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Editorial: The Natural History of Substance Use as a Guide to Setting Drug Policy

In 1914 the United States began outlawing psychoactive drugs or adding them to a list of controlled substances that could be dispensed only by prescription from a specially licensed physician. This list of controlled substances has grown substantially over time. The only opposing trend was the repeal of the prohibition of alcohol in 1933. Today alcohol, tobacco, and caffeine are the only substances widely recognized as psychoactive that remain available without a doctor's prescription. Caffeine is the only one entirely unregulated, perhaps because it does not endanger society by causing intoxication and has not been shown to cause physical damage to initially healthy persons. Alcohol and tobacco are legal only for persons older than specified ages, although most youngsters experiment with them well before they are legally permitted to do so. Yet these two legal drugs have been shown more definitively to have long-term serious health consequences for users and for offspring exposed to them in utero¹ than the banned or controlled substances.

At this odd moment in history, the Food and Drug Administration is considering banning the sale of tobacco entirely, while smokers argue that smoking is a civil right. At the same time, members of the law enforcement community and political conservatives, who only a few years ago were urging stricter laws and longer sentences to curb the use and sale of illicit and controlled drugs, are now divided. Some supported a crime bill that gave indefinite sentences to "three-time losers" whose crimes were drug related, while others are seriously considering recommending the legalization of drugs in

response to unremitting street crime and bulging prisons. They cite the nation's experience with the prohibition of alcohol as evidence for the criminogenic effects of attempts to curb use by confiscating supplies and punishing sellers. At the same time, the chorus of youths arguing for legalization of marijuana in the 1970s has been stilled, perhaps because marijuana is no longer a political symbol but perhaps also because they learned, as researchers did, that the choice was never really marijuana instead of alcohol and tobacco, as the early rhetoric proposed, but rather marijuana in addition to alcohol and tobacco.

It is time to see whether empirical data can make policy choices more rational. Today the first generation to be thoroughly exposed to the drug epidemic that began in the late 1960s and peaked in the 1970s has passed through early adulthood and can provide data that might guide our choice among these contrary recommendations. The article by Chen and Kandel in this issue² adds a new chapter to their study, extending to age 34 or 35 the natural history of use of both legal and illegal drugs. Their study began in 1971 with New York high school students of 15 and 16, just the ages at which drug experimentation typically got started early in the epidemic. At the most recent follow-up in 1990, most of these subjects had left school, married, and were engaged in careers. Earlier chapters in their history appeared in this journal in 1976, 1984, and 1987.^{3–5} Like any study of a single birth cohort, this study may not forecast the future of later cohorts living in other places. But in the current article

the authors show their data to be compatible with national surveys covering broader age ranges,^{6,7} reassuring us that their findings are probably generalizable.

This study provides a natural history of the use of both legally and illicitly used drugs. (There are also data about drugs used by prescription and prescribable drugs used without a prescription, but these data are less complete and not relevant to the current debate.) Within the legal category there are alcohol and tobacco; among the illicit drugs, marijuana and cocaine provide sufficient numbers of users. Being able to see how histories of use differ within as well as across legal statuses allows us to consider whether a change in legal status is likely to have a large effect independent of the unique chemical composition of the substance.

We deduce from these results that some things would probably not change with a change in drugs' legal status. Whether tobacco is outlawed or illicit drugs are legalized, the chief initiators and heaviest users will be adolescents and young adults. Essentially no psychoactive drug use (other than use of drugs prescribed by physicians) begins after age 20, and maximum use of both legal and illicit drugs occurs in the early 20s.

However, other changes can be expected. Legal drugs are used by many more persons than are illicit drugs. Thus legalizing marijuana and cocaine, the most popular illicit drugs, might make them as commonly used as tobacco and

Editor's Note. See related article by Chen and Kandel (p 41) in this issue.

alcohol. Legal drugs are typically used before illegal drugs, often before they become legal for the youthful user. Marijuana is already the first illicit drug used. If legalized, its use might often precede rather than follow use of alcohol and tobacco. Since many early users stop expanding their repertoire of substances after each addition, this might protect some youngsters from proceeding on to tobacco, which appears to be a more dangerous drug.

This study shows that legal drugs are used more regularly than illicit drugs, their use persists longer, and they are less often given up in young adulthood. This is true for cigarettes as well as alcohol, despite the public campaigns to persuade smokers to quit. Almost none of the earlier users of alcohol had quit by their mid-30s. Although almost half (47%) of those who previously smoked had quit, many more of the users of illicit drugs had quit (75% of marijuana smokers and 85% of cocaine users.) If marijuana and cocaine were legalized, presumably they would more often be continued into adulthood.

The consequences of legalization of marijuana and cocaine, we conclude, are uncertain. They might displace tobacco and alcohol in the sequence in which drugs are introduced, and that could have some benefits. On the other hand, young adult use of these drugs might well increase once use is not stigmatized as illicit. However, we might be willing to tolerate somewhat more adult drug use if crime were markedly reduced.

This trade-off between the harmful physical effects of increased use of marijuana and cocaine and the possible reduction in crime might not be necessary if legalization could be limited to those aged 21 or older, because persons who initiate use after the age of 21 seldom use drugs frequently or heavily. But there are two big problems in limiting legal use to those older than 21: First, we do not know how to protect adolescents from the use of drugs that are legal for adults, as shown by the high frequency of underage drinking and smoking. Second, observations that late-onset drug use is relatively innocuous have been made in a situation when

timing of use is confounded with propensity to use heavily. Matching on indicators of predisposition for heavy use is an unsatisfactory strategy to remove this confounding. After all, if older and younger initiators really had had equal propensities for heavy use, why did the older initiators not start sooner?

Although these study findings give no clear answer as to the advisability of legalization, they are more straightforward with respect to banning tobacco. Since many youngsters never use other-than-legal drugs, declaring tobacco use illegal would protect a lot of youngsters even if tobacco remained available illicitly. Banning tobacco should also shorten the typical smoking career of those who use it, assuming illegal tobacco use will follow the pattern now seen for use of other illicit drugs. Legal drugs are used before illicit ones. Therefore, banning cigarettes might postpone the age at which they are first used. In addition, almost all heavy use of illicit drugs is discontinued as adult roles are assumed, whereas legal smoking and drinking are maintained at least through the middle 30s. Thus banning cigarettes might lead to earlier discontinuance. Since number of years of heavy smoking plays an important role in the health consequences of smoking, a shorter smoking career would offer great benefits.

This discussion assumes that these observed patterns are a function of the current legal status of the drug, and the history of previous legality or illegality of a particular drug would not have enduring effects on its use once the laws were changed. Of course, this might not be the case. Indeed, the social traditions surrounding drinking alcohol certainly played a major role in the efforts that went into circumventing Prohibition.

Legalization would clearly be no panacea. Although legalization is attractive because the adverse consequences of illicit drug use today probably stem more from the drugs' illegal status than from their chemical properties, the risks of exposing many more people to these drugs, which would occur with legalization, are large. Banning cigarettes appears a less risky next step.

One interesting possibility might be to simultaneously ban tobacco and legalize marijuana, as antithetical as these two acts appear at first. Such an action might result in cigarettes' and marijuana's swapping positions in adolescents' progression from one drug to another. If tobacco is banned without legalizing marijuana, there is a greater risk that alcohol's domination of the drug scene will increase further, with known risks to drinkers' livers, hearts, memories, and offspring. Even if it did not achieve a diminution of alcohol's role, such a transposition of the legal statuses of tobacco and marijuana should bring the public perception of which drugs are "soft" (i.e., relatively safe) and which are "hard" (i.e., particularly risky) closer to matching what we know about their relative physiological effects and addictive properties. □

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