift them, 55.

Taste effects: (1) Taste sensations take on new qualities, 93*. (2) I enjoy eating very much and eat a lot, 93*. (3) If I try to imagine what something tastes like, I can do so very vividly, 69. (4) I crave sweet things to eat, like chocolate, more than other foods, 57.

Smell effects: (1) Smell sensations take on new qualities, 71. (2) Smells become richer and more unique . . . , 69.

Space-time perception: (1) When I walk someplace my experience of the distance covered is quite changed . . . , 96*. (2) Time passes very slowly . . . , 95*. (3) Distances between me and things or me and other people seem to get greater . . . , 69. (4) Events and thoughts flow more smoothly, the succession of events in time is smoother than usual, 69. (5) I get so lost in fantasy or similar trips in my head that I completely forget where I am, and it takes a while to reorient after I come back and open my eyes, 63. (6) Time seems to stop: it's not just that things take longer, certain experiences seem outside of time, timeless, 63. (7) Events and thoughts follow each other jerkily, there are sudden changes from one thing to another, 59. (8) While something is happening I get the funny

feeling that this sequence has happened before in exactly the same way . . . (*déjà vu*) . . . , 55. (9) Distances . . . seem to get shorter . . . , 53.

Perception of the body: (1) I feel a lot of pleasant warmth inside my body, 71. (2) If I am paying attention to some particular part of my body, the rest of my body fades away a lot so the part I'm attending to stands out more sharply, 69. (3) I am much more aware of the beating of my heart, 69. (4) With my eyes closed, my body may feel very light or even feel as if I float up into the air, 68. (5) I have lost all consciousness of my body during fantasy trips . . . , 66. (6) I get feelings in my body that are best described as energy, force, power of some sort flowing, 65. (7) I lose awareness of most of my body unless I specifically focus my attention there or some particularly strong stimulus demands my attention there, 61. (8) I become very aware of my breathing and can feel the breath flowing in and out of my throat as well as filling my lungs, 60. (9) Pain is easy to tolerate if I keep my attention elsewhere, 59. (10) I feel a vibration or tingling sensation in some or all of my body that I can tell is not an actual muscle tremor by looking at my body, 57. (11) Pain is more intense if I concentrate on it, 54.

Physical movement: (1) I get physically relaxed and don't want to get up or move around, 95*. (2) When I move about or dance my motions seem exceptionally smooth and well coordinated, 81*. (3) I get physically restless so that I want to move around a lot, 58. (4) I feel much weaker when stoned (regardless of whether you're actually physically stronger or weaker), 51.

Interpersonal relations: (1) I have feelings of deep insights into other people, how they tick, what their games are (regardless of whether they actually check out later), 85*. (2) I find it very hard to play ordinary social games, 83*. (3) I empathize tremendously with others, I feel what they feel, I have a tremendous intuitive understanding of what they're feeling, 83. (4) I talk a lot less, 83. (5) I am less noisy and boisterous at parties, 82*. (6) I am less noisy and boisterous at parties than when drunk or tipsy on alcohol, 82*. (7) When stoned with others I play "childish" games, that is, we interact with each other in ways which are very enjoyable but which people would ordinarily consider "childish", 80. (8) I feel the things I say in conversation are more profound and appropriate to the conversation, more interesting, 79. (9) I become more sociable, I want to be with and interact with people more, 76. (10) When stoned with a group of people, the group takes on a much greater sense of unity, or real social relationship . . . , 75. (11) I become less sociable; I want to be by myself, 73. (12) Being with people who are much higher than I am (as from their being on acid (LSD) or much more stoned on grass) gets me higher, even though I don't smoke any more grass, 70. (13) I talk a lot more, 64. (14) I feel isolated from things around me . . . , 50.

Sexual effects: (1) Sexual orgasm has new qualities, pleasurable qualities, 77*. (2) When making love I feel I'm in much closer mental contact with my partner; it's much more a union of souls as well as bodies, 76. (3) I have no increase in sexual feeling unless it's a situation that I would normally be sexually aroused in, and then the sexual feelings are much stronger and more enjoyable, 75. (4) My sexual drive goes up, I have more need for sex, 61. (5) I feel as if I'm a better person to make love with when stoned, 52.

Thought processes: (1) I appreciate very subtle humour in what my companions say, and say quite subtly funny things myself, 91*. (2) Commonplace sayings or conversations seem to have new meanings, more significance, 87. (3) I give little or no thought to the future, I am completely in the here-and-now, 87*. (4) Spontaneously, insights about myself, my personality, the games I play, come to mind when stoned and seem very meaningful, 86*. (5) The ideas that come to my mind are much more original, 83. (6) I find it difficult to read, 80*. (7) I think about things in ways that seem intuitively correct, but which do not follow the rules of logic, 78. (8) . . . I think much more in (visual) images instead of just abstract thought, 75. (9) I am more willing to accept contradictions between two ideas or two views . . . I don't get uptight because the two things don't make immediate sense, 74*. (10) If I deliberately work on it, I can have important insights about myself, my personality, the games I play, 73. (11) I learn a great deal about psychological processes . . . general knowledge about how the mind works (as opposed to specific insights about yourself), 71. (12) I get so wound up in thoughts or fantasies that I won't notice what's going on around me . . . , 69. (13) I get so wound up in thoughts or fantasies while doing some physical task or job that I lose awareness of doing it, yet suddenly find that I have finished the physical task . . . , 67. (14) I have more imagery than usual while reading; images of the scene I'm reading about just pop up vividly, 67. (15) I do things with much less thought to possible consequences of my actions . . . , 65. (16) If I try to solve a problem, it feels as if my mind is working much more efficiently than usual (regardless of how you evaluate the solution later), 64. (17) If I work on a problem, I work less accurately as judged by later real-world evaluation, 63. (18) I can play elaborate games and get very involved in the games, 60. (19) If I try to solve a problem it feels as if my mind is much less efficient . . . , 56. (20) In thinking about a problem of the sort that normally requires a series of steps to solve, I can get the answer without going through some of the usual intermediate steps . . . , 53.

Memory functioning: (1) My memory span for conversations is somewhat shortened, so that I may forget what the conversation is about even before it has ended (even though I may be able to recall it if I make a special effort), 89*. (2) I can continue to carry on an intelligent conversation even when my memory span is so short that I forget the beginnings of what I started to say; for example, I may logically complete a sentence even as I realize I've forgotten how it started, 72. (3) I can't think clearly, thoughts keep slipping away before I can quite grasp them, 71. (4) My memory span for conversations is very shortened so that I may forget what the start of a sentence was about even before the sentence is finished . . . , 68. (5) I spontaneously remember things I hadn't thought of in years . . . , 61. (6) If I read while stoned, I remember less of what I've read hours later, 61. (7) I think I've said something when actually I've only thought about saying it . . . , 57. (8) My memory of what went on while I was stoned is poor afterwards . . . , 57. (9) My memory of what went on is . . . better than if I had been straight, 55.

Emotions: (1) I feel emotions much more strongly, so they affect me more, 80. (2) I almost invariably feel good when I turn on, regardless of whether I felt bad before turning on, 80*. (3) I am more aware of the body tensions and feelings that are part of emotions, 74. (4) Whatever mood I was in before turning on becomes greatly amplified; so if I felt let down I really feel bad, and if I felt good. I really feel very good, 72.

Self-control: (1) I find it easy to accept whatever happens, I don't need to control it or feel in control of it, 89*. (2) I can "come down" at will if I need to be straight for a minute to deal with some complicated reality problem, 89*. (3) I often forget to finish some task I've started, or get sidetracked more frequently than when straight, 86*. (4) I giggle a lot when stoned, I am silly, even though the situation is not that funny, 74. (5) I have excellent control over my fantasies; I can make them go in whatever direction I want, 73. (6) My inhibitions are lowered so that I do things I'm normally too inhibited to do (Note: this does not apply to antisocial acts but to acts that are generally acceptable but that you normally can't do through shyness or the like), 69. (The immediately following item was, "I lose control of my actions and do

antisocial things [actions that harm other people] that I wouldn't normally do." The response was 77 per cent never, 22 per cent rarely, and one respondent sometimes.) (7) I can work at a necessary task with extra energy, absorption and efficiency, 61. (8) I feel as if I lose control over my thoughts; they just go on regardless of what I want (without reference to whether you like this or not), 52.

Sense of identity: (1) I feel very powerful, capable, and intelligent, 71. (2) Some events become archetypal, part of the basic way Man has always done things. That is, instead of me (John Doe, ego) doing something, it is just Man Doing What Man Has Always Done . . . , 57. (3) I lose all sense of self, of being a separate ego, and feel at one with the world, 55.

Effects on sleep: (1) I find it very easy to go to sleep at my usual bedtime when stoned, 84*. (2) I get very drowsy even though it's not late . . . , 83. (3) My sleep is particularly refreshing if I go to bed stoned, 81. (4) My dreams are more vivid if I go to bed stoned, 51.

Miscellaneous effects: (1) I feel more childlike, more open to experiences of all kinds, more filled with wonder and awe at the nature of things, 91*. (2) I get more involved in ordinary tasks, 80. (3) Others (who were straight at the time) have not noticed that I've been stoned (applied to other people who were your friends and would have told you if they'd noticed), 69. (4) With my eyes closed my inner visions and fantasies become extremely real, as real as night-time dreams, 68. (5) Some of my inner trips, eyes-closed fantasies, have been so vivid and real that even though I know logically they couldn't be real, they feel real; they are as real as ordinary waking life experience, 57. (6) Sounds have visual images or colours associated with them, synchronized with them, 55.

Infrequent but Significant Effects

The following effects were not reported often enough to be classed as common, but they seem so powerful and unusual that they might well change somebody's beliefs. The numbers given are the percentages of respondents who have experienced the effect at all.

(1) I feel so aware of what people are thinking that it must be telepathy, mind reading, rather than just being more sensitive to the subtle cues in their behaviour, 69; (2) Getting stoned has acquired a religious significance for me, 69; (3) I have spiritual experiences . . . which have had a powerful, long-term religious effect on me, 65; (4) I feel in touch with a Higher Power or a Divine Being to some extent . . . , I feel more in contact with the "spiritual" side of things, 59; (5) I am able to meditate more effectively, 39; (6) I can foretell the future by some kind of precognition, more than just logically predicting from present events, 32; (7) . . . felt "located" outside the physical body . . . , 32; (8) I can perform magical operations that will affect objects or people, 13.

The way in which items were selected for the questionnaire (informal interviewing) produced a set of items that were almost uniformly positive or neutral in tone; there were almost no "bad" effects. But a few negative effects included in the questionnaire are powerful enough to seem important, even if they are infrequent. Figures are again the percentages of respondents who have experienced the effect at all.

(9) I get somewhat paranoid about the people with me, I am suspicious about what they're doing, 80; (10) I lose control of my actions and do antisocial things (things that harm other people), 23; (11) I have lost control and been "taken over" by an outside force or will which is hostile or evil in intent for a while, 20.

One question asked the respondents how often they had seen other people "freak out", that is, have intense, transient emotional upsets. 62 per cent of the respondents said never, 36 per cent less than one time in twenty, and 2 per cent more often. Fifty-three respondents answered a question about what sort of help was necessary for the person who "freaked out"; usually (64 per cent) friends talked to the person and calmed him. Medical or psychological aid was used in 13 per cent of cases, with other methods or no special help for the rest. When the respondents were asked how many times they had "freaked out" themselves, 79 per cent answered never, 14 per cent once, and 7 per cent more than once. The respondents themselves were usually calmed down by friends (56 per cent) or had the "freakout" subside by itself or through their own efforts (37 per cent).

These figures probably represent a higher incidence of "freakouts" on marijuana than actually occurs: because of the method of distributing questionnaires, many of the respondents may have been reporting on the same cases of emotional difficulties in others.

Pleasures of Being High

124 of the 206 items on the questionnaire may thus be considered common experiential effects of marijuana intoxication. Sense perception is often improved, both in intensity and in scope. Imagery is usually stronger but well controlled, although people often care less about controlling their actions. Great changes in perception of space and time are common, as are changes in psychological processes such as understanding, memory, emotion, and sense of identity.

This is not the place to theorize about the results, but they are quite consistent with an earlier, independent description: " . . . Sensations are enhanced and clarified: sight, hearing, taste, touch. Time perception changes. Attention becomes more unified, and moves more into preconscious material and the state of pure awareness. The many broad processes of association, such as social meanings, memory images, expectancies and plans, are reduced in number and relevance. Inhibitions and suppressions relax, allowing emotions, thoughts, fantasies, and memories to flow more freely. The development and strength of these effects will depend on the individual, the times he has used marijuana, how he has used marijuana, and the environment"[11]. Although the validity of the descriptions cannot be proved, there is at least a great deal of agreement among the respondents. To the extent that the described effects are delusory or inaccurate, the delusions and inaccuracy are widely shared. It is interesting, too, that nearly all the common effects seem either emotionally pleasing or cognitively interesting, and it is easy to see why marijuana users find the effects desirable regardless of what happens to their external behaviour. But it should be remembered that negative effects are probably somewhat under-represented.

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