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A Test of Lindesmith's Theory of Addiction: The Frequency of Euphoria among Long-Term Addicts[1]

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Lindesmith and others claim that once physical dependence is established addicts do not experience euphoria. Consequently, euphoria cannot explain chronic addiction. Data are presented to show that, contrary to this view, long-term addicts experience euphoria frequently, crave it, and act to obtain it. "Lack of money" is the most important reason addicts give for not experiencing euphoria more often. Based on success in achieving euphoria, two classes of addicts are identified. The sources of income of addicts who experience euphoria most often correspond to those of types described by others as highest in prestige. Analysis suggests an addict stratification system founded on the two major psychopharmacological phenomena of opiates: withdrawal and euphoria. Addicts who barely succeed at tending to their daily need to avoid withdrawal are lowest in prestige. In the higher prestige ranges, addicts are stratified by their success in achieving euphoria. Thus, the social as well as the value system of addicts owes much to success at achieving what are universally considered, at the individual level, to be the most fundamental reinforcers. Since these reinforcers operate at the individual level, our analysis reveals the addict social system as a microcosm of broader theoretical interest, with transitions between physiological, psychological, cultural, economic, and sociological phenomena in plain view.

INTRODUCTION

The hold that opiates exert over the user has long puzzled observers. At one time, it was believed that intensely pleasurable sensations, in addition to physical dependence and the distress of withdrawal symptoms, were operative in sustaining chronic opiate use. For some 30 years, however, the

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dominant sociological account of opiate addiction (which has found acceptance far beyond the boundaries of sociology) has maintained that pleasurable effects are important only in the early stages of opiate use, after which the need to avoid pain predominates. It is obvious that there are important differences between a theory of addiction based at least in part on pleasure and one based entirely on the avoidance of pain. On the practical side, moreover, the chronic addict who enjoys opiates may be a quite different epidemiological entity from the unfortunate who pays for an earlier self-indulgence with a perpetual, joyless struggle against the agony of withdrawal. Clearly, current proposals to combat addiction with outpatient programs that provide addicts with heroin make it important to be correct about the relation between opiates and pleasure.

Lindesmith's Theory

The major sociological theory of opiate addiction is Lindesmith's (1938, 1947, 1965, 1968). This article is based on its latest revision (1968), although in all major respects the essentials of the theory have changed little over the years. Since it first appeared, Lindesmith's theory has been one of the most comprehensive and well-integrated analyses of addiction available in any literature. Although a few sociologists (e.g., Duster 1970; Robinson 1951; Turner 1953) have been critical of some formal and conceptual aspects of this theory, they have not challenged its empirical foundation. Ausubel (1958) and Scher (1966) have questioned Lindesmith's treatment of the role of euphoria, but neither offered any empirical evidence to support his objections. Although there are other major works on opiate addiction, such as that by Chein et al. (1964), which treat topics not considered by him, Lindesmith's theory currently stands virtually uncontested among sociologists (see, for example, Grupp 1969). In this paper, our concern will be mainly with his treatment of the two most fundamental psychopharmacological effects of opiates: euphoria and withdrawal sickness.

Euphoria and Withdrawal Sickness in Lindesmith's Theory

According to Lindesmith (1968, pp. 24–45), initial doses of opiates are "usually but not always pleasurable." After the first few doses any unpleasant effects disappear, and the person enters what he calls the "honeymoon period," which lasts several weeks (Lindesmith and Strauss 1968, p. 195). During this time, the person "increases the size of his dose and for a time experiences a more intense euphoria." Repeated daily use for several weeks results in physiological dependence, marked by acutely unpleasant physical symptoms when the drug is not used. These symptoms are known as "withdrawal sickness."

Once physiological dependence develops, according to the theory (1968, p. 31), a "reversal of effects" occurs. Lindesmith describes this reversal as follows: "In the beginning phases of addiction, the pleasurable effects of drugs, other than those that occur at the time of injection, tend to diminish and vanish. As this occurs, and withdrawal increases, the psychological significance of the doses changes. Whereas they at first produced pleasure, their primary function becomes that of avoiding . . . withdrawal." In a key passage he further argues that an explanation of addiction cannot be based on the positive effects of the drug "if these effects are reversed or vanish when addiction is established" (1968, p. 33). As a consequence of this reasoning, he has tended to rely heavily, if not exclusively, upon the avoidance of withdrawal symptoms as the motivation for continued addiction: "The craving for drugs . . . is fixed by negative rather than positive reinforcement, by relief and avoidance of discomfort and pain rather than by positive pleasure" (p. 95).

Most writers accept Lindesmith's view concerning euphoria (see, for example, Akers, Burgess, and Johnson 1968; Chein et al. 1964, pp. 14, 248; Duster 1970, p. 59; Grupp 1969; Lingeman 1969, p. 105; Martindale and Martindale 1971, p. 270; O'Donnell 1969, p. 256; Rubington 1968, p. 306; Schur 1965, p. 122; Tardola 1970, p. 50; Wikler 1965, p. 87; Zinberg 1973). In fact, Nyswander (1959) has reported that British physicians define a drug addict as someone who feels normal on drugs.

However, the theoretical rationale for the use of various chemotherapies, such as methadone maintenance and naloxone, hinges on the ability of these drugs to *block the euphoric effects of opiates* (Dole, Nyswander, and Kreek 1966; Hammond 1971). A major goal of this paper is to resolve this apparent inconsistency by determining the true facts concerning euphoria. We shall demonstrate that despite the development of tolerance *chronic opiate addicts do experience euphoria following injections,* and that their desire for euphoria appears to be a major factor in the explanation of their behavior.

METHODOLOGY

Recruitment of Respondents

This report draws on two surveys of addicts in Baltimore. Since all of the quantitative data in the report are taken from one of these surveys, that sample is the one described here. Our interview excerpts, however, are drawn from the second sample, which resembles the first, and it will be described elsewhere (McAuliffe, Gordon, and Doering 1973).

According to Nurco and Balter's (1969) ecological analysis of narcotic addiction in Baltimore, black addicts are concentrated most heavily in the western half of the center of the city, while white addicts are dispersed in

small concentrations in all four quadrants of the city. By employing interviewers who had gained special access to loosely knit addict groups or "copping communities" (Hughes and Jaffe 1971), we were able to sample this addict population widely while maintaining a high degree of rapport between interviewer and respondent. Between November 1970 and June 1972 we succeeded in recruiting 64 respondents from natural addict groups in all of these areas.

Twenty-two of our addicts were recruited from four separate groups by a participant observer who had been mingling with many groups of Baltimore street addicts almost daily for more than five years.[2] Sixteen more were recruited from still another natural addict group by a second participant observer.[3] The remaining 26 were recruited and interviewed by a college-educated ex-addict, known to be reliable (since he was a longtime friend of one of the authors). Seventeen of these last addicts were members of the interviewer's own heroin-using social network; the other nine were parolees whom he met through a heroin-using friend. Thus, our samples were quite dispersed.

Respondent Characteristics

Sixty of the respondents were male and four were female. Their ages ranged from 17 to 42 years, with a mean of 24.7 years and a standard deviation of 4.86. Thirty-six were Protestant, 19 were Catholic, and seven were Jewish.[4] Fifty-one held blue-collar occupations and 11 white-collar occupations when employed. The mean Real Prestige Score (based on occupation) for the sample was 32.1 (Siegel, Rossi, and Hodge, forthcoming).[5] At the time of interview, 24 were employed. Forty-seven of the addicts in our sample were white and 17 were black.

When interviewed, all of the respondents but six were using illicitly obtained opiates exclusively.[6] The average amount spent per day on opiates by all addicts was approximately $40. Because our interviewers contacted

[2] For a detailed description of the groups from which these 22 addicts were recruited, see McAuliffe, Gordon, and Doering (1973).

[3] For a journalistic description of this addict group, see Rozhon (1972).

[4] Demographic data were unavailable for two respondents.

[5] The prestige scores for this sample of addicts ranged from 52.4 (probation officer) down to 14.4 (busboy). The mean of 32.1 falls exactly at the score for truck driver, and the standard deviation of the scores was 10.6. The lowest white-collar occupation had a prestige score of 45.8 (secretary).

[6] Fifty-one used heroin, four used dilaudid, and three were using street methadone. The six remaining were receiving legal methadone from maintenance rehabilitation programs, but only three of them were not using illegal drugs too. High rates of cheating among methadone program addicts have in fact been reported by Taylor, Bowling, and Mason (1971).

the respondents through their natural groups, they were able to make sure by a variety of means that all the respondents were actively dependent on opiates at the time of the interview. Besides observing them buy and use opiate drugs, the interviewers determined dependence for each addict (1) by asking the other addicts in the group about the individual, (2) by inspecting the addict's body for extensive old and new scarring (which indicated both long-term and current use), and (3) by asking the addicts themselves. Only persons who could be confirmed as addicts by all of these methods were interviewed. Approximately half of the respondents were paid from $3 to $5 for their cooperation.

Drug-use characteristics of the respondents are presented in table 1. The

TABLE 1

DRUG-USE CHARACTERISTICS OF SAMPLED ADDICTS

Characteristic	Mean	Range	SD
Age of first opiate use (years)	17.4	13–29	2.91
Age first physically dependent (years)	19.0	14–31.5	2.91
Length of onset (years)	1.6	0.0–7.0	1.41
Gross length of addiction (years)	5.8	0.3–26	4.66
Periods of incarceration (months)	13.1	0.0–120	21.87
Periods of voluntary abstinence (months)	16.4	0.0–93	20.83
Net length of addiction (years)	3.5	0.2–18	3.06
Length of current dependency (years)	1.1	0.1–5.5	1.1
Money spent daily on opiates (dollars)	39.8	6–180	29.1

respondents first tried an opiate at an average age of 17.4, and approximately 1.6 years later, at age 19, they realized they were physiologically dependent.[7] This realization had occurred an average of 5.8 years prior to our interview. With corrections introduced for periods of abstinence and incarceration, the average net length of time the addicts were actually dependent on opiates is reduced to 3.5 years. All had relapsed at least once,

[7] This period of onset was considerably longer than the several weeks specified by Lindesmith (Lindesmith and Strauss 1968, p. 195). However, Lindesmith (1968, p. 106) himself describes cases in which opiate use prior to dependence was prolonged. In addition, other studies have reported long periods of onset as typical (e.g., Willis 1969, p. 312; Chein et al. 1964, p. 128; Ball 1969, p. 121; Ellinwood, Smith, and Vaillant 1966). This duration is an extremely important fact which differentiates the drug-reinforcement histories of urban heroin addicts from persons who become physically dependent upon opiates through medical treatment, and it may well explain why physical dependency in this latter group does not ordinarily lead to chronic addiction. Moreover, the animals used in experimental addiction studies (e.g., Nichols 1965) do not usually have comparable drug-reinforcement histories. In contrast, the typical heroin addict has perhaps been rewarded by opiate euphoria hundreds of times before he actually becomes physically dependent, and it is no wonder that animals who become dependent after only a few weeks of constant exposure to opiates do not always behave like human heroin addicts.

and the most recent drug-free period ended for our addicts 1.1 years prior to the interview, on the average. The shortest run of continuous dependency prior to the interview was three weeks, and the next shortest was six weeks. These two cases have been retained in order to provide data points in the lowermost range of this potentially important variable. (In the light of our later analysis, it is noteworthy that neither of these addicts experienced euphoria at a high frequency.) Thus, even if we consider each cycle of dependency as a new addiction, which Lindesmith does not, all but one of our respondents would still be well beyond the several-week period after which Lindesmith's "reversal of effects" supposedly occurs. In terms of Lindesmith's own criteria (1968, pp. 64–67), all were, without any question, addicts.

The Definition and Measurement of Euphoria

Defining euphoria.—It is essential that our discussion of euphoria be as unambiguous as possible. Opiate euphoria is defined here as a subjectively pleasurable feeling produced by taking an opiate drug. We consider this euphoria to be the conscious concomitant of the positive reinforcement produced by the arousal-changing effect (Berlyne 1967) of the pharmacological action of the drug, and the presence of euphoria may be taken as an indicator that positive reinforcement has occurred.

Operationally, experiencing opiate euphoria is defined in this study as "feeling or getting high." Participant observation work among addicts in Baltimore and Saint Louis has convinced us that this definition accords with the meaning of "high" as the addicts in this study use it. Although euphoric reactions to opiates are by no means confined to persons involved in an addict subculture, since physician addicts also report euphoric effects (Winick 1961), we have operationally defined the concept in terms appropriate to the population we were studying. Other researchers (e.g., Chein et al. 1964, p. 229) have operationalized the concept in this way when studying subcultural addict populations, and Lingeman (1969), in his dictionary of drug terms, defines "high" as a state of drug euphoria (p. 109).

An excerpt from one of our tape-recorded interviews with an addict will indicate the meaning of being high for this population:

Respondent: I like being high.
Interviewer: What do you like about being high?
R: I like the rush when you fire and I like the nod.
I: Why do you like being high?
R: It's just like when people like to get drunk, you know, they do it because they feel good.
I: What do you mean, "They feel good"?
R: They just feel good, that's all. Just like most people like to ball [have intercourse with] a girl to get the climax because it feels good.

I: So, when you're high, when you say you feel good, what's that mean to you?
R: I'm happy and content.
I: Anything else?
R: No, just satisfied.

Euphoria and the impact effect.—One aspect of this addict's comments that may require explanation is the distinction he draws between the two euphoric effects encompassed by the term "high." The first effect, which he calls the "rush," is the intensely pleasurable sensation first felt following an intravenous injection. This effect has been described as the "pharmacogenic orgasm" by Chessick (1960), and Lindesmith refers to it as the "impact effect." We shall use Lindesmith's term. The second euphoric effect is the more prolonged sensation which this addict terms "the nod" and which we shall refer to as the "continuing effect." Lindesmith considers only this second effect to be "euphoria," but we question this restriction.

Although the impact effect of a dose of opiates is most distinct from the continuing effect when the drug is injected intravenously, and it may vary widely in its intensity, there is every reason to believe that the initial arousal-change is present and positively reinforcing in one degree or another, regardless of the mode of administration and regardless of whether the user is physiologically dependent. The intensity of the effect, and consequently the magnitude of reinforcement produced, appears to depend mainly on the rapidity and amount of absorption into the bloodstream. O'Donnell and Jones (1968), for example, quote one addict as saying that the intravenous mode of administration did not become widespread until heroin began to be diluted—"you didn't need no vein until they cut it." More generally, however, they attribute the original diffusion of the "I.V. route" to the discovery of its increased pleasurability when a vein was accidentally struck by hypodermic-using, long-term addicts. Kolb (1925) has remarked that, historically, the reason addicts turned to the intravenous method was that the impact effect obtained from other methods of administration became less distinct due to the development of tolerance. Within the addiction literature, the tendency of writers to refer to the continuing effect alone as "euphoria" is quite likely due to the fact that the impact effect is most salient under intravenous administration, and this method has become popular only since the 1930s (O'Donnell and Jones 1968).

In view of these considerations and the important testimony of addicts themselves (Chessick 1960), we feel justified in regarding the impact effect as one of the euphoric effects of opiates, as does Goldstein (1972). Therefore, unless otherwise specified, our use of the term "euphoria" in this paper will subsume both impact effects and continuing effects. Elsewhere (McAuliffe 1973), we present evidence from two factor analyses that bears out the pleasurable value of the impact effect as distinct from the relief of

withdrawal discomfort, with which Lindesmith tries to equate it. By dissociating impact effects from euphoria and from positive reinforcement, Lindesmith has freed himself from the necessity for dealing with the pleasurability of impact effects while discussing positive reinforcement, even though he himself elsewhere acknowledges that they are pleasurable (1968, pp. 33–34).[8] Obviously, an adequate treatment of euphoria must take both of these effects into account. In this paper we show that the two euphoric effects can also be measured separately (e.g., table 6).

Measuring euphoria.—Self-reports of "being high" and "getting a rush" are usually accepted as indications of what we mean by experiencing euphoria. However, some writers might question the validity of such measures. Lindesmith (1968, pp. 34–39), for one, has insisted that addicts' reports of their sensations are not valid measures of drug effects. In support of his contention, he cites a few examples of addicts' having been deceived when undergoing the gradual-reduction method of withdrawing drugs and of cases in which addicts did not recognize the effects of an opiate when it was administered disguised as a different drug. Lindesmith also claims that little research on the placebo effect has been done with addicts or with opiates.

Lindesmith is quite wrong on this matter. Although it is possible under very special conditions to deceive addicts with respect to the effects of various drugs, the conditions in question seldom occur naturally. Addicts are, in fact, conspicuous as nonreactors to placebos (Haertzen 1966, p. 183; Lasagna, von Felsinger, and Beecher 1955, p. 1012; Fraser and Isbell 1952, p. 499; Martin and Fraser 1961, p. 390). Furthermore, many pharmacological researchers (e.g., Fraser et al. 1961, p. 385; Martin and Fraser 1961, pp. 390, 394; Lasagna et al., 1955) have been impressed by the ability of addicts to distinguish opiates from placebos and other drugs in single-dose and experimental addiction studies. For example, Lasagna et al. (1955) stated: "Many of these persons are pharmacological sophisticates, i.e., they can not only accurately distinguish between a potent drug and a placebo but can identify certain drugs with amazing accuracy, regardless of the route of administration" (p. 1019).

All of the preceding studies show that addicts can validly determine that they are experiencing subjective effects when given opiates. Evidence that these subjective effects are indeed euphoric ones is demonstrated by dose-effect relationships that show the reported strength of euphoria to be a

[8] This becomes especially significant when we consider his interpretation of a series of experiments by Beach (1957*a*) and, indeed, when we consider Beach's interpretation of his own results. It is essential to examine Beach's experiments carefully because Lindesmith (1968) cites them and other experimental studies as evidence that "attachment to morphine . . . in rats . . . depended upon negative reinforcement involved in the relief of withdrawal distress and not upon the positive effects of the drug" (p. 126). For an examination of these experiments by Beach and others see Appendix.

direct function of the amount of drug taken. For example, Haertzen's study (1966, table 7) shows an increase in euphoric responses from "no drug" and "placebo" conditions through two levels of morphine dosage (see the scale MBG), and Martin and Fraser's study (1961, fig. 1, and p. 396, which refers to fig. 1 mistakenly as "table 2") shows a similar increase across four dosage levels. In light of this substantial body of research (see also Beecher 1959), there is little reason to doubt that the subjective effects of opiates can be reliably and validly measured.

The Use of an Interview Methodology

The purpose of our study is not to establish that it is possible for physiologically dependent subjects to experience euphoria following an opiate injection. This has already been established under controlled laboratory conditions (Martin and Fraser 1961). Nor are we suggesting that tolerance to euphoric effects does not develop under certain conditions (Seevers and Deneau 1963, p. 576). Instead, our research is designed to determine whether chronic addicts are actually experiencing euphoria under the conditions of the current, natural addict milieu. Given what we know could be occurring, on the basis of experimental studies, it is important to investigate what actually does occur out in the addict world. If street addicts do not experience euphoria, then a demonstration in the laboratory that euphoria is an effective reinforcer would be irrelevant for understanding the present addiction problem.[9] Addicts can report the experience of euphoria, and since other studies have shown that information obtained in interviews with addicts can be reliable and valid (Ball 1967; Robins and Murphy 1967; Stephens 1972), this is the method we have employed.

RESULTS

Our results are presented in four sections. The first establishes that chronic addicts do experience euphoria and, what is more, experience it frequently. Two types of addicts are distinguished on the basis of the frequency with which they experience euphoria, and these types are followed throughout the remainder of the paper. The next two sections trace the theoretical links from euphoric reactions to the behavior they seem to produce. The second section shows that a stated desire for euphoria is an important conscious motivation for addicts. The third shows that addicts not only desire

[9] Wikler's (1965) research on relapse serves as an excellent case in point. Although Wikler has had some success in the laboratory demonstrating that relapse may be induced by conditioned withdrawal sickness, to our knowledge he has never tried to determine how often this effect occurs under natural conditions. We have interviewed 60 addicts concerning their many relapses, and we could find only one who had ever responded to conditioned withdrawal symptoms by relapsing.

euphoria, but in fact take positive action to attain it by choosing opiates with superior euphorogenic properties and by using a greater quantity of drugs. The fourth section accounts for some of the times in which—despite their desires—addicts fail to achieve euphoric reactions.

Evidence That Euphoria Is Experienced, and Its Frequency

To determine whether or not long-standing addicts experience euphoria, our respondents were asked, "These days, during the course of an average week (month), how often do you in fact get high?" The responses to this question are shown in table 2. Of the 64 respondents, 42% said they got

TABLE 2

FREQUENCY OF EXPERIENCING EUPHORIA

Frequency (Days per Month)	Percentage of Addict Respondents ($N = 64$)
28–30	42
24–27	2
20–23	0
16–19	5
12–15	17
8–11	20
4–7	9
0–3	5
Total	100

high *at least once daily.* (One, an admitted drug dealer, claimed he experienced euphoria every time he injected drugs.) The responses of the rest of the sample clustered around two to three times per week (8–15 times per month), but two of the respondents said they got high only twice a month. Only one said he never got high anymore. The mean frequency of experiencing euphoria for the entire sample was 18.6 times per month, and the standard deviation was 10.6. Thus, we learn that, with but one exception, all of the addict respondents experience euphoria, and, what is more, many of them experience it quite frequently.

In examining the distribution of these responses, we discovered that there appear to be two fairly distinct modal patterns of getting high. In one pattern the addict experiences euphoria every day; in the other euphoria is obtained a few days a week—perhaps on weekends only. Practically no addicts fell between these modes. It will be convenient to refer to these two groups as "hardcore" addicts and "weekenders," but we must emphasize that *all* of these respondents are physically dependent and *use opiates every*

day. In the sections that follow, we show that this typology, present in every one of the six groups sampled (McAuliffe 1973, p. 133), may constitute a significant discovery, with each type representing a basic pattern in the addict subculture around which other important aspects of the addicts' lives tend to be organized. It should perhaps be emphasized that it is not definitively established that the latter group reserves getting high exclusively for weekends, but some of our interview material suggests this tendency, and it will be seen that this characterization of the type that gets high just a few times per week has heuristic value for comprehending their overall pattern. The casual use of the term "hard-core" by other authors to refer to true addicts should not be confused with our use, and our "weekenders" should not be mistaken for nonaddicted users known as "chippers."

The one respondent who claimed he no longer experiences euphoria at all is, of course, of particular interest. He was white, 18 years old, and an unemployed carpenter's helper. He first realized he was physically dependent on opiates at age 15, and his last period of abstinence ended eight months prior to the interview. For the first four months of this latest period of addiction he was getting high every day, but then he reduced the amount of drugs he was using from $30 to $8 daily. He explained that the change was largely due to his decision to eventually stop using drugs. He was interviewed a few minutes before he contacted a social agency for help in stopping his addiction. Thus, in this one case the complete absence of euphoria was closely associated with seeking abstinence.

While existing theory might be able to stand in the face of scattered reports of euphoria from a small percentage of chronic addicts, the fact that 98% of a sample of 64 gave this response is totally at variance with what Lindesmith's theory seems to claim, and all the more so when the heterogeneity of our sample is fully appreciated.

In his more cautious passages Lindesmith asserts that the euphoria from opiates diminishes or vanishes once dependency occurs. It is quite possible, then, that Lindesmith did interview some addicts who said they experienced euphoria intermittently. However, because Lindesmith formulated his theory in the early 1930s prior to the discovery of the importance of intermittent rewards by Skinner (1938), and because of his "deterministic rather than statistical" methodological orientation (Lindesmith 1968, p. 13), he probably regarded these addicts' reports as inconsequential for a causal explanation of addiction. Today, we are in a position to recognize that these data represent meaningful patterns or schedules of positive reinforcement (Deese and Hulse 1967), and laboratory research with animals has demonstrated that intermittent drug reinforcements have effects similar to those produced using other kinds of reinforcers (Thompson and Pickens 1969, p. 187). Up to now, however, in the face of prevailing opinion regarding euphoria, none of the many published reinforcement-theory anal-

yses of opiate addiction (e.g., Akers et al. 1968; Harris and Balster 1970; Nichols 1965; Vaillant 1969; Wikler 1965) has ventured to posit intermittent, positive reinforcement as a factor in explaining chronic opiate use. Nevertheless, the evidence we have just presented suggests that opiate use by addicts is generally reinforced by a combination of negative and intermittent positive effects.

It is possible, of course, that our respondents overestimated the frequency with which they experienced euphoria. To alter any of the basic conclusions of this paper, however, the addicts' estimates would have to be exaggerated grossly, and there are several reasons to believe that this was not the case. First, the interviewers had known most of these respondents for years, and our interviewers were extremely knowledgeable about the "street scene." Second, the frequencies reported are by no means extraordinarily high. More than half of the sample admitted that they did not get high every day, even though they did use drugs at least once a day, thus indicating that the daily relief from withdrawal is not equated by them with getting high. Of those who did claim to get high daily, we asked whether or not they got high every time they injected. As we have noted, only one respondent claimed to get high after every single injection. The remaining members of the group that got high every day did so on the average of 52% of the times they injected themselves. By contrast, the addicts who got high less than once a day, the group we are calling "weekenders," experienced euphoria only 24% of the time. The third indication that the addicts' reports are not exaggerated is that the measure appears to have construct validity (Cronbach and Meehl 1955; Ebel 1961). That is, the reported frequency of euphoria is related to variables that one would theoretically expect to be related to this measure.

For example, the frequency of euphoria is positively related to the amount of drugs the addict consumes ($r = .30$, $P < .02$); the amount of drugs used in excess of the amount needed only to feel normal ($r = .30$, $P < .02$); a preference for euphorogenic drugs over drugs that simply relieve withdrawal symptoms ($r = .51$, $P < .01$); selling drugs or "dealing" ($r = .29$, $P < .05$); and negatively related to being employed ($r = -.22$, one-tailed $P < .05$). It also proves to be unrelated to the race of the respondent ($r = .05$, nonsignificant); the age at which he first began using opiates ($r = .01$); his height ($r = .05$); and his weight ($r = .16$, nonsignificant).[10]

That all but one of these respondents experienced euphoria establishes one of the necessary conditions for showing that euphoria is one of the

[10] The last two correlations with height and weight were calculated for only the 17 respondents for whom these data were available. A correlation of .48 would be required to reach significance at the .05 level with these few cases. The other correlations were based on data from the entire sample.

causes of drug taking and of related behavior by addicts. Nevertheless, it remains to be shown exactly how this finding could be of consequence to a theory of addiction. It is logically possible, for example, that euphoria is merely a pleasant psychological side effect that sometimes occurs as an unintended consequence when opiates are used for other purposes, such as relief from withdrawal sickness, depression, or anxiety, in which case the frequency of experiencing euphoria might not of itself produce any notable changes in drug taking. We have, of course, pointed out that experimental work with rats and monkeys (Beach 1957*a*, 1957*b*; Deneau 1969; Woods and Schuster 1968) demonstrates that the positively reinforcing pharmacological effects of opiates are alone sufficient to maintain self-administration of the drug. The purpose of our remaining analysis, then, will be to show that the desire for euphoria is independent of the desire for relief from withdrawal sickness, that it serves as a major conscious goal for addicts, and that, furthermore, addicts deliberately engage in a variety of activities in order to attain it.

Evidence That Euphoria Is Consciously Desired

To test whether or not euphoria is a consciously desired goal for these addicts, we asked them to choose from a set of alternative responses to the question, "If you could get what you wanted, how much time would you spend being high?" The response alternatives and the addicts' choices are presented in table 3. All of the respondents desired euphoria, and three-fifths

TABLE 3

IF YOU COULD GET WHAT YOU WANTED, HOW MUCH TIME WOULD YOU SPEND BEING HIGH?

RESPONSE	PERCENTAGE		
	Hardcore ($N = 26$)	Weekenders ($N = 37$)	Total ($N = 63$)
All of the time	69	54	60
Most of every day	19	19	19
At least part of every day	12	16	14
One or two days a week	0	8	5
Once or twice a month	0	3	2
Never	0	0	0
Total	100	100	100

of them wanted to be euphoric "all of the time." Of the entire sample, 93% desired to be euphoric at least once each day. Although only the hardcore addicts are currently able to achieve this ideal goal, the weekenders seem to desire euphoria almost as much as the hardcore group. The difference

between the two groups on this measure was not significant; the correlation between the time the addict would spend being high and the frequency of experiencing euphoria was, however, weakly positive ($r = .18$, nonsignificant).

Even if an addict states, when asked, that he would like to be euphoric a large part of the time, it is quite possible that he seldom actually thinks of that as a goal. If this were the case, a desire for euphoria could conceivably play only a minor role in the addict's motivational system. Therefore, respondents were asked a separate question to gauge the extent to which the desire for euphoria actually occupied their thoughts. The question was, "How often do you think about wanting to get high?" The response alternatives available and the actual choices the addicts made are presented in table 4. As can be seen, all of the respondents thought about wanting to

TABLE 4

How Often Do You Think about Wanting to Get High?

Response	Percentage		
	Hardcore ($N = 26$)	Weekenders ($N = 37$)	Total ($N = 63$)
Whenever I am not high	81	60	68
At least once a day	19	24	22
About once or twice a week	0	16	10
Only once or twice a month	0	0	0
Never	0	0	0
Total	100	100	100

get high at least once a week, and 90% thought about it every day. The correlation between this measure and the frequency of experiencing euphoria was .36 ($P < .01$).

The data from these two questions suggest strongly, therefore, that the craving or hunger addicts have for drugs is to an important degree a desire for their pleasurable effects. This is borne out further by the relations between the variables described in tables 3 and 4 and the amount of money spent on drugs. The amount of time an addict wishes to spend being high and the frequency with which he thinks of euphoria are both positively correlated with the amount of money spent ($r = .22$, one-tailed $P < .05$; and $r = .26$, $P < .05$, respectively).

Evidence That Euphoria Is a Goal of Behavior Typically Associated with Addiction

Up to this point, we have shown that addicts actually experience euphoria regularly and that they desire it a great deal. We have also shown that

these two variables are positively related to each other and to the amount of drugs consumed. A second paper (McAuliffe et al. 1973) presents evidence that addicts regard euphoria as one of the most important reasons for continuing to use opiates. In this paper, however, we want to show that euphoria is not only a key variable for explaining chronic opiate use per se, but it is also essential for explaining many behavior patterns typically associated with addiction. In this section, therefore, we present data showing that addicts prefer using certain drugs such as heroin and dilaudid because these drugs are particularly euphorogenic, and that addicts use more drugs than would be required simply to relieve withdrawal sickness in order to obtain euphoria.

Although neither of these hypotheses is startling or even especially novel, these phenomena were chosen for analysis because Lindesmith's theory does not appear to handle the first one easily and because he has offered a quite different explanation of the second phenomenon. We take this opportunity, therefore, to compare the two competing explanations.

Drug preferences.—The drug most frequently used by the contemporary urban opiate addict is heroin, despite the fact that methadone is more readily available, less expensive, and equally potent for suppressing withdrawal (Blachly 1965–66, table 2). If they use methadone at all, most addicts use it only when heroin is unavailable, and even those addicts who are maintained free of charge on methadone programs frequently cheat by using illicit and expensive heroin. Taylor, Bowling, and Mason (1971) found that 92% of the addicts on one such program cheated in this way during a one-month period. Since the duration of methadone is longer (Blachly 1965–66, table 1), and it is thus more effective than heroin in preventing withdrawal symptoms, this strong preference for heroin is paradoxical in terms of Lindesmith's theory.

Although it is probably true that heroin possesses a special subcultural value that might lead addicts to prefer it, there are a number of facts which suggest that its superior euphorogenic properties are responsible for its being the drug of choice for most addicts. First of all, Martin and Fraser (1961) have verified that heroin is actually more euphorogenic than even morphine. In their study, physically dependent addicts preferred heroin over morphine when the two drugs were administered intravenously under double-blind laboratory conditions. After a heroin injection, these addicts were more likely to describe their sensations in terms associated with euphoric effects ("buzz," "rush," "a pleasant feeling in the stomach," "high," and "nodding"). And, of course, part of the rationale for methadone is that it minimizes euphoric reactions, particularly the "rush" or impact effect when administered orally (Bazell 1973, p. 774). Further evidence stems from the fact that the diffusion of heroin occurred in subcultural groups that were *already established around the use of other opiates for*

pleasure (O'Donnell and Jones 1968). Against this background, it seems more plausible that heroin is preferred because it is so enjoyable, rather than that it is enjoyed because it is so preferred in the subculture.

In this section, we will show that the preference for heroin within subcultural groups is indeed associated with its superior euphorogenic qualities and that this preference is actually a function of the degree to which euphoria is desired. In other words, we will show not only that addicts prefer heroin, but also that variation within the addict group in the preferred drug is associated with variation in the desire for euphoria.

Fifty-seven of our addicts were asked to state their preference between dolophine (methadone) and heroin (in that order). Eighty-one percent chose heroin. At a much later point in the interview, the addicts were presented with another choice between drugs. Here, however, instead of using the names "dolophine" and "heroin," the interviewer described merely the reputed characteristics of the drugs:

> Which would you prefer using:
> 1. A drug which would *not* make you high, but would keep your sickness away all day? or
> 2. A drug which *would* make you high, but would keep your sickness away only a few hours?

When the choice was posed abstractly in this way, the preferences shifted toward withdrawal reduction, so that only 43% preferred the euphorogenic alternative. While this shift indicates that the abstract characterization of the drugs' properties did not entirely capture the meaning of the addicts' preference for heroin over dolophine, responses to the two questions were significantly correlated ($\phi = .25$; one-tailed $P < .05$; the maximum value ϕ can attain here is only .57; ϕ's between items even of standard batteries seldom range above .25–.35). Of the 24 respondents who chose the abstract euphorogenic drug, 92% also chose heroin. The percentage preferring heroin was substantially less, 72%, among the 32 who preferred an abstract drug featuring only protection against withdrawal.[11] Thus, the overwhelming popularity of heroin is associated with its ability to give pleasure.

This interpretation was tested further by examining the relationship between these drug-preference items and the two items dealing with the desire for euphoria. Phi correlations between the preference for heroin over dolophine and the amount of time the addict wanted to spend being high ($\phi =$

[11] Preference for heroin independent of its euphoric potential was found primarily among the weekenders. That is, of the 23 who switched from heroin to the noneuphoric drug, 17 were weekenders. These weekenders may prefer heroin because its symbolic value bolsters their standing as addicts in the face of their failure to realize more often one of the main addict values—to get high. Moreover, some of the change between the two questions may also have been due to the emphasis in the second version on the brevity of the interval during which withdrawal would be prevented ("a few hours").

.25, one-tailed $P < .05$), and the amount of time he thought about being high ($\phi = .35, P < .02$), were both significant. The ϕ correlations between the more abstract euphorogenic choice and each of these desire items were .18 (not significant) and .26 (one-tailed $P < .05$), respectively. Thus, all of the correlations were positive, and three out of four were significant. The greater the addict's desire for euphoria, the more likely he was to prefer drugs that were euphorogenic.

A euphorogenic drug preference is associated not only with a general desire for euphoria, but also with the actual frequency of experiencing euphoria, as reflected in our hardcore and weekender typology. This is shown in table 5, where it is evident that the hardcore addicts, who

TABLE 5

PERCENTAGE OF ADDICTS PREFERRING EUPHOROGENIC DRUG OVER DRUG FEATURING EXTENDED AVOIDANCE OF WITHDRAWAL SYMPTOMS

DRUG PREFERENCES	PERCENTAGE		
	Hardcore ($N = 23$)	Weekenders ($N = 33$)	Total ($N = 56$)
Preferred heroin and the euphorogenic drug	65	21	39
Mixed preferences	35	52	45
Preferred dolophine and the withdrawal-avoidance drug	00	27	16
Total	100	100	100

experience euphoria daily, reveal a considerably greater preference for euphorogenic drugs over drugs offering security from withdrawal. Looked at in greater detail, 21 out of 23 hardcore addicts preferred heroin over methadone, and 17 out of 23 preferred the abstract drug featuring euphoria. In contrast, weekenders were more likely to prefer methadone and the drug that would keep them normal all day long. There was, consequently, a strong association between preferring euphorogenic drugs and qualifying as a hardcore addict by experiencing euphoria daily ($\chi^2 = 9.23$, df $= 1$, $P < .01$, $Q = .75$). With the introduction of this last result, it can be seen, therefore, that there is marked consistency; the stronger an addict's desire for euphoria, the more likely he is to prefer euphorogenic drugs, and, in turn, the more frequently he experiences euphoria.

These findings are not consistent, however, with Lindesmith's assertion that the addicts' craving for opiates stems primarily from the withdrawal-suppressing qualities of these drugs. Addicts *need* a drug that prevents withdrawal sickness, but they *crave* a drug that makes them high. Obscuring the latter by emphasizing the former, as Lindesmith does, leaves unexplained results such as those presented here.

The deluxe ratio.—In addition to expressing attitudes that are consistent with behavioral preferences for euphoric drugs, there are many other overt actions that addicts may take to attain the euphoria they desire. Increasing the amount they use in a day is an important example. After asking our respondents how much they were spending on opiates each day, we asked, "How much dope, in dollars, do you need each day *just* to take your sickness away but not to make you high?" This question established a different baseline for each individual, and thereby acts as a rough control for different levels of tolerance to the withdrawal suppressant action of the drug. Every respondent, except the one who was not experiencing euphoria at all, responded with a figure that, when compared with actual daily costs, showed he used considerably more than he needed. Thus a desire simply to suppress withdrawal symptoms cannot in any sense explain completely the use of drugs by these addicts. The mean ratio of amount actually spent over amount needed, which we shall call the "deluxe ratio," was 2.4. That is, the addicts were using an average of two and one-half times as much as they thought they needed to prevent withdrawal sickness.

Increasing the size of an intravenous injection of heroin has two important consequences. One is to intensify the effects of the drug. For the present sample, this is borne out by the fact that the larger his deluxe ratio was, the more often an addict experienced euphoria ($r = .30$, $P < .05$). The other consequence is to prolong the euphoric and the withdrawal-suppressant actions of the drug. According to Lindesmith, the prolongation of the suppression of withdrawal is the addict's goal when increasing his dose. According to our viewpoint, euphoria is the more salient objective in motivating this behavior.

In order to test which of these interpretations corresponds more closely to the addicts' intentions, a set of carefully selected possible reasons for the deluxe ratio was read to them, and they were instructed to specify whether each reason was "not important," "slightly important," "medium important," or "very important." After completing the list, the addicts were then asked to indicate which reason was "most important." A mean importance score for each reason was calculated by assigning 0, 1, 2, and 3 to these four degrees of importance, from "not important" through "very important."[12] The "most important" responses were analyzed separately. The reasons, and their average importance scores, are presented in table 6.[13]

[12] Labovitz (1970) has shown that the correlations between two variables are relatively invariant over all but the most special monotonic transformations of their scales.

[13] A brief comment on the validity of these responses may be in order. The respondent was asked to explain his behavior by evaluating the relative importance of a set of reasons. Although it is *possible* for data of this sort to be misleading, in the present case two types of evidence suggest that our addicts have insight into their own motives. First, the respondents themselves considered the questions carefully and felt that they understood the phenomenon being addressed. Only five addicts out of 63 indicated to

TABLE 6

REASONS FOR DELUXE RATIO AND THEIR IMPORTANCE

REASON	IMPORTANCE SCORE MEAN		
	Hardcore ($N = 27$)	Weekenders ($N = 36$)	Total Sample ($N = 63$)
1. To get high	2.9	2.4	2.6
2. For the feeling when the drug first comes on, the "flash" or "call"	2.3	2.0	2.1
3. Just because you had it on hand	1.6	1.3	1.4
4. To be doubly sure you won't get sick	1.4	2.0	1.7
5. So that you do not have to fire as often	0.7	0.9	0.9
6. To feel more secure	1.6	1.8	1.7
7. For the hell of it	0.7	0.3	0.5
8. Because it is warm outside	0.04	0.06	0.05
9. For some other reason (specify)	0.6	0.7	0.7
10. Don't know	0.3	0.6	0.5

NOTE.—After ascertaining and calling attention to the fact that an addict used a deluxe ratio, the reasons were introduced as follows: "Here are some reasons why someone might use more drugs in a day than he needs just to take his sickness away. I want you to tell me how important each of these is to you, as a reason for using the amount of drugs that you do." One addict did not use a deluxe ratio, and the questions naturally were not posed to him. Within the table, most reasons are listed in order of their importance to the total sample In the interviews, the reasons favorable to Lindesmith's hypothesis were presented first.

To interpret the results in table 6, it must be recognized that reasons 2, 4, 5, and 6 were included to reflect aspects of Lindesmith's explanation of the deluxe ratio (1968, p. 91). Lindesmith has proposed that the addict becomes hypersensitive to withdrawal symptoms and consequently shortens the time between doses. Unfortunately, this more frequent use reduces the impact effect (described in reason 2), which, according to Lindesmith's analysis, has become primarily a symbol to the addict of security from withdrawal sickness (reasons 4 and 6). Therefore, in order to feel his shot and thus be definitely assured that a potent, lasting dose of withdrawal-relieving drugs has entered his body, the addict must increase the size of his dose. Reason 5, "So that you do not have to fire [inject drugs] as often," was included to measure the addict's desire to lengthen the amount of time the injection will be effective in preventing withdrawal sickness. According to Lindesmith's analysis, then, the addict's motive for the deluxe dose is not to obtain euphoria but to feel security from withdrawal. High mean importance scores for reasons 2, 4, 5, and 6 would be consistent with his hypothesis.

In contrast to Lindesmith's explanation, we have hypothesized that the excess amount of drugs is taken whenever it is available (reason 3) in order

any degree that they didn't know (reason 10 in table 6) why they use a deluxe ratio. In addition, giving reason 7, "For the hell of it," would suggest a lack of definite purpose in their behavior, but the low importance scores for that item show that lack of definite purpose plays an inconsequential role. Clearly, the addicts themselves feel

to produce pleasurable effects. These effects include the "high" or "nod" (reason 1) and the impact effect (reason 2). Inclusion of the impact effect in our hypothesis, however, raises a difficulty in interpretation. Although at one point Lindesmith (1968) described the impact effect as intensely pleasurable (pp. 33, 40), elsewhere he interpreted the effect as a "symbol of security from withdrawal" (p. 91). Which of these it is will determine which explanation to credit according to the importance attached by addicts to reason 2. We have already argued that the impact effect should be regarded as a euphoric effect, and here we digress briefly to present further evidence in support of this interpretation.

Is a desire for the impact effect a desire for pleasure or for a sign of relief? If a desire for pleasure, the importance of the impact effect (reason 2) should be more closely associated with the importance of euphoria (reason 1); if a sign of relief, it should be more closely associated with the importance of security from withdrawal (reason 4). A factor analysis of these and other items has shown (McAuliffe 1973) that the items clearly group themselves into two distinct orthogonal factors—one of which reflects an orientation toward euphoria (reasons 1–3) and the other an orientation toward withdrawal sickness (reasons 4–6). In that analysis, the impact effect loaded positively on the euphoria factor and negatively on the withdrawal-sickness factor, thus clearly establishing its meaning. For now, it is sufficient to show that for the entire sample the importance of the impact effect is unrelated to the importance of security from withdrawal ($r = -.01$, nonsignificant) and is positively related to the importance of euphoria ($r = .37$, $P < .01$), and the second correlation is significantly larger than the first ($t = 2.04$, df $= 59$, one-tailed $P < .025$). Even if we consider only the weekenders, who experience euphoria less often, the observed relationship between the importance of the impact effect and concern over withdrawal remains negligible ($r = -.08$, nonsignificant), and the association

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that they have definite goals for using the extra amounts of drugs. Moreover, reason 8, "Because it is warm outside," was included in the list to provide a neutral baseline for interpreting the magnitudes of the other responses and their validity. Only two respondents chose it, and neither regarded it as very important. Second, it can be shown that motives given by the addicts often result in empirically confirmed predictions that are not dependent upon interpretive introspection. For example, in the present case reason 3, "Just because you had it on hand," appears to measure the inability of the addicts to resist using all the drugs in their possession. (See McAuliffe [1973] for a more detailed discussion of the interpretation of this item.) This reason was reported to be of some importance by 29 addicts. But one would expect this reason to be most important for drug dealers, those addicts who are most likely to *have extra drugs on hand.* Twenty-three of the addicts were currently getting at least part of their money for drugs by selling opiates; as expected, they used larger amounts of drugs than the rest of the sample ($t = 2.06$, df $= 61$, $P < .05$) and regarded reason 3 as more important than the other addicts did ($\chi^2 = 2.91$, df $= 1$, one-tailed $P < .05$, $Q = .48$). In this kind of way, we shall try to show as we proceed that the addicts' responses have validity.

with the importance of euphoria remains positive ($r = .43$, $P < .01$). The second correlation is again significantly larger than the first ($t = 2.01$, $df = 32$, one-tailed $P < .05$). It appears quite justified, therefore, to regard the impact effect as a desire for pleasure, and, in light of the factor analysis, to regard pleasure as quite separate from the mere relief of withdrawal distress.

We may now return to table 6 to consider the evidence there for the two rival explanations of the deluxe dose. Reasons 1 and 2, both euphoria reasons, received the highest mean importance scores (2.6 and 2.1) for the entire sample. The items receiving the next highest importance scores were reasons 4 and 6 (1.7 for both). These two items measure a concern with security from withdrawal sickness. *Thus, a combination-of-effects explanation appears to summarize the data better than one based on withdrawal alone.*

The relative importance of the reasons involved here, however, varies according to the frequency with which the addict experiences euphoria. The hardcore addicts, who experience euphoria daily, give greater emphasis to reason 1, "To get high," than do the addicts who experience euphoria less often ($\chi^2 = 5.89$, $df = 2$, one-tailed $P < .05$). Conversely, the weekenders or addicts who get high less frequently tend to put greater emphasis upon reason 4, "To be doubly sure you won't get sick," than does the euphoria-daily group ($\chi^2 = 5.75$, $df = 2$, one-tailed $P < .05$). This same pattern (but to a reduced degree) is also reflected in the mean importance scores of reasons 2 and 3 and of reasons 5 and 6. Consequently, it appears that the two kinds of effect combine in different proportions, depending upon which category of our addict typology is under consideration. However, euphoria reasons tend to rank first as explanations of the deluxe ratio for *both* types of addicts.

Examination of the addicts' choices of the "most important" reason reveals similar results. Reason 1 was chosen by the largest number of addicts (21), and reason 4 was second (18 addicts). The hardcore addicts, as before, gave greater emphasis to the euphoria items, while the weekenders stressed both kinds of items equally; again, euphoria held top rank for both groups.

Reasons for Variation in the Frequency of Euphoria within the Addict Subculture

Thus far, we have shown that 98% of our addicts experienced euphoria; 93% would spend at least a part of each day being high (table 3); 90% think about getting high at least once a day (table 4); 81% preferred euphorogenic heroin over withdrawal-satisfying methadone; and all but one currently used more drugs than needed to prevent withdrawal sickness. Clearly, euphoria is of major importance to chronic addicts.

However, there was a well-defined bimodal distribution in the frequency with which euphoria was experienced (table 2) that led us to divide our sample into two types, and all of the succeeding analyses showed that these types were somewhat different from each other on key variables (tables 3–6). These consistent differences suggest that our typology, which was initially based only on the frequency of experiencing euphoria, reflects a more general difference in orientation toward drug use. The following two excerpts from longer, tape-recorded interviews with Baltimore addicts will serve to bring out the nature of this difference in orientation between what we have called the hardcore and weekender types.

The first is from an interview with a 23-year-old hardcore addict, who first realized he was physically dependent at 18. He is using between $30 and $35 worth of dilaudid daily, and he gets high at least once each day:

I: When you fire [inject opiates], are you usually just trying to feel normal, or are you firing to get high in a way that makes you feel better than normal?
R: I think I am firing to get high and feel *better* than normal.
I: How many caps of good smack [heroin] do you need a day to just keep your sickness away? That is, just enough for you to feel normal all day?
R: Right now I need four all day to keep me going. I could space them but I don't like it. I did two and one-half this morning, and that will hold me until late tonight.
I: Then you'll do two more?
R: Yeah, I'll do two, maybe more.
I: Suppose you had twice that many, and it was the same good stuff, how many would you cook up and fire at one time, assuming that you have money to cop [buy drugs] for the next day? Suppose you had eight?
R: I'd do all of them. Not for one shot though. I'd throw in [to the cooker] about three.
I: Why would you fire that many?
R: To get high.

The second excerpt is from a 23-year-old "weekender" who uses only about $15 worth of opiates per day and actually gets high only about twice a week.

I: When you fire, are you usually just trying to feel normal, or are you firing to get high in a way that makes you feel better than normal?
R: Well now, it's just to make myself feel normal, because I really don't get high much any more.
I: Why is that?
R: Well, I don't know if it's because the dope isn't good or because it takes more than I can get, but I am satisfied with just feeling normal.
I: What about last night?
R: Last night was something else. Then there was enough around to really get nice.
I: What do you mean?

R: Like, I didn't have to go out and hustle for money. It was right there, you know. It was given to me, and the person who was giving it had a large enough supply of it. But it is not like that all the time. It's some rare thing that happens.
I: How many caps of good smack do you need a day just to keep your sickness away? That is, just enough for you to feel normal all day?
R: About two bags.
I: How would you fire those two bags?
R: Oh, I'd fire one at 12 or one o'clock. Then, I'd fire the other one at about eight or nine o'clock. I'd be all right until the next morning.
I: Suppose you had twice that many, and it was the same good stuff, how many would you cook up and fire at one time, assuming that you have enough money to cop for the next day?
R: Probably what I would do would be to fire all four of them and then cop again that day.
I: Fire all four of them at once?
R: Yeah.
I: Put them all in?
R: Yeah.
I: You'd do them all and then go out and cop more?
R: Yeah.
I: Why would you fire that many?
R: So I could get high and get nice.
I: In the past year, how often have you done this?
R: A whole lot of times . . . about 90 times.
I: How much [would you shoot], for example?
R: Oh, maybe six or seven bags a day. Something like that.

The expectations of these two addicts are quite different. Although the first recognizes that he could space his shots one cap at a time and easily maintain his "habit," he has no intention of doing so. He desires a euphoric feeling, and therefore, he shot two and one-half caps that morning and planned to do at least two more the same night. The second addict expects to get high upon occasion, whenever a good supply of drugs becomes available. Otherwise, he is completely satisfied to feel only normal.[14]

What accounts for this variation between addicts in the frequency of euphoria? The usual explanation for the disappearance of euphoria (which is implicit in Lindesmith's analysis) invokes the concept of tolerance. As daily use continues, physiological tolerance to the effects of opiates builds progressively, thus constantly compelling the addict to increase the amount

[14] It is worth noting, in his case, that if the questioning had been more casual, and had stopped, say, immediately after his reply to the interviewer's first or second questions, this addict would have left the impression that he never gets high, and fires only to feel normal. In contrast to his earlier behavior and experience, this probably seems to him to be a reasonable characterization of his present situation. However, upon closer examination, it turns out that he is still quite capable of feeling euphoria, and in fact did so the previous night, and that this capability extends back over the entire past year.

of drugs he consumes in order to obtain the same euphoric effect. Eventually, the addict reaches the limit of his financial resources and becomes unable to get high at all on amounts of drugs that are still within his means.

Our data suggest, however, that length of continuous use does not adequately explain the difference in frequency of euphoria between the hardcore and weekender types.

As expected, tolerance apparently does develop in these addicts, since the longer an addict has used opiates continuously, the larger was the amount of drugs he felt he needed just to feel normal ($r = .35$, $P < .01$). However, the addicts also appear able to counter this successfully by increasing proportionately the amount of drugs they consume as continuous use progresses ($r = .42$, $P < .001$). By adjusting their consumption, they maintain their own individual frequency of getting high. This can be seen in table 7, where

TABLE 7

FREQUENCY OF EUPHORIA AS FUNCTION OF LENGTH OF CURRENT RUN

Length of Current Run (Months)	*N*	Mean Frequency of Euphoria (Times per Month)	SD
1–4	15	20.0	8.38
5–8	15	18.1	10.59
9–12	18	18.2	11.40
13–66	16	19.4	13.85

there is practically no change at all in the mean frequency of experiencing euphoria as a function of the length of continuous use ($r = .07$). Furthermore, the sharp jump observed in table 2 between the weekender and hardcore addicts in their frequency of euphoria is not what one would expect if tolerance accounted for this difference. One would expect, instead, a gradual transition. The average length of the current run was also greater for the hardcore addicts than for the weekenders—15 versus 11 months. If anything, the hardcore addicts should exhibit the greater tolerance.

What is more, it is important to realize that the development and disappearance of tolerance depend on a variety of factors (Seevers and Deneau 1963, pp. 577–79) and that addicts can control their level of tolerance rather easily in order to bring it in line with their current economic resources (Scher 1966). The following excerpt illustrates just how quickly an addict can reduce the quantity of drugs he feels he needs, when faced with financial restrictions:

I: On the average, what would you say your habit costs per day?
R: I'd say about $25 a day.
I: What about when you were dealing?
R: I figure about $75 a day.

I: How long ago was that?
R: About a week and a half ago.
I: How did you get down to $25?
R: By not having no money and doing one bag here and one bag there. That cuts you down. You don't feel high or nothing. You're just barely on it, just barely feeling good. You just can't make it, you know, to hustle the rest of the money.

Another plausible explanation for the differences in the frequency of experiencing euphoria is maturation (Winick 1962), which holds that addiction tends to remit as the addict grows older. Thus, the lower frequency of getting high by our weekenders may simply represent an early stage in the remission process. However, the maturation hypothesis does not seem to apply here. There is no difference at all in the average age of the weekenders and the hardcore addicts. In fact, the hardcore addicts have actually been dependent on opiates (net length of addiction) slightly longer than the weekenders (3.8 years to 3.2 years), and there is no difference in their distributions according to gross length of addiction ($\chi^2 = 1.2$, df $= 3$, nonsignificant).[15] Both the lack of difference in age and the direction of the difference in net length of addiction are inconsistent with maturation as the explanation.

What evidence we have suggests that the frequency of experiencing euphoria is not explained by differences in the addicts' histories of drug use. Rather, the frequency of euphoria appears to be indicative of an overall difference in commitment to a drug-oriented life-style. The hardcore addicts became more deeply involved in drug use from the very start. While both the hardcore and the weekenders began using opiates at the same age, the weekenders took 50% longer to become physically dependent (1.8 years as compared with 1.2 years for the hardcore). In addition, the weekenders have been abstinent a greater percentage of the time since originally becoming dependent (33% versus 26%). These periods of abstinence, furthermore, tend to have been voluntarily sought more often by weekenders, whereas the hardcore addicts have spent a disproportionate amount of these drug-free periods under incarceration.

The difference in life-style is revealed even more clearly by examining the ways the addicts get money for drugs. Half of the weekenders were gainfully employed, but only one-fifth of the hardcore. An addict who wants to remain employed ordinarily must be able to moderate his hedonistic urges, as the following excerpt illustrates: "The job that I have now, I'd like to keep it. It's in a convalescent home, and I wouldn't want to cause any harm on the patients. I have to be lifting them and taking care of

[15] The cutting points used for gross length of addiction were the same as Brotman and Freedman's (1968, p. 127). The curvilinear relationship between adaptation type and gross length of addiction which they reported is not corroborated by our data, although our types clearly resemble at least two of theirs.

them. So I wouldn't want to be nodding and lifting up a man or lady, you know." Instead of working, the hardcore addicts were much more likely to depend on selling drugs (52% compared with 22% of the weekenders) and other illegal activities. Almost all the hardcore addicts (96%) were regularly involved in some illegal activities, whereas one-fourth of the weekenders claimed no illegal activities whatsoever.

These differences are especially meaningful on two counts. First, they indicate that addict criminality does not result primarily from a desperate need to relieve withdrawal sickness, as the popular conception would have it, but rather from the desire for euphoria. This conclusion is strengthened by the fact that withdrawal distress is rarely experienced by addicts; in our sample, actual daily consumption of opiates exceeded the minimal amount needed by a factor of 2.4. Second, the differences indicate a potentially important link between our typology and rehabilitation outcomes, since the continued use of euphoric drugs is a chronic problem for methadone programs, and since the extent to which an addict was legally employed and not involved in criminal activities has been one of the best predictors of successful rehabilitation (Babst, Chambers, and Warner 1971; Ball and Snarr 1969; Blum and Associates 1972, pp. 220–21; Brotman and Freedman 1968, p. 132; Duvall, Locke, and Brill 1963; DeFleur, Ball, and Snarr 1969; Inciardi and Babst 1971; Stephens and Cottrell 1972; Waldorf 1970; Vaillant 1966).[16]

It seems apparent, then, that the hardcore and the weekender types represent markedly different points on a continuum of commitment to a conventional life-style. The weekenders are addicts who have retained some of their most important ties with conventional society, and, in doing so, let loose only periodically—much like other workingmen. The hardcore addicts, in contrast, have gone over more fully to a deviant orientation which values pleasure from drugs above all else.[17]

[16] It might be pointed out that, contrary to popular belief, a substantial proportion of addicts hold jobs while addicted. In a review of 16 studies, we found that 39% of a total of 5,194 addicts worked, according to various criteria. The median percentage was 29.4. In our two surveys, 37% and 33% of the addicts were working when interviewed. The studies reviewed were Alksne et al. (1959, table 46); Blum and Associates (1972, p. 220); Brill and Lieberman (1969, p. 297); Brotman and Freedman (1968, p. 121); Chambers, Cuskey, and Moffett (1970, pp. 203, 208); Chambers, Cuskey, and Wieland (1970, p. 45); Chambers, Hinesley, and Moldestad (1970, pp. 260, 263); Chambers and Moffett (1970, p. 192), males only; Ellinwood et al. (1966, p. 42); Flohr and Lerner (1971, p. 152); Glaser, Lander, and Abbott (1971, p. 514); Nurco and Balter (1969, pp. 34, 78); O'Donnell (1969, p. 127); Stimson and Ogborne (1970, p. 16); Vaillant (1966, p. 1286); Wurmser (1970, table 1).

[17] Brotman and Freedman (1968) have reported similar observations, but they argue that conventionality and criminality form two dimensions rather than opposite ends of one. Consequently, they distinguish four addict types where we distinguish two. Elsewhere (McAuliffe 1973, pp. 170–77), we have explored a similar breakdown, but in view of the strong association ($Q = .67$) between noncriminality and conventionality

This interpretation is further substantiated when the addicts themselves are asked to explain why they sometimes fail to get high. The relevant instrument item and response alternatives are presented in table 8. The

TABLE 8

REASONS FOR NOT EXPERIENCING EUPHORIA, BY FREQUENCY OF EXPERIENCING EUPHORIA

"IF YOU DO NOT GET HIGH, WHEN YOU FIRE, IT IS SOMETIMES BECAUSE":	MEAN RESPONSE (%)			
	Hardcore ($N = 25$)	Weekenders ($N = 37$)	Total Sample ($N = 62$)	SD ($N = 62$)
Nonvolitional reasons:				
1. You cannot get enough money together	29	30	29	25.4
2. You got burned (cheated)	12	9	10	12.3
3. You cannot find the dealer you normally go to	11	9	10	10.9
4. You cannot get a hit (get the needle in a vein)	13	4	7	12.8
5. Of where you are	5	4	4	9.5
6. Of whom you are with	3	2	3	6.0
Subtotal	73	58	63	...
Volitional reasons:				
7. You only want to feel normal, and you do not want to get high	7	19	14	24.3
8. You want to keep the size of your habit down*	4	11	8	11.0
9. You have something important to do	7	5	6	12.5
10. Of how you feel	6	6	6	7.7
11. You are worried about something	5	3	4	8.6
Subtotal	29	44	38	...

* The N's for this item were 22 for the hardcore addicts and 34 for the weekenders.

addicts were requested to respond in percentages, "For example, if about half of the times you actually did not get high in the past few months it was because you did not want to, then when I read that reason, you say '50%.' "[18]

For analysis, the reasons have been classified into two broad categories, "nonvolitional" and "volitional." The nonvolitional category includes such reasons as the lack of financial resources which prevent an addict from

(i.e., employment status) in our sample, we prefer the one-dimensional interpretation in this paper.

[18] The list of alternative reasons was not exhaustive, and so it would be reasonable for the percentages given by an addict to add to less than 100. However, many of the addicts gave responses which totaled more than 100%. Consequently, all of the responses were adjusted so that they did total 100% for every respondent. The numbers should be regarded, therefore, simply as measures of relative importance.

achieving euphoria despite his desire to try for it. While both groups of addicts reported the lack of money as most important (thus signifying the value of euphoria to addicts generally), the hardcore addicts tended to place greater emphasis on the other nonvolitional reasons than did the weekenders. This was especially true for reason 4 ("You cannot get a hit").[19]

The volitional reasons in table 8 include a variety of items which carry the implication that the addict himself has decided not to try to get high. The weekenders stress these volitional reasons significantly more than the hardcore addicts (whereas the hardcore addicts stress the nonvolitional reasons), as can be seen by the sums of the average percentages of the reasons in each classification ($t = 2.20$, df $= 60$, $P < .025$). This difference is due entirely to responses to reasons 7 and 8, which indicate a flat rejection of euphoria as a goal, and a concern for restricting the level of tolerance. Thus, the weekenders often do not wish to be high, and they also tend to be careful to keep their level of consumption under control (by not getting high some of the time). In contrast, the hardcore addicts are less inclined to allow considerations under their own control to take precedence over their desire for euphoria.

The strong emphasis on the nonvolitional reason 1 by both types of addict indicates that money is the primary constraint on getting high more often. This was also borne out in our second survey of 60 addicts from these same neighborhoods. The subset of addicts in that survey who said that they were usually *not* trying to get high but were just trying to stay normal in response to a particular question (and who are thus roughly equivalent to the weekenders here), explicitly mentioned money more often than any other consideration in accounting for their failing to get high

[19] The following excerpt illustrates how this item typifies the hardcore perspective:

I: Do you skin-pop [subcutaneous injection] or mainline [intravenous injection]?
R: Well, I can mainline, but I usually skin-pop. Uh, too much trouble . . . all the veins are collapsed.
I: You used to mainline though?
R: Well, I still do once in a while, but lately . . . .
I: You've been switching over to skin-popping. Is that what you're . . . .
R: Right. When I am sick. Yeah, I gotta get on. I might have, like see, if I had eight bags, I might hurry up and shoot four—skin-pop four, that is. And then turn around and take my time, trying to get on [i.e., get high]. You know, find the place. It might take a couple of hours or something.
I: Which would you rather do?
R: I'd rather mainline.

This addict valued the sensation that he received from an intravenous injection so much that he would take a maintenance dose to keep from becoming sick during the time he needed to probe under his skin searching for a vein into which he could inject the remainder of his drugs. With the additional drugs he would feel the impact effect and then would be high for a number of hours. The behavior exhibited here, by the way, is quite inconsistent with Lindesmith's equating of the impact effect to the mere relief of withdrawal.

more often. Moreover, money was often implied in the reasons given by other such respondents.

If we examine this situation more closely, it appears to hold the key to the main difference between our two types of addict. The ultimate in commitment to the pleasure of opiates is probably realized in getting high every day. Although one could conceivably exceed this by not only getting high every day, but by also getting high on every single injection, in practice this would leave little time for attending to other daily business unimpeded by "nodding." (On the effects of opiates on mental and physical efficiency, see Smith, Semke, and Beecher [1962]; Fraser et al. [1963].) In particular, it would leave little time for the business of financing one's pleasure. Only one of our addicts claimed to get high this often, and he was a drug dealer. Therefore, enjoying euphoria one or more times each day, but not necessarily on every injection, represents the practicable upper bound for extracting pleasure from opiates. A sizable proportion of our addicts operate at this upper bound.

Now, what about the lower bound? Clearly, there is no physically determined lower bound; a person could sustain a physical dependence indefinitely without ever enjoying much pleasure from it. But this would be expensive, and since almost no addicts do it, it is obviously not a profitable position. By the same reasoning, if euphoria were experienced only rarely, the addict would have very little return in the way of pleasure for the exorbitant "overhead" of his habit. The question naturally arises: is there some stopping point, short of total involvement in daily euphoria, that yields a meaningful frequency of euphoria in return for the overhead of carrying an opiate habit?

On the time scale of human affairs, pleasure on at least a weekly basis appears to be a schedule of reinforcement meaningful enough to sustain daily striving. Our days of rest and recreation are spaced so; many wage earners are paid weekly; and research (Kinsey, Pomeroy, and Martin 1949, p. 256; Rainwater 1965, p. 101) indicates that the average frequency of sexual intercourse among married couples is about two to three times per week—just about the same as the modal frequency of euphoria among our weekender addicts. To enjoy euphoria less often than a couple of times a week strikes us as rather meager return on one's daily maintenance investment, and it probably strikes addicts the same way. Addicts who are getting high much less often than once a week probably want to terminate their current run altogether, although they may be reluctant to undergo the unpleasantness of the withdrawal period. Only 5% of our addicts (table 2) got high less than four days per month, and we know that at least one of these was definitely intending to quit.

If this argument concerning a theoretical lower bound is correct, it still

remains to show that the economics of getting high every couple of days is sufficiently different from getting high every single day to represent a fairly stable reinforcement position in its own right. Let us examine the average weekly costs faced by our two types of addict, excluding those who are known to rely heavily on methadone, which has a different price range than other opiates. For 30 weekenders, the average weekly cost is $249, and for 26 hardcore addicts it is $357. This indicates that it costs $108 more per week—or 44% more—to move from being a weekender to the position maximally rewarding to an addict. Since more weekenders rely heavily on the considerably less expensive methadone, its use could well be regarded as an intrinsic aspect of the weekender pattern; counting all addicts, the weekly costs are $227 and $349 for the two types, respectively —a 54% difference.

These differences of either $108 or $122 per week involve substantial amounts of money for working-class persons. They are substantial even for the addict who raises money by illegal means because they translate into having to work much harder and into taking greater risks, either as the result of more continuous exposure or as the result of shifting to a riskier but more lucrative hustle.

Since 50% of our weekenders are legally employed, it is clear that many weekenders often pay for part of their habits with legally obtained funds, making up the difference between earnings and the high cost of their habits by low-risk hustles (e.g., copping for others or begging shots) and brief forays into medium-risk endeavors (e.g., some stealing). In this position, the weekender's legal resources, including support from family members, are probably fairly strained, if not fully so. However, many weekenders are still able to enjoy the rewards of a conventional life-style. They can maintain a job, share the responsibilities of marriage, raise a family, accumulate possessions, and even have a fairly normal sex life. Thus, they can still feel entitled to conventional self-respect, which many addicts in our samples claimed to value.

These inferences are substantiated in table 9, which shows the relationship between being a hardcore or weekender addict in our sample and obtaining income from progressively riskier and more deviant categories of sources. Ten addicts obtained money solely from legal sources (category 1 in table 9). All were working full time, and some supplemented their incomes with money obtained from family or friends. These 10 spent the least amount of money for drugs, and they experienced euphoria less often, on the average, than addicts who obtained their income from sources that are illegal (categories 2–4). Only one addict in category 1 got high every day. Supplementing one's legitimate income by hustling (category 2) leads to an increased frequency of euphoria, but still only two of the eight addicts who both work and hustle were able to achieve the hardcore frequency

TABLE 9

SOURCE OF INCOME, FREQUENCY OF EUPHORIA, AND SIZE OF HABIT

Source of Income	Percentage Who Are Hardcore	Average Frequency of Euphoria (per Month)	Average Cost of Habit ($ per Day)	N^*
1. Legal only	10.0%	13.6	20.8	10
2. Employed plus hustling (except dealing)	25.0	16.1	37.6	8
3. Hustling only (except dealing)	40.9	17.3	35.0	22
4. Dealing	60.9	22.5	54.0	23
Outcome of χ^2 test	$\chi^2 = 8.39$ df $= 3$ $P < .05$	...	...	...
Outcome of one-way analysis of variance	...	$F = 2.16$ df $= 3, 59$ N.S.	$F = 3.84$ df $= 3, 59$ $P < .025$	...

* Source of income was not determined in one case.

of euphoria. However, movement into full-time hustling (category 3) results in a substantial increase in the number of hardcore addicts. The weekenders in category 3 actually got high less frequently (8.5 times per month) than the employed weekenders in categories 1 and 2 (11.7 times per month), which suggests that, rather than being weekenders by choice, they may represent examples of the pathetic individuals known scornfully among addicts as "lames" or "hope-friends," who have overreached themselves and who can barely finance the overhead of their habits. Moreover, since category 4 contains the greatest concentration of hardcore addicts, the data are consistent with our argument that most addicts must turn to risky but lucrative activities such as selling drugs on at least a part-time basis in order to attain the maximum frequency of euphoria.[20]

However, in order to obtain the significant increment in income required to sustain the hardcore addict's frequency of euphoria, a working weekender would have to commit himself much more fully to illegal means. This would probably necessitate giving up his job and compromising all of his other investments in conventional sources of satisfaction, including his family relationships. Although he may need to raise only 54% more money, his risk increases more than that, for illegal activities probably provided only a part of his income before, whereas now they may provide all of it, and be qualitatively riskier as well (e.g., dealing in drugs). Furthermore, as a

[20] The proportion of addicts involved in dealing in our sample is not unusual. Blum and Associates (1972, pp. 216–17) found a similar proportion. They also give habit costs for working, hustling, and dealing addicts that stand in relation to each other much as the values for corresponding types in our sample.

weekender, the addict could "nurse" his habit so that the development of tolerance does not proceed too rapidly. As a hardcore addict, taking large doses of opiates every day, he is embarking on a course guaranteed to accelerate the trend of rising costs over the long run. These considerations lend stability to the weekender position on the high side and account for the quantum jump between the frequency of euphoria modes.

The following excerpt illustrates the stability of the weekender position over long periods of time:

> I: When you fire, are you usually just trying to feel normal, or are you firing to get high in a way that makes you feel better than normal?
> R: I would say for the past 10 months—that 90% of the time has just been to feel normal. Now, there may be times that I say, "Yeah, I'm going to get loaded today," you know? I feel like I want to get loaded today. And if I got the bread [money], like, I just go on with it, you know?
> I: What about the times before the last 10 months?
> R: Even with them, even after I was hooked [three years prior], 50% of the time was to feel normal. But the other 50%, I wanted to get *high,* you know?

Immediately following this, the addict explained that he injects drugs three times each day—once in the morning, once at midday, and once before bedtime. We can infer, therefore, that he experiences euphoria between two and three times a week (10% of 21 shots), which makes him a weekender who was stable over this entire 10-month period. There was no indication that he intended increasing or decreasing this frequency of experiencing euphoria.

This passage also brings out another extremely important point. Even a hardcore addict experiencing euphoria daily probably injects himself at least twice a day (in one of our surveys, 77% fired more than once a day). One of these injections is almost certainly merely a maintenance dose. In the above example, our addict was probably getting high daily during the earlier period in which he reports that he got high on 50% of his injections. This corresponds almost exactly to the 52% rate of getting high per injection reported by our hardcore addicts, excluding the one dealer who said he got high on every single injection. Thus, even the hardcore addicts are very much aware that a large fraction of their injections goes for "overhead," rather than for euphoria. In their minds, this evidently contrasts sharply with their recollection of the "honeymoon" period, during which there was no overhead because physical dependence had not yet developed. During that period, all of their shots were volitional, and therefore taken with the intention of getting high, and no shots were taken just to feel normal. Since addicts essentially pay by the shot, it is reasonable to assume that they count by the shot rather than by the day unless specifically asked to do otherwise. Hence, even the hardcore addict who gets high every single day

is close to being able to report that he is "firing mainly to keep normal," injectionwise. This contrasts with the original state of affairs when he never had to shoot to feel normal. In the case of a stable weekender, as above, who gets high on the average of about three times per week, most of his injections go for overhead. Hence, he is even more apt to claim that he is "firing mainly to keep normal." In the above example, this would have meant 90% of his shots during his current weekender period. Thus, the claim heard frequently from addicts that they are mainly trying to stay normal is actually a complaint about their overhead rather than a full description of the amount of positive reinforcement they receive, for on closer inquiry it often turns out that their frequency of euphoria, on a monthly basis, remains exactly what it was during their predependency stage—or is even higher.

In view of our analysis, the two modes appear to represent the only two relatively stable positions in the range. Very few addicts fell between the two (see table 2), and this distribution does not appear to be due to any artifacts stemming from stereotyped ways of reporting frequencies. The large difference in cost between the two modes demands that one make a profound adjustment in the manner of obtaining income and succeed at it in order to move to the hardcore position. In addition, the hardcore addict role implies a much greater overall allotment of time to drug-centered activity. Therefore, if one is already a stable weekender, the commitment to experience euphoria at the upper-bound frequency represents a change in life-style that is more fundamental than that which sociologists normally associate with a radical change in occupation (say, drastic downward mobility). One's willingness and ability, or lack of either, to make this change must determine whether a successful neophyte becomes a weekender or a hardcore addict—that is, at which of the two stable positions he comes to rest.

Since the weekender status is to some extent a marginal position that often reflects an attachment to elements of a conventional life-style and an exercise of self-control, it is probable that the weekenders represent the more promising candidates for rehabilitation, as the findings linking employment and remission suggested. On the other hand, the unrestrained hedonism of the addicts who obtain euphoria every day and their willingness to sacrifice conventional commitments in order to devote themselves more completely to the pursuit of pleasure, by full-time criminality if need be, suggest that they are the poorer candidates for rehabilitation.

By attaining the ideal of the addict who is able to maximize his enjoyment from drugs, and thus realizing the aspiration common to most addicts, these individuals personify the most important norm of a pure addict subculture. Their willingness to fully embrace criminal activity to achieve this ideal accounts for the strong criminalistic component in addict norms,

and the success and resourcefulness of these addicts in the face of the attendant dangers no doubt contribute to their prestige among addicts. Such heroic exertions, however, would be relatively meaningless, if not absurd, if they were directed solely toward reducing withdrawal symptoms, which could be accomplished with much less effort, as every addict knows. The high prestige reported in the literature for types of addict that appear to resemble what we are calling hardcore addicts (Blum and Associates 1972, p. 217; Fiddle 1967, pp. 55–58; Sutter 1966, 1969, p. 822) makes sense only when the importance of euphoria is recognized.[21] *For it is the frequency of euphoria, more than anything else, that stratifies the addict social system.* The degree of success in staving off withdrawal symptoms differentiates individuals mainly at the bottom of the prestige range. As in conventional society, those who cannot attend to their own basic needs are lowest in status. Beyond these minimum requirements, however, individuals are ranked by their success in achieving euphoria, with persons who do not have to exert themselves at all being envied perhaps, but denied top status (the "idle rich"). Thus, the distribution of prestige among addicts parallels what occurs in small groups generally, with greatest prestige reserved for those who most fully and consistently embody the highest values (Homans 1950). In this sense, hardcore addicts are the true elite, and the addict stratification system itself points to the fundamental importance of euphoria.

CONCLUSION

We have reviewed Lindesmith's arguments, including the experimental studies which he cites in their support (see n. 8), and found that they do not warrant the exclusion of positive reinforcement from the explanation of chronic addiction. We have cited other experimental studies showing that euphoric effects are able to sustain opiate use and that opiate-dependent persons can in fact experience euphoria. We have also cited evidence to show that addicts are quite able to judge and report the effects of the drugs they receive and that an interview methodology was therefore appropriate for addressing whether chronic addicts experience euphoria.

[21] When prestige among addicts is discussed by writers on addiction, they tend to focus mainly on the more salient aspects of the hardcore role without realizing that these aspects take on their significance among addicts mainly as the result of their relation to producing euphoria. Thus, Sutter (1966) writes: "Prestige in the hierarchy of a dope fiend's world is allocated by the size of a person's habit and his success as a hustler" (p. 200). But both of these are related to the frequency of euphoria (see table 9)! Sutter's failure to attach more importance to euphoria appears to derive from the influence of the Lindesmith school (Sutter 1969, p. 822). Feldman (in manuscript) has elaborated a prestige hierarchy among users of various drugs based on the degree of *risk* attached to each drug, with heroin at the top. We would suggest that heroin places first in status also because of its pleasurability, and that without this the risk would be pointless.

In our own results, we showed that all but one of our long-term addicts experience euphoria from opiates, most of them at frequencies high enough to be of great theoretical interest. We have also traced some of the links that tie the experiencing of euphoria to the repeated use of opiates: addicts come to crave these euphoric effects, they therefore use drugs that produce euphoria, and they purposely take the large amounts of opiates needed in order to obtain it. Lack of money was the main reason given by all addicts for not getting high more often.

Elsewhere, by factor analysis, we have also shown that the internal consistency among our measures of the effects of opiates, and between them and other variables, bears out our contention that there are at least two reinforcement dimensions of importance to chronic addicts, and that particular effects, such as the impact effect, indeed have the meaning which addicts appear to attach to them (McAuliffe 1973). The orthogonality of the two factors bears out our contention that both dimensions contribute independently to addict behavior and that a combination-of-effects hypothesis is superior to a single-effect hypothesis.

Lindesmith's theory is called into question by these findings because of the trivial role it assigns to euphoria. It might well be asked what are the theoretical implications of allowing euphoria to assume greater importance. The remainder of our paper represents a brief answer to this question.

Elsewhere, we have shown that addicts view the two dimensions of reinforcement, euphoria and withdrawal, as the most important reasons for using opiates (McAuliffe 1973). According to our theory, the response tendency that is addiction starts to gain strength at the very beginning of opiate use and continues to grow incrementally with each of the many positive reinforcements experienced during the "honeymoon" period (see n. 7). With the onset of physical dependence, euphoria and withdrawal sickness combine in various proportions to yield a complex schedule of reinforcement for the typical long-term opiate addict. The exact weighting of each in the reinforcement schedule may vary from time to time within a given individual and from addict to addict.

At the time of injection, an addict who is sick from withdrawal and who has only a maintenance dose on hand is obviously satisfied to respond to just one component of his schedule. With a larger supply on hand, he almost always opts to respond to both components by reducing his sickness and enjoying euphoric effects too. Oftentimes, having done so, he will take another dose soon afterward, to produce even more intense euphoria. Having already attended to his withdrawal needs, this time his response is solely to the euphoric component. The weighting of these components across addicts ranges from one extreme, exemplified by our one addict who never experiences euphoria, to the other, exemplified by our dealer who said he got

high on every injection. At any given time, most addicts are distributed in intermediate positions, where they avoid withdrawal and receive intermittent positive rewards. *It is the history of reinforcement gained from using drugs in all of these ways that accounts for an individual's overall drug-derived motivation for being an addict.*

Although this total reinforcement from both sources may enter into the motivation to use drugs at any given time, there would appear to be some advantage to recognizing that it is the relation of the two components to each other that accounts for the unique hold of opiates over the individual. Were it not for the promise of euphoria, heroin addicts would be much less motivated to remain within the severely demanding schedule dictated by the abstinence syndrome.

While it must be appreciated that the physical dependency associated with certain drugs does introduce novel features into the total reinforcement schedule, it should also be emphasized that recognizing the contribution of hedonic effects to the total schedule brings opiate use and the persistent use of other drugs that do not lead to physical dependency together under the same broad classification of phenomena. In this sense, the theoretical discontinuity between the two types of chronic drug use that is implicit in Lindesmith's theory no longer obtains.

Clearer recognition of withdrawal sickness as but another potent source of reinforcement should also dispel some of the controversy as to whether "addiction" is defined as a physical phenomenon or as a psychological phenomenon and thus also clarify the related issue of whether drugs that do not entail physical dependency are "addicting." The distinction between the two conditions is certainly a valuable one, since one adds a potent reinforcer that the other lacks, but the decision to regard one or the other state as addiction proper is, from a theoretical standpoint, basically arbitrary. From a public relations standpoint, on the other hand, deciding one way or the other does confer certain advantages, according to one's purposes. At the present time, the adoption of one or the other viewpoint tends to be perceived as siding for or against certain theoretical positions, such as Lindesmith's, and hence what is mainly a semantic (and propaganda) issue receives more attention from scientists than it may deserve.

Of special significance to social scientists, perhaps, is the fact that physical dependence and the withdrawal-sickness phenomenon activate the addict's conception of himself as being legitimately in the sick role, with all of its attendant claims for special consideration and exemption from normal social responsibility (Parsons 1951, pp. 312, 440). Not only do addicts view themselves this way when it is to their advantage to do so, but so do important segments of the nonaddict population (Levine and Stephens 1971, pp. 5–6). The utility of this self-conception to the notoriously manipulative

and extractive addict should not pass unnoticed, and persons who find themselves in therapeutic or personal relations with opiate addicts might well find it productive to unmask this claim early. The constant availability of such a claim as a self-pitying rationalization for continued use of drugs for pleasure is certainly a unique feature of the drugs that induce withdrawal distress. It is not hard to see that a theory which denies the pleasurability of opiates plays into this self-conception quite readily and hinders unmasking. Such misconceptions also feed the popular stereotype which attributes addict criminality mainly to a desperate need to avoid withdrawal, when in fact criminality is greatest among those addicts who are most devoted to euphoria (table 9).

Considering the broader range of addiction phenomena, we would suggest that the ability of almost all addicts to display their enjoyment of euphoria accounts in part for the ease with which large numbers of recruits are motivated to try opiates and to continue to use them despite any initial unpleasant reactions. Their own enjoyment of euphoria, in turn, leads these recruits to continue use until they themselves become physically dependent. Once dependent, the promise of euphoria holds the addict to his habit, and the pursuit of it drives up his tolerance, increases the high overhead cost of his addiction, and depletes his legitimate resources. If he remains determined to pursue euphoria at a maximum level in the face of these developments, rather than contenting himself merely with avoiding the abstinence syndrome, he must commit himself more completely to the life-style of the criminal addict. As such a hardcore addict, he is less likely to seek relief voluntarily and to respond to attempts at rehabilitation.

Finally, evidence from our own study and from the studies of others has indicated that success at obtaining euphoria is fundamental, not only to the social psychology of addiction, but also to its sociology, in that it constitutes a major basis for social stratification among addicts themselves.

Our analysis of the economics of addiction, as it interacts with the schedules of reinforcement peculiar to addicts, accounts for the appearance of two modal points (or major social classes of addicts) in the prestige hierarchy. We have termed these categories of addict "weekenders" and "hardcore addicts." Euphoria is prominent as a normative goal defining both of these conditions, but its greater emphasis in one, above all else, accounts for the fact that one impacts on society as far more deviant than the other.

This recognition of the central role of euphoria within the social system of the chronic addict opens up many interesting possibilities for further psychological, social psychological, and sociological analysis. Rarely can social scientists find such a remarkably convenient microcosm in which fundamental reinforcers are so clearly specified, in which the economics are

just complex enough to be interesting, and in which the phenomena of special interest to various disciplines shade into each other so visibly at every level.

In order to underscore the possibility for advancing our understanding in many theoretical directions by viewing addiction as a miniature social system in its own right, let us review certain basic observations. Our analysis pointed to an addict stratification system built around the two major psychopharmacological phenomena of opiates: withdrawal and euphoria. Addicts who can barely succeed at tending to their daily need to avoid withdrawal occupy the lowest prestige positions. In the higher prestige ranges, addicts are stratified by success in achieving euphoria. Apparently, much of the prestige attached to addict occupations (the "boss" hustler) derives from the significance of their relation to the achievement of euphoria. Thus, the social system and the value system of addicts are closely related to the hedonics of addiction at the individual level. Since the reinforcers that are universally considered, within the subculture, to be most fundamental operate at the individual, psychopharmacological level and their hedonic effects seem rather robust in the face of social influence,[22] it would appear that the major values of this subculture emerge from these personal values, rather than vice versa. This should serve as a needed reminder that cultural values are not necessarily the autonomous, ultimate origin of all that they contain, while the relation between competence as an addict and success at achieving euphoria provides an important demonstration of the extent to which competence may underly stratification systems generally, deriving its legitimacy from consensus on personal values and from direct personal familiarity on everyone's part with the demands of the task in hand.

APPENDIX

In his first experiment, Beach gave rats morphine just prior to running them through a Y-maze during a 12-day training period. The prior morphine injections were always associated with running to one goal box rather than the other. Prior to runs to the other goal box, saline injections were given instead of morphine. Later, when given a choice of which way to run, the rats ran significantly more often into the goal box associated with the morphine injections. Beach and Lindesmith both interpret this as evidence for the negative-reinforcement, withdrawal-reduction effect of opiates.

[22] Witness the double-blind, placebo experiments that employ street-level dosages of opiates, in which both addicts and nonaddicts experience euphoria, and the discomfort of withdrawal even when accompanied by intense social support (e.g., Yablonsky 1965, pp. 196–99), or when manifested by laboratory animals (e.g., Wei, Loh, and Way 1972).

However, it is not recognized in experiments of this sort (including others cited by Lindesmith in this connection; by Nichols [1965]; Wikler [1965]; Weeks [1964]; and Beach [1957*b*]), that the impact effect and the withdrawal-reduction effect are completely confounded here, and that the rats' learning could have been reinforced by a combination of the two.

Each of these two effects is empirically independent of the other, since users who are not physiologically dependent can experience the impact effect (thereby calling into question any attempt to equate this simply with the rapid reduction of withdrawal distress), and addicts who are dependent can experience relief from withdrawal symptoms although the accompanying impact effects may vary greatly in their intensity. Some addicts, for example, operating under the urgency of oncoming withdrawal symptoms, will relieve their withdrawal discomfort first with a subcutaneous injection so that they can then take their time finding a vein in order to enjoy a stronger impact effect. Just such a case is presented in this paper (see n. 19).

It is true, however, that when dependency does exist the two effects may usually be experienced in such proximity to each other as to be conducive to confusion as to whether there are two effects or just one. For example, although Lindesmith himself acknowledges the pleasurability of the impact effect (1968, pp. 33–34), only a few pages further on (pp. 40–41) he suggests that the addict really mistakes the relief from withdrawal distress for a pleasurable impact. For example, he states: "The satisfaction of the addict's craving for drugs may itself be called a pleasure. The relief from withdrawal distress which an injection gives may also be so designated. So considered, the assertion that an addict uses drugs because he obtains pleasure or satisfaction from them is merely a tautology" (p. 176).

More refined analysis of reinforcement is, however, possible. Both theoretically and practically, not to mention subjectively, a distinction between positive and negative effects can be maintained, even in the case of addiction. In recent physiological psychology, Berlyne (1967) has traced these different effects to hypothetical arousal changes within different systems of the brain, with some complex feedback relations between the systems. Some confusion concerning the ultimate difference between positive and negative reinforcement in the case of opiate addiction becomes quite understandable, however, in light of Berlyne's more abstract analysis, in which he observes that "the most intense satisfactions may well come when the reward system is subjected simultaneously to arousal . . . and . . . to immediately prior relief of aversion" (p. 94). This is consistent with the well-known phenomenon of hedonic contrast (Beebe-Center 1932), where "the judged pleasantness of a pleasant stimulus was found to be higher when it immediately followed an unpleasant stimulus, and vice versa" (Berlyne 1967, p. 85). Therefore, in having their withdrawal discomfort relieved, concurrently with experiencing the pleasurable impact of morphine, Beach's

rats may well have been receiving positive reinforcement in the most exquisite form of all. This would also apply to the human addict. Nevertheless, even in view of this proximity of effects, it is unwarranted to treat them as a tautology.

Beach also designed an experiment to test the positively reinforcing effect, or what he called the "euphoric effect," of morphine. He recognized that in his prior experiment the rats had been permitted to remain in the goal box at the end of the maze for an hour at the end of each training run, and therefore euphoria may have reinforced their later preference for this goal box in the test runs. Therefore, he trained a new group of initially nonaddicted rats to prefer one goal box over the other, using morphine just as before, but this time they remained in their home cage for 20 minutes before being shunted through the maze during the training period. During later test runs, when given a choice, they, too, chose the morphine-associated goal box significantly more often. Since any relief of withdrawal must have taken place while waiting the 20 minutes in their home cage, Beach reasoned, correctly it would seem, that euphoria had reinforced their learning during the hour they spent in the goal box at the end of each training run. Although Beach did not make the distinction, it should be obvious that by euphoria he had in mind only what we have called the continuing effect.

In a third experiment, Beach tested the persistence of the rats' habits after administration of morphine had ceased and all withdrawal symptoms had disappeared. This occurred after the rats had been withdrawn from all contact with morphine and with the training apparatus for three weeks. Rats that had been initially reinforced by what Beach construed as relief of withdrawal, but by what we construe as a combination of negative and positive reinforcement, were compared with rats that had been reinforced by what Beach construed as euphoria only and what we construe as the continuing effect only (as in the second experiment). When again tested on the apparatus, the rats in the former category continued to exhibit a significant preference for the morphine-associated goal box, whereas the rats in the latter category showed only a weak preference that did not reach significance.

It is this last result, in particular, that both Beach and Lindesmith interpret as evidence that euphoric effects do not produce a lasting change in drug-seeking behavior, whereas withdrawal effects do. However, it should be apparent from our account that they are crediting withdrawal effects with the potential effects of one of the two major aspects of euphoria, and that in considering "euphoria" they are in reality considering only the continuing effect and are completely ignoring the potential contribution to persistent drug-seeking behavior of the impact effect. Furthermore, there were substantial differences in these experiments in the dosages and lengths of time during which the rats in the key groups were reinforced, as well as in the

manner of injection, all of which may have put the euphoria-only rats at a learning disadvantage.

Other studies cited by Lindesmith (1968, p. 126) that show a strong effect for withdrawal reduction also overlook its confounding with the impact effect. One striking example is contained in an article by Weeks (1964), who describes the impact effect in rats: "Some of the rats went into a sort of trance immediately on receiving the injection, sometimes resting on the peddle for about a minute" (p. 48), and then goes on in the next paragraph to dismiss its possible importance as a pleasurable effect in favor of an explanation based solely on the relief of withdrawal symptoms: "One might be tempted to assume at this point that the rat 'liked' the morphine, but it is important not to read human reactions and emotions into an animal's behavior. Moreover, although human morphine addicts say they 'like' the drug, even in humans it is not clear to what extent the drug is a positive pleasure and to what extent it simply brings relief from the rigors of abstinence. The fact is that the rat may not 'like' the morphine at all but has learned that pressing the pedal stops the punishment of early abstinence." Although Lindesmith claims that experimental studies by Nichols (1965), Wikler (1965), Weeks (1964) and Beach (1957*a*, 1957*b*) support his position that it is withdrawal distress and not euphoria that is the motivating factor in opiate addiction, these studies do not in any way rule out the importance of euphoria. All they show is merely that withdrawal symptoms constitute extremely effective reinforcement.

Comments by Nichols himself, whom Lindesmith cites especially, indicate that his own rejection of euphoria stems from an a priori conception of the nature of reinforcement (it can consist only of drive reduction) rather than from his own experimental evidence. He regards euphoria as "no more than an epiphenomenon of the reinforcement process," and concludes with the statement, "Finally, the most cogent reason for rejecting the euphoria hypothesis is that the data are essentially subjective and difficult to use in a scientific framework" (Nichols, in Wikler 1968, p. 306). These comments were elicited in response to a question which took the work of James Olds as a model for positive reinforcement. Olds, of course, has shown that animals will work in return for electrical stimulation delivered to certain areas of the brain ("the pleasure center"), even to the point of exhaustion, and that this work is not related to the reduction of any known drive (Olds 1955). The tendency of some experimenters to discount the importance of euphoria seems to be related to their behavioristic rejection of what they regard as "subjective" effects when working with animals and to their reliance upon Lindesmith for information concerning human addicts (see, for example, Nichols 1965; Nichols in Wikler 1968, p. 306; and the quotation from Weeks, above).

Lindesmith's claims notwithstanding, there is substantial evidence that

drug taking can be positively reinforced by opiates. We have already pointed out that Beach (1957*a*) has shown such an effect for euphoria. We have also commented upon aspects of his research that may have reduced the potency of his positive reinforcement. The two other experiments (Davis and Nichols 1962; Jones and Prada 1973) in which positive reinforcement was not observed were not designed mainly for this purpose, and consequently their procedures were inappropriate for inferring that positive reinforcement does not occur. For example, Davis and Nichols relied upon morphine concentrations that may well have been too low to elicit measurable positive effects in the number of trials allowed. In addition, oral administration confounded any positive drug effect with an aversive, bitter taste, and spread the dosages over the entire drinking period thus diluting any impact effect. Subsequent experimental work utilizing improved techniques that more closely resemble the features of human addiction has in fact succeeded in showing the effect of positive reinforcement in the absence of physiological dependence and social rewards (Claghorn, Ordy, and Nagy 1965; Deneau 1969; Woods and Schuster 1968). If there is a lesson to be learned from pharmacological research, it is that when methods are crude or inappropriate one must not be too hasty in accepting negative findings (Wolf 1961).

Most recently, an experiment by Jones and Prada (1973) seems to show incidentally that dogs did not respond to positive reinforcement from opiates. However, in reporting their results, Jones and Prada averaged many dogs receiving extremely low dosages with comparatively few dogs receiving adequate dosages. This obscured the clear evidence of increased rates of responding by higher-dosage dogs during the second and third weeks of the three-week exposure period (see their fig. 4). During the first week the animals receiving the higher dosages showed the aversive reactions that often accompany initial exposure to opiates (vomiting). Nevertheless, the authors also averaged their low rates of responding from the first week in with those from the second and third weeks, when responding had increased. This, too, obscured the increases.

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