How Does one Become a Cannabis Smoker ?. A Quantitative Approach

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ABSTRACT

Howard S. Becker’s study of the “career” of marijuana smokers became a reference for later ethnographic studies but has hardly been an inspiration for epidemiologists’ statistical studies. This article aims first to better understand this apparent incompatibility by pointing out the pitfalls epidemiologists are exposed to when they analyze drug use. It then reexamines available data, with the purpose of drawing from Becker’s theses a set of hypotheses that can be statistically validated. Lastly, these hypotheses are validated on the basis of responses to a self-administered questionnaire survey of 12,113 teenage pupils conducted in 1999 in mainland France. The results confirm the relevance of Becker’s sequential approach for cannabis use, since they show that 1) use-related factors, namely type of supply point and use among peers, vary by cannabis consumption level; 2) the neutralization techniques Becker hypothesized may be seen to be operative in respondents’ stated opinions. More generally, the article illustrates the possible complementarity between statistical and ethnographic approaches.

First published in 1963, Howard Becker’s Outsiders quickly became a reference work, a classic in the sociology of deviance, which discipline it helped to renew. The chapters on marijuana smokers gave rise to several ethnographic studies of illegal drug users and their “careers”, and Becker’s theses still resonate and provoke debate today. In an overview of French research on drug use, C. Faugeron and M. Kokoreff (1999) examine ethnographic studies, then epidemiological surveys, particularly those conducted in schools by means of self-administered questionnaires; they criticize the studies for being too “soft” and the surveys for not making stimulating use of sociological variables. It is worth remarking that these two distinct empirical approaches do not stand in the same relation to Becker’s analyses. Most ethnographic studies refer explicitly to Becker and claim to be working from the same perspective, whereas quantitative studies based on epidemiological surveys don’t even mention him. An examination of the international scientific literature confirms this, particularly the apparent incompatibility between the quantitative approach and that developed by Becker. It should be said that

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for his part Becker has often been critical of the statistical approach, deeming, for example, that multivariate analysis is ill-adapted to the study of deviance because it cannot grasp the sequentiality of a “career”; multivariate analysis in Becker’s view wrongly assumes a synchronic relation between a dependent variable (deviant behavior) and independent variables, all understood to act simultaneously (1985, ch. 2). For Becker, on the contrary, a variable that is well influential at a given stage in a career of deviance may not be at the next one (and vice versa). Be that as it may, statisticians do have modeling methods that make it possible to handle sequentiality (Gollac, 1997). But Becker doesn’t so much criticize the quantitative methods themselves as the use made of them in a certain school of American sociology (school qualified by Sorokin as “quantophrenic”). In Becker’s view, all research raises the problem of specific methods and interpretations, and sociologists must do their best to resolve these problems, being fully aware that each choice along the way may prove a source of error. He criticizes quantitativists for wanting to overstandardize procedures and research tools; this can lead them to commit the worst of errors, namely believing that their mathematical methods are “transparent”, induce no bias or arbitrariness, protect them from all risk of error (Becker, 1970, ch. 1). In this article I shall be looking at some of Becker’s analyses in Outsiders from a quantitative perspective, making use of a recent epidemiological survey. My approach will not involve a genre mix-up, however –quite the contrary. As Becker himself pointed out, what may seem highly antagonistic approaches often fuel each other; on the one hand, statistical data is precious in orienting and delimiting ethnographers’ research; on the other, we must be knowledgeable of the “softest”, least formalized methods if we wish to be able to interpret quantitative results. (1)

It is important first of all to grasp the difficulties involved in a quantitative approach to cannabis use. The statistical instruments required for data analysis are widely available today, and survey data abound, but the difficulties involved in analyzing them are perhaps greater now than they were when Becker was writing Outsiders. In my view they have to do with the bias introduced by the language and methods particular to epidemiologists, who invested this research field earlier than sociologists and made their mark on it. Epidemiological language and methods are not neutral; they implicitly attribute a certain identity to cannabis users. This bias is aggravated by the way epidemiological statistical models are constructed to “explain” cannabis use. In aiming to eliminate “confounding factors”, they in fact make indiscriminate use of highly heterogeneous variables, thus making the mistake of confoun-

(1) “I am devoted to qualitative work and think that the criticisms made of ‘simple-minded counting’ are often correct. But I also rely, whenever I can, on data from the US and other Censuses. […] Similarly, the hardest-nosed positivists, if anyone will admit to being such anymore, routinely take into account all sorts of knowledge acquired with the help of ‘soft’ methods, without which they couldn’t make sense of their data. They may not admit it, but the interpretations they make of ‘hard findings’ rely on their own understanding of the less easily measured, though still easily observed, aspects of social life.” (Becker, 1993, pp. 221-222).
ding factors and often, in the process, producing tautological results and am-
biguous interpretations.

After specifying these difficulties, I shall return briefly to Becker’s chap-
ters on marijuana smokers and illustrate their current relevance with refer-
ences to recent scientific literature. I shall note which aspects of Becker’s
analysis may be used in a quantitative investigation; then develop a set of em-
pirically testable hypotheses. Becker himself favors a two-part, objective-sub-
jective sequential model organized around the notion of “career”. A career is
concretely composed of a succession of positions, realizations, or lifestyles
that may be influenced by certain circumstances or personal characteristics.
The development over stages depends on the individual’s choices; between
any two stages he may reorient his trajectory. On the subjective level, at every
stage the individual undertakes a moral commitment, and must justify her
choices and practices; this may imply recomposing her identity by reinterpre-
ting her personal history. (2)

Lastly, I shall test the hypotheses proposed using the ESPAD survey (Euro-
pean School Survey on Alcohol and Other Drugs), part of the permanent pro-
gram for observing drug use, and attitudes and opinions relative to drugs,
established in 1997 by the Observatoire Français des Drogues et des
Toxicomanies (OFDT) [French monitoring center for drugs and drug addictions].
The survey data were collected from March to May 1999 through a self-ad-
ministered questionnaire filled out by 12,113 mainland France middle school
and high school pupils in classes selected by a two-degree stratified random
survey. (3) Working from data for the 14-19 age group (10,810 individuals), I
first define different cannabis user categories, then study their “objective” and
“subjective” careers —in other words, determinants for moves from one user
category to another— and lastly look at variations in stated opinions and atti-
tudes toward self and drugs by user category.

The difficulties involved in a quantitative approach to cannabis use

The “epidemiological bias”

Becker opens Outsiders with an overview of existing definitions of devi-
ance. After speedily dismissing statistical definitions as irrelevant, he moves
on to criticize in some detail a widespread conception of deviance that follows

(2) On this point see, for example, the
notion of retrospective illusion (Goffman,
1968, pp. 198-199).

(3) On the initiative of the Swedish Council
for information on alcohol and other drugs
(CAN), this survey, which is scheduled to be
conducted again in 2003, is taken in approxi-
mately thirty European countries. The project is
supported by the European Council (Pompidou
Group). The 1999 French segment was
conducted by INSERM (Institut National de la
Santé et de la Recherche Médicale), Unit 472:
Santé et l’adolescent [Health and adolescents],
in partnership with the OFDT and the MNERT
[French Ministry of Education, Research, and
Technology]. It is presented in full in Beck et
al. (2000).
the medical analogy: deviance has its source in the individual, which neces-
sarily means the deviant has particular characteristics. In this conception, de-
viance is likened to a pathology, an “evil” that alienates the individual and
Such a conception is incompatible with a sequential approach in terms of ca-
reer, since that approach assumes an actor with a certain degree of free will
shaping his own trajectory through choices made in accordance with the cir-
cumstances he finds himself in. The medical metaphor presents the deviant as
a diseased person in whom the disease acts, rather than as the actor of his own
deviance. According to this “illness model” (Valleur, 1994), the addict in par-
ticular is the victim of a more or less irreversible, morbid or incurable process
that develops independently of her will. In this perspective, the pathogenic
agent, not the individual, has the leading role, and is understood to bring
about the addict’s inevitable physical, moral, and social degeneration. For
Becker it was important to assert that a cannabis smoker could very well be a
“normal” individual who did not suffer from particular psychological pro-
blems. Above all he underlined the fact that marijuana does not cause physi-
cal dependence. This point, still regularly confirmed today (Zimmer and Mor-
gan, 1997; Roques, 1999), is essential to his argument. In effect, absence of
dependence makes it possible to reject the stereotype of the compulsive addict
enslaved to his vice. (4) In methodological terms, no dependence justifies use
of the career notion, and with it the rejection of determinist theories of devi-
ance. (5) From this perspective it is no longer a matter of demonstrating why a
given individual necessarily became a cannabis user, but how it was possible
for him or her to become a user (Becker, 1994).

But what of epidemiologists, who for several decades have massively in-
vested the field of quantitative study of drug use, introducing notions such as
incidence and prevalence. To quantify the spread of cannabis use within a
given group, for example, epidemiologists calculate the flux of new users
during a given time period (incidence), while the sum of “incidences” is used
to measure user “stock” (prevalence). (6) Epidemiologists define their disci-
pline as research into the causes of diseases, or more broadly, health pheno-
mena (Rumeau-Rouquette et al., 1993; Saliou and Dupuis, 1995). Drug use
undeniably involves “attitudes toward health and health-related behavior”
(Arènes et al., 1997); still, this is not all it is. In fact, through professional de-
formation, some epidemiologists studying cannabis use tend to assimilate it to
a disease and work to find causes and effects, relating it to “other” physical
and psychological troubles. By means of costly longitudinal surveys, they aim

(4) A stereotypical conception illustrated
perfectly by the more than evocative title of an
article first published in July 1937 in American
Magazine: “Marijuana: Assassin of Youth”.
(5) Becker remarks with humour that while
sociologists often develop determinist theories
to explain individuals’ “destinies”, they readily
evoke the role of chance in recounting their
own life stories.
(6) These two notions are also used, though with slightly different meanings, in
victim studies. Epidemiology has contributed
other useful tools to the social sciences, such as
methods for analyzing data on survival that
make it possible, for example, to model the
time needed by an unemployed person to find
work again.
to establish the chronological order in which a number of troubles appeared (including cannabis consumption) in order to deduce a causal relation (cause preceding effect); in other words to identify the pathologies leading to cannabis use and, conversely, the pathologies cannabis use leads to. Among the causes suggested to explain cannabis consumption are symptoms of depression (Kandel and Davies, 1992), psychopathological factors, emotional disorders, and early trauma (Höfler et al., 1999). Proposed consumption consequences include mental disorders (McGee et al., 2000) and suicide attempts (Beautrais et al., 1999). The vocabulary used in these studies is likewise symptomatic of the “epidemiological bias”. On the basis of a longitudinal study, A. Perkonigg et al. (1999) calculate a “remission rate” –that is, the proportion of heavy users (defined as smoking cannabis at least three times a week) that significantly reduce their consumption over the course of the study. It should be remembered that in medical terms being in remission means the patient’s symptoms have disappeared but that the disease may still be active and the patient may fall sick again.(7)

Naturally, I do not attribute to these researchers any hostile intention toward cannabis users. The fact is that the medical analogy so often used by epidemiologists tends to present cannabis consumption as a disease and users as sick persons. This in turn plays into the hands of people who hold highly unscientific opinions, describe drugs and their use with the metaphor of contamination, and assimilate cannabis users to contagious sick persons who have lost their free will and must be treated before they get caught in the gears of dependence and “escalation” and contaminate those around them (Nahas, 1976; Hovnanian, 1999).(8) Sociologists are perhaps more accustomed than epidemiologists to this type of problem: they know their studies may be used and possibly deformed in social and political discourse, “especially since it is in the interest of certain actors to dramatize the danger” (Faugeron and Kokoreff, 1999, p. 6). When sociologists invest a research field, they are immediately confronted with power relations, and competing vocabularies; if they opt indiscriminately for the language of one of the groups on the scene, they introduce a bias into their work from the outset. Becker underlined this danger during a recent conference, citing Goffman’s Asylums: Goffman had avoided it by not defining individuals interned in psychiatric hospitals with vocabulary used by the hospital personnel. Becker likewise underlined the power of words in studying cannabis. Should we speak of addiction or use?

(7) In their analysis of the effects of cannabis use, Perkonigg et al. explicitly refer to the “dose-effect” model typical of toxicity studies of an organism’s reactions to stimuli and, often, of a parasite’s or micro-organism’s resistance to a toxic agent it is has been inoculated with in the aim of destroying it. For his part, Clayton establishes an opposition between “risk factors” and “protective factors”, the latter understood to inhibit or at least reduce the “risk of drug abuse” –in the manner of a vaccine.

(8) That is, before they “move” from cannabis to “harder drugs” (heroin, crack, etc.). On the escalation thesis as perceived in public opinion, see Beck and Peretti-Watel (2000). The medical analogy is of course not always a problem: when modeling length of unemployment with tools devised to study how long cancer patients live, getting back into work is likened to death, but until now at any rate no one has thought to make untoward use of that analogy.
Do we get “intoxicated by” or “high on” marijuana?, and so forth. Assimilating cannabis consumption to a disease is a way of choosing the vocabulary of addiction and intoxication that in itself presents the consumer as an individual who has become dependent and is no longer in control of himself.

In France the “epidemiological bias” is perhaps less pronounced than in English-speaking countries. There are also fewer quantitative analyses of cannabis use or other illegal drugs. Studies by INSERM researchers, undoubtedly the reference, attest to a certain circumspection with regard to etiological analyses. Before presenting the results of a study of factors associated with drug use (primarily cannabis) in a sample of teenage pupils, M. Choquet, S. Ledoux, and C. Maréchal warned the reader as follows: “Highly diverse factors may play an etiological role in the consumption process: they may be socio-demographic, related to social and family environment, or otherwise relational. We will look successively at some of these factors, without making conclusive judgments about their causal value. In effect, the cross-sectional data available do not permit such conclusions. Moreover, extreme caution is necessary in this area; often, etiological power is too readily attributed to an associated factor. To avoid this kind of slippage, our result analysis will be deliberately descriptive, leaving it to the reader to conclude, given the great number of operative factors and the complexity of the phenomenon.” (Choquet et al., 1990, p. 31). The authors were entirely right to warn the reader against hasty conclusions about cause-effect relations. However, if researchers forbid themselves to conclude, they should also forbid readers to, or at least advise them against it, especially for such a “sensitive” subject, where any figure results, results which thus appear scientific, are quickly reinterpreted by actors in the political debate.

In sum, because epidemiologists study cannabis use in the same way that disease etiology is studied, they should be attentive to the unfounded interpretations their results may give rise to.

**Confounding factors and making the mistake of confounding factors**

Epidemiologists today use multifactorial causal models; they no longer look for a unique determining cause for a given disease, but rather a cluster of causes that are neither necessary or sufficient; that is, “risk factors” for the distribution of power and privilege they create […] The moral consequence of adopting existing language and perspectives toward the phenomena we study is that we accept, willingly or not, all the assumptions about right and wrong contained in those words and ideas. We accept, in the case of drugs, the idea that addicts are people who have lost control of themselves and therefore cannot help doing things which are inherently bad.” (Becker, 1999).
disease. The multifactorial aspect requires the researcher to be attentive to confounding factors: the more variables there are, the more likely that some are statistically linked, meaning that the apparent influence of a given variable on the phenomenon may very well mediate the influence of another variable, then disappear as soon as this other variable is taken into account. In this case the first variable is the confound and must be closely controlled for. For example, “serious” suicide attempts are more frequent among cannabis “abusers”. Nonetheless, if we take sociodemographic profile and user’s personal history into account and then compare two individuals with the same profile and history, one a cannabis “abuser” and the other not, the risk that the second will seriously attempt suicide is only slightly lower than for the first (Beautrais et al., 1999). To neutralize confounds and have valid “other-things-being-equal” results to interpret, statisticians use analysis of variance methods. When a variable of interest is dichotomous (eg, whether or not to consume a substance) or, more generally, qualitative, they most often use logistic regression. (10) This method makes it possible to take numerous variables into account in a single model and measure the impact of each one on the dependent variable while controlling for the others.

The validity of results thus obtained is nonetheless subject to caution. It is perhaps useful to recall here the criticism formulated earlier against quantitative studies aimed at modeling knowledge, attitudes, beliefs, and practices relative to AIDS. (11) These studies have often used logistic models (to explain condom use, for example) into which numerous highly heterogeneous variables had been introduced. For J.-P. Moatti et al. (1993), this approach “accentuates the mechanistic character of the analyses if there is not sufficient critical reflection on the fact that variables as statutorily different as those pertaining to biology, socio-demography, psychology, and social representations are being treated as if they had the same status. Clearly, there is a great danger that a mass of raw data and a sophisticated statistical apparatus will lead to largely tautological results, where pseudo-independent factors are in reality nothing more than another way of presenting the dependent variable they claim to explain” (p. 1512). The criticism is valid for many studies of drug use in general and cannabis use in particular. Surveying the scientific literature, R. R. Clayton draws up what is clearly an absurd list of disconnected independent variables, often considered simultaneously: impulsiveness, lack of religious feeling, early alcohol consumption, living in a rowdy neighbor-

(10) It is worth noting that we are not limited to the analysis of variance model. Let’s assume, for example, that in a study of cannabis use prevalence over a lifetime among 14-19-year-olds we are interested in three “covariables”: age, sex, and type of residence area (rural or urban). To evaluate the impact on use of each of these covariables while controlling for level in the two others, all we have to do is construct a table that simultaneously crosses age, sex, and residence area (ie, $6 \times 2 \times 2 = 24$ cases), thus indicating associated prevalence for each case. This is precisely what Durkheim did in Suicide when he studied the effect of marital status on suicide rate by controlling for age, and vice versa. He therefore did not need logistic regression to control for confounds. Of course when the number of covariables increases, the corresponding table of relations is less easy to work with than a regression.

(11) Reference is to the survey series known as KABP (Knowledge, Attitudes, Beliefs, and Practices).
hood, family conflicts, being in a vulnerable socio-economic situation, hormonal and neurophysiological traits, etc.\(^{(12)}\) For some of these factors, such as “positive attitude toward drug use” (Clayton, 1992) or “intention not to consume drugs in the future” (Höfler et al., 1999), we can even wonder to suggest that they are redundant with the variable to be explained: drug use itself.

When the analyst carelessly mixes highly disparate independent factors, factors that are not at the same reality level, controlling for confounding variables seems to lead to confounding variables. In effect, the clear distinction statisticians make between dependent and independent variables may well obscure the fact that the significant statistical links brought to light correspond to relations that are not necessarily causal and whose meaning is not always self-evident. Peer pressure is understood as an incentive factor, product accessibility an enabling factor, playing pinball in cafés merely an associated factor, and cigarette smoking a necessary condition (since cannabis is almost always consumed that way). These “independent variables” refer to relations that do not have the same meaning. It is not at all clear that the relation between ordinary cigarette smoking and cannabis use is a causal one: it is likely that in certain cases repeated cannabis use can lead to regular cigarette smoking, not the reverse. Brochu and Brunelle’s 1997 analysis illustrates the wide variety of possible meanings for the sole statistical relation between drug use and delinquency: drug use may cause delinquency, or simply precede it; the two may be concurrent or together constitute a syndrome, or else they may be two facets of a single lifestyle. This confusion, which has come about with increased use of surveys and the development of new statistical tools for analyzing them, renews and enlarges the pitfalls noted by Becker in the 1950s when he criticized multivariate analysis for implicitly postulating the simultaneity of covariable effects on the dependent variable.

A quantitative study of cannabis use that takes off from Becker’s analyses in Outsiders must therefore first and foremost avoid two pitfalls: first the “epidemiological bias” that tends to represent cannabis consumption as a disease whose “etiology” must be established, an analogy incompatible with the career notion central to Becker’s approach; second, the mistake of confounding factors, mistake due to overly systematic use of multivariate analysis, which tends to eclipse the diversity of possible meanings of statistical relations obtained. In studying cannabis quantitatively, then, variables must by carefully chosen and their status defined in the analysis and interpretations, with care taken to avoid overly deterministic commentaries and medical analogies. With these methodological precautions in mind, I can now summarize Becker’s analysis and draw a set of empirically testable hypotheses from it.

\(^{(12)}\) To this might be added some of the more far-fetched risk factors that have been examined in French studies, eg, “sitting around doing nothing” or “playing pinball” (Choquet et al., 1990).
A marijuana smoker’s career according to Becker

Career stages and their determinants

As explained, Becker developed a sequential approach to marijuana use that involves two axes: gradual learning about the product’s effects and moving from initiation to occasional use to regular use. Becker wanted to break with what he saw as an over-“psychologizing” research tradition; for him marijuana use is not determined by psychological characteristics or motivations because motivations themselves are modified with use. Experimentation is due above all to curiosity, and the sought-after effects do not become a motivation until the individual has learned to bring them on, perceive them, and enjoy them. It is “learning” to use that produces motivation, rather than the other way around. Later qualitative studies have confirmed the existence of a learning process for cannabis (Green and Miller, 1975; Hirsch et al., 1998; Aquatias et al., 1999) as well as other substances, particularly heroin (Duprez and Kokoreff, 2000). Closed-ended-question questionnaires are probably not a well-adapted means of observing this process. We should note, however, that pupil surveys confirm the primacy of curiosity as a motive for experimentation: this was the reason most often cited by Paris high school students (Peretti and Leselbaum, 1999) as well as middle school and high school students in the ESPAD survey for whom cannabis was the first drug ever taken (asked about their reasons for taking cannabis, 82% chose “I was curious”). Moreover, since cannabis is most often smoked in the form of user-rolled cigarettes, learning how to use it is facilitated by having smoked tobacco. It is hardly surprising that in the ESPAD study, almost all the respondents who had already smoked cannabis had also already smoked a cigarette (98%). Tobacco is not so much a “risk factor” as a near-necessary condition of cannabis use. In the learning process described by Becker, peer group in which a cannabis smoker was initiated plays an important role. Quantitative surveys produce an indication of peers’ role, in that the presence of cannabis users among teenager’s immediate family and friends is more marked for regular consumers than experimenters (Peretti and Leselbaum, 1999).

One doesn’t then become a marijuana smoker overnight. Becker systematically differentiates three phases in a smoker’s career, corresponding to the figures of beginner, occasional smoker, and regular smoker. In their replication of Becker’s study, M. L. Hirsch et al. (1998) affirm that this three-phase model is too simple and propose to add supplementary stages. What counts of course is not the number of stages identified but the fact that the model is sequential.

(13) It should be specified that marijuana and cannabis are synonyms. Many other terms are used to designate the substance, though some are more associated with a particular variety, plant part (leaves, heads, resin) or appearance (dried leaves, paste in the form of small bars). I will use the term marijuana when presenting Becker’s analysis and cannabis for more recent studies.

(14) Two condi-
tions must be met for an individual to try marijuana. First, he/she has to be open to trying; second, the product has to be accessible. Openness to trying implies that the individual has called into question the operative social norms according to which marijuana is a harmful product. Today these norms have been weakened, and there is a relative “banalization” of cannabis, in terms of both consumption and opinion (Beck, 1997), even though most French remain hostile to legalization (Beck and Peretti-Watel, 2000). As is the case for other illegal drugs, marijuana consumption is no longer restricted to a cultural protest movement confined to upper- and middle-class teenagers (Galland, 1993) and no longer constitutes a “rite of passage” (Gendreau, 1998). Whether or not a teenager calls into question norms proscribing cannabis use depends on parents’ discourse on the matter – they may be more or less intransigent by social milieu – and the teenager’s ability to distance himself from this discourse. Peer group plays an active role in calling norms into question, though it would be inexact to speak of “peer pressure”: peers do not exercise moral pressure; rather, discussions and practices among peers may be understood to undermine conventional ideas (Aquatias et al., 1999). Moreover, the stronger prevalence observed among boys could reflect girls’ greater respect for parental norms. Among young people aged 15 to 19, girls also refuse offers of illegal substances more often than boys, and when they do try, are less likely to renew the experience (Velter and Arènes, 1999). These results also hold for persons aged 18 to 75 (Grizeau et al., 1997).

An individual who is disposed to try must also have access to the product. Statistical models that relate drug consumption to the fact of being offered drugs (in both cases the drug in question is most often cannabis) illustrate this necessary condition almost to a caricature: according to a recent secondary analysis of the 1997/98 “Santé” [Health] barometer for young people –respondents were 15 to 19-year-olds in the Île-de-France department [including Paris] (Embersin and Grémy, 2000)– being offered cannabis has five times more impact on the probability of trying it than the combined effects of sex, age, family type, and father’s occupational situation. (15) Peer group still plays a decisive role when it comes to access. The ESPAD survey tells us how adolescents whose first drug was cannabis first procured the substance: 51% shared a joint with a group of friends; 39% received it for free from someone close to them (generally a friend, sometimes an older brother or sister), while only 5% bought it (here again, most often from a friend). For Becker, first-time and occasional smokers have limited access to the product, as access is dependent on peer-presented occasions. The regular smoker, by contrast, has solved this problem; he has “learned” to procure marijuana by himself. For each consumption phase, then, there is a corresponding supply mode. The question of procurement enables us to grasp the particular importance of peer use for regular consumers: these consumers are often the ones

(15) In statistical terms, these researchers obtained a 32+ odds ratio for impact of “being offered”. “Being offered” thus seems a “near necessary” condition for cannabis first use, as for tobacco. It therefore seems more judicious to model “being offered” separately from experimentation, limiting study of the latter to respondents who have been offered cannabis.
who organize group purchases, encouraged in this by dealers who charge them less if they buy more (Ingold and Toussirt, 1998). This implies a mobilizable friend-co-buyer network.

Two essential features of an approach focused on the notion of career may be deduced from Becker’s analyses. First, while cannabis use involves a process associated with certain measurable variables (such as degree of acceptance of norms prohibiting it and product accessibility), the role of those factors may well vary from one stage to another of the process. In other words, factors associated with initiation don’t necessarily enable us to understand the shift to occasional or regular use. From a purely statistical perspective, the impact of “independent variables” itself varies by consumption level. We observe, for example, that the overrepresentation of boys seems to increase with consumption level (Kandel and Davies, 1992; Peretti and Leselbaum, 1999; Beck et al., 2000). Meaning, as well as intensity of statistical relation, may vary. We may therefore suppose that the importance of the factor “presence of cannabis consumers among one’s peers” declines as one moves through the process, but it is first and foremost to be interpreted differently depending on the stage under consideration. Peers’ first role is to facilitate initiation by helping call into question norms proscribing cannabis use and providing occasions to consume. They next contribute to the starter’s learning process, and offer the occasional smoker more occasions for use. The regular consumer, however, only depends on his peers in the area of product supply, where he can mobilize them to get a “group rate” on quantity purchases.

The second fundamental feature of this approach involves the “diachronic flexibility” of the process—neither ineluctable or irreversible. Use may remain at the occasional level; it doesn’t necessarily become regular; meanwhile, a regular smoker can reduce or cease consumption, either temporarily or for the long term. This feature helps Becker criticize psychological explanations of deviance: because they are overly deterministic, they don’t allow us to take account of variations in use. A recent study conducted in housing developments on the poor outskirts of Paris clearly illustrates diachronic flexibility: the author stresses how easily the young people studied shift from one type of use to another, allowing themselves occasional excesses, for example, or decreasing consumption to reconcile that aspect of their lives with working. This leads him to call the substance a “slack drug” (Aquatias, 1999). Use “malleability” has also been pointed up for other products, namely heroin (Vedelago, 1994). A longitudinal survey on cannabis use among a sample of German adolescents reveals frequent consumption variation over an average period of 19 months, involving both increases and decreases (Perkonigg et al., 1999). Use level can also be stable. After replicating Becker’s study, Hirsch et al., 1998 observe that many cannabis smokers keep to an intermediate stage and level, between occasional and regular. A longer-term Australian survey conducted in rural areas with individuals who have been smoking for nearly twenty years shows stabilization of their consumption levels (Reilly et al., 1998).
According to Becker a starter must first and foremost get beyond the norms condemning marijuana as a dangerous, toxic substance that causes the individual to lose control of himself. The individual’s opinion on whether marijuana is dangerous will change with use: if he moves from the occasional to the regular phase, he will revise that opinion, specifically by deeming the substance does not engender dependence. One user Becker questioned compared marijuana to alcohol –to underline the advantages of the former. Another respondent, to convince himself that he was not dependent, that he was in control of his consumption, decided to stop smoking for a week; afterward, reassured, he began again. Yet another, sensitive to ideas presenting drug use as a sign of psychological and moral weakness, ultimately concluded that because he was aware of this risk he must still have it under control. In sum, to start, continue, or increase consumption, a marijuana smoker has to “neutralize” the stereotypes condemning his practice by convincing himself that they reflect the opinion of people who don’t know anything about the matter, and substituting a more favorable interpretation, based on his own experience and that of his peers.

Qualitative studies confirm that young users of illegal drugs have the feeling they are in control of their consumption, that they experience it as a self-controlled succession of reflective, deliberately made choices (Boys et al., 1999), self-control being, moreover, one of the informal rules in some cannabis smoker groups (Aquatias, 1999). These studies also point up “neutralization” mechanisms, ways of rationalizing the practice, comparable to those Becker mentions: young people reverse the relation between deviance and normality (“everyone smokes”), affirm that cannabis does not endanger health or cause dependence, and situate their practice in a recreational, collective framework, in contrast with heroin, which is understood to enslave, isolate, and ultimately destroy those who take it (Kokoreff, 1999; Duprez and Kokoreff, 2000). Neutralizing conventional discourse that stigmatizes illegal drugs thus also involves denying its relevance for cannabis while accepting it for heroin. Available quantitative data partially confirm these observations. In the survey of Paris high school students, the more cannabis a teenager consumed, the less likely he was to think the substance was dangerous (Peretti and Leselbaum, 1999). Likewise, according to a survey conducted by R. Ballion in six large French school districts (1999a), the higher students’ consumption, the more likely they were to distinguish between soft and hard drugs and reject the “escalation” thesis. Surveys of the general population tend instead to point up a more tolerant attitude toward heroin and its users among respondents who have tried cannabis (Grizeau et al., 1997; Beck and Peretti-Watel, 2000; Peretti-Watel, 2000), but this result cannot be refined by consumption level with the data available.

Shifts in cannabis use level thus go hand in hand with shifts in opinion about the substance. It would be simplistic to think that opinion determines consumption, or conversely that consumption leads individuals to rationalize
their opinions. Opinion and consumption are constructed simultaneously, and the individual makes sure there is no dissonance between them. From a statistical perspective, it would therefore be highly questionable to use one to “explain” the other.

**Analysis of the 1999 ESPAD survey**

**Hypotheses**

It should be specified from the outset that the ESPAD survey is cross-sectional whereas Becker’s perspective is longitudinal, following the trajectory of a given individual over time to apprehend the successive stages of the process leading, or not, to regular cannabis use. In sum, his approach is diachronic. The ESPAD survey in contrast consists of data collected on a single date; it observes cannabis consumption among teenage respondents at that instant and only that instant; it is synchronic. To reconcile the two approaches I will hypothesize that the various use levels indicated by respondents correspond to different phases in the process Becker analyzed. In other words, the ESPAD survey offers no more than a cross-section of the process but nonetheless can be assumed to provide information on the various stages in that, at the moment of the survey, the different respondents were at different stages (no stage at all or barely initiated for some, intermediate or “last” for others). I will assume here that comparison of individuals who have identified themselves as being at levels that are clearly distinct from one another will enable us to understand why a given individual moves from one level to another.

To adapt quantitative procedure to the sequential model presented in *Outsiders*, it is therefore necessary to choose empirical criteria that will make it possible to categorize respondents by consumption level. Obviously these levels do not correspond to Becker’s use types. His types represent a synthesis of his set of observations and take into account procurement modes and systems of self-justification. On the contrary, the consumption levels I shall propose are no more than analytic tools derived from number of times marijuana was used during a given time period. This produced five different levels:

1) Abstinence: “have never taken cannabis” (64.1% of the sample);

2) Experimentation: “have already consumed cannabis, but not in the course of the last 12 months” (6.3%);

3) Occasional use: “have used cannabis in the course of the last 12 months but fewer than 10 times” (16.1%);

4) Repeated use: “have used cannabis at least 10 times in the course of the last 12 months but fewer than 10 times in the last 30 days” (6.1%);

5) Regular use: “have used cannabis at least 10 times in the last 30 days” (6.2%).
With this breakdown into five levels, only 1.1% of respondents remain uncategorizable due to non-responses or inconsistent ones. The percentages indicated above reflect a partial recoding of non-responses (individuals stating they’d never taken cannabis in their lives and not responding to questions on use over the preceding year or month were put with abstainers). The 1.1% figure corresponds, therefore, to unrecodable inconsistencies, as it was not my objective here to refine prevalence estimations.

In defining consumption levels, it is essential to take into account respondents’ age and sex, which are indispensable control variables since adolescence itself is characterized by an increasing number of “first times”, and moral and social touchstones and lifestyles change more quickly and profoundly than in any other life period, often on gender-differentiated time-tables (Galland, 1993). Type of school (academic, technical or mixed-academic-and-vocational high school, vocational high school, middle school) and school location (ZEP or non-ZEP) have also been integrated into the analysis, at least at first. In effect, there is a widespread notion that more cannabis is consumed in vocational high schools and ZEPs than in other types of schools, though both parts of this assertion have been invalidated by pupils’ responses (Choquet and Ledoux, 1994; Peretti and Leselbaum, 1999; Ballion, 1999a invalidate the first part; Ballion, 1999b invalidates the second). Second, given that Becker’s analyses emphasize peer group influence and drug procurement mode, I shall also be looking at use among peers—“How many of your friends smoke cannabis?”: none, several, most, all—and procurement: “Is it easier to buy cannabis on the street or in a park, in middle school or high school, in a discotheque or a café, at a dealer’s?” (these different items are not mutually exclusive). Lastly, given that we are concerned with a process, it’s important to take into account how long respondent has been using by calculating the difference between age at time of survey and stated age for first use of cannabis. From these variables, here considered determinants of consumption level, it should be possible to verify the following three hypotheses:

Hypothesis 1: The statistical relations observed between determinants and consumption levels vary by level. For example, a variable that differentiates between abstainers and experimenters will not necessarily differentiate between experimenters and occasional users.

Hypothesis 2: Use among peers is determinant for experimentation but its influence, though declining over the process, is also felt in shifts between higher consumption levels.

Hypothesis 3: Certain consumption levels are characterized by specific supply modes.

Hypotheses 2 and 3 are in fact particular cases of Hypothesis 1. I shall therefore be particularly concerned to check Hypothesis 1 for age and sex, whereas these variables are not relevant for 2 and 3.
For the question of cannabis users' moral “careers”, the ESPAD questionnaire contains a number of opinion questions relative to use of illegal substances. Respondents were asked to give their opinion of persons trying cannabis for the first time, and of occasional and regular cannabis users, as well as of persons trying heroin or crack for the first time (responses to choose from: “I’m not against it”, “I’m against it”, and “I’m totally against it”). They then had to estimate the level of risk involved for the same practices, plus those of regularly taking heroin, cocaine, or crack (responses to choose from: “no risk”, “slight risk”, “moderate risk”, “high risk”). We obviously expect that cannabis users will express judgments about this substance and users of it consistent with their own consumption level. For the other substances, on the other hand, the neutralization techniques observed by Becker and by Kokoreff and Duprez suggest that judgments about users and how dangerous a product is will vary differently. Specifically, risks perceived for heroin should not decrease and may even increase as cannabis consumption level increases and it becomes necessary for the user, concerned to justify his own practice, to distinguish sharply between his drug and “harder” ones.

Neutralization of stereotypes stigmatizing illegal substances and those who consume them should enable the cannabis smoker to experience his practice as a fully controlled and self-made choice rather than a vice to which he is enslaved. Consequently, cannabis use should not bring about self-deprecation or be the consequence of low self-esteem: see Becker’s strong criticism of psychological explanations of deviance that liken drug use to a crutch used to forget one’s problems or failures and restore self-esteem (Miller, 1988; Kaplan, 1995). We should therefore not obtain a significant relation between consumption level and self-esteem, at least not once we have controlled for age and sex effects. We can check for absence of relation thanks to a series of questions in the ESPAD survey that makes faithful use of classic items from American self-esteem studies (Rosenberg et al., 1995). The following two hypotheses may then be added to the first three:

Hypothesis 4: Rationalizing cannabis use implies that judgments about cannabis and what are known as “hard” substances will follow different tracks by consumption level. The higher the level, the less likely respondents will disapprove cannabis users or say that this substance involves risks for users. On the other hand, these two relations should disappear or become reversed for heroin, crack, and cocaine.

Hypothesis 5: Self-esteem should not vary with cannabis consumption level. Specifically, it should not diminish when consumption level increases.

(17) Self-esteem is highly linked to age and sex in that it depends greatly on existing relations between the adolescent and his or her parents, and on parents’ “upbringing style” (Kellerhals et al., 1992).
### Use among peers and procurement ease

**Table I. – Characterization of cannabis consumption levels**

<table>
<thead>
<tr>
<th></th>
<th>Abstinence</th>
<th>At least once</th>
<th>Experimentation</th>
<th>Occasional use</th>
<th>Repeated use</th>
<th>Regular use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>16.1</td>
<td>17.0</td>
<td>17.1</td>
<td>16.8</td>
<td>17.2</td>
<td>17.3</td>
</tr>
<tr>
<td>Length of time using</td>
<td>—</td>
<td>2.3</td>
<td>2.2</td>
<td>1.8</td>
<td>2.5</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Sex:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boy</td>
<td>44.5</td>
<td>53.9</td>
<td>49.1</td>
<td>49.6</td>
<td>57.2</td>
<td>66.7</td>
</tr>
<tr>
<td>Girl</td>
<td>55.5</td>
<td>46.1</td>
<td>50.9</td>
<td>50.4</td>
<td>42.8</td>
<td>33.3</td>
</tr>
<tr>
<td><strong>School type:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General and technical high school, mixed high school</td>
<td>37.1</td>
<td>57.3</td>
<td>50.0</td>
<td>56.0</td>
<td>64.5</td>
<td>61.0</td>
</tr>
<tr>
<td>Middle school</td>
<td>50.7</td>
<td>24.2</td>
<td>27.1</td>
<td>28.2</td>
<td>17.8</td>
<td>17.4</td>
</tr>
<tr>
<td>Vocational high school</td>
<td>12.1</td>
<td>18.5</td>
<td>22.9</td>
<td>15.8</td>
<td>17.8</td>
<td>21.7</td>
</tr>
<tr>
<td><strong>School Zone:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZEP</td>
<td>8.6</td>
<td>6.1</td>
<td>6.5</td>
<td>6.6</td>
<td>7.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Non-ZEP</td>
<td>91.4</td>
<td>93.9</td>
<td>93.5</td>
<td>93.4</td>
<td>92.8</td>
<td>96.4</td>
</tr>
<tr>
<td><strong>Use among peers:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>52.1</td>
<td>4.6</td>
<td>13.8</td>
<td>3.7</td>
<td>1.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Some, several</td>
<td>43.8</td>
<td>57.7</td>
<td>72.7</td>
<td>71.3</td>
<td>44.1</td>
<td>21.2</td>
</tr>
<tr>
<td>Most, all</td>
<td>4.1</td>
<td>37.7</td>
<td>13.5</td>
<td>25.0</td>
<td>54.2</td>
<td>78.0</td>
</tr>
<tr>
<td><strong>Procurement location:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Street, park</td>
<td>19.5</td>
<td>36.5</td>
<td>30.9</td>
<td>30.7</td>
<td>42.8</td>
<td>50.7</td>
</tr>
<tr>
<td>School</td>
<td>30.5</td>
<td>55.7</td>
<td>48.1</td>
<td>54.9</td>
<td>61.4</td>
<td>59.8</td>
</tr>
<tr>
<td>Discotheque, café</td>
<td>26.6</td>
<td>25.7</td>
<td>25.6</td>
<td>24.8</td>
<td>24.7</td>
<td>28.9</td>
</tr>
<tr>
<td>Dealer’s place</td>
<td>31.5</td>
<td>52.2</td>
<td>42.4</td>
<td>44.2</td>
<td>61.9</td>
<td>73.4</td>
</tr>
<tr>
<td><strong>All</strong></td>
<td>64.1</td>
<td>34.7</td>
<td>6.3</td>
<td>16.1</td>
<td>6.1</td>
<td>6.2</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>6,809</td>
<td>3,670</td>
<td>660</td>
<td>1,702</td>
<td>651</td>
<td>657</td>
</tr>
</tbody>
</table>

Source: ESPAD 99, INSERM, OFDT, MENRT.

Table I is to be read by columns; for example, 44.5% of abstainers are boys and 55.5% girls. All variable combinations presented are significant at a highly satisfactory statistical threshold (except stating that it’s easy to procure cannabis in a café or discotheque). The column entitled “at least once” aggregates all the following columns and thus makes it possible to specify the results we would have obtained if we hadn’t distinguished between different consumption levels. On the basis of the table we may state the following:

- Male preeminence strengthens as consumption level increases, but does so by successive plateaus rather than continuously, stagnating between experimentation and occasional use and jumping up between repeated and regular use.

- Average age is not closely linked to consumption; it increases particularly between abstinence and experimentation, then decreases, then increases again.

- Length of time using decreases between experimentation and occasional use, then increases regularly with consumption level.
– The higher the consumption level, the fewer middle school students among users. This was predictable given that they are younger. On average, there are three times more general and technical high school and mixed high school pupils than vocational high school pupils, while these last are overrepresented among experimenters and regular users and underrepresented for the two intermediate levels.

– Education zone is not closely linked to consumption level. ZEPs even tend to be underrepresented when consumption level increases.

– Use among peers is closely related to respondent’s consumption level. There are extremely few occasional users without any user friends. The proportion of respondents stating that all or most of their friends are users increases quickly with consumption level.

– Perceived procurement ease increases with consumption, except for cafés and discos. For the other procurement modes the relation varies: for “on the street”, “in a park”, and “at a dealer’s”, perceived purchasing ease stagnates between experimentation and occasional use, while for middle school and high school it stagnates starting with repeated use. School seems the place where the drug can be most easily procured for experimentation and occasional use, while dealer’s place comes out ahead for repeated or regular use.

Overall, user characteristics do not vary regularly by consumption level: plateaus and stagnation points appear, namely for sex, age, and supply possibilities. Becker’s hypothesis on the relation between supply mode and use level is here supported by empirical arguments, though it should be remembered that survey questions bore on possibility of procuring cannabis rather than actual procurement.

To measure “other-things-being-equal” relations here, structural effects must still be controlled for. The preceding table already enables us to discard three variables: school type (which reflects above all an age effect), school zone, and ease of procurement in discotheque or café. But what statistical model should be chosen for comparing different consumption levels? Höfler et al. (1999) chose an ordered polytomous model based on the hypothesis known as “equal slopes” according to which the impact of an independent variable cannot vary by mode of dependent variable. For example, if a boy is 1.5 times more likely than a girl to try cannabis, he will also be 1.5 times more likely to move beyond occasional and repeated use stages, and 1.5 times more likely to reach regular use. Obviously such a model would not allow us to explore the first three hypotheses. Choquet and Ledoux (1994, 1999) identify abstinence and two other consumption levels, then perform multinominal logistic regression by comparing each of the two levels with abstinence, the latter being the base (this is the strict equivalent of performing two distinct dichotomous regressions). Their procedure removes the equal slopes constraint, but it would be more interesting, instead of comparing each of the two levels to abstinence, to compare them to each other, as Kandel and Davies do (1992), though they then compare abstainers to all consumers, thus no longer distinguishing between different consumption levels.
I have chosen here to compare adjacent levels. Though it is entirely possible for an individual to move directly from occasional to regular use, the results of Perkonigg et al. (1999) suggest that the most frequent consumption variations are between successive levels. For my five levels, then, I need to approximate four models. The last question is which respondents to compare. For the move from occasional to repeated use, should the whole sample be kept, with an oppositional break between “occasional or lesser” use and “repeated or greater” use? Obviously not, since then the specific characteristics of the distinct “occasional” and “repeated” levels would not show clearly, and in the end what would probably show up in the analysis are characteristics of the extreme levels (particularly abstainers). Moreover, if we only compare occasional use with “repeated or greater” use, that implicitly amounts to thinking that a cannabis smoker’s career is irreversible, that regular users necessarily went through a “repeated use” phase, and above all that repeated use can only evolve toward regular use. To keep in mind the flexibility of cannabis use as it comes through in Aquatias’s studies, among others, it seems more judicious to compare occasional users to repeat users only and, more generally, only to compare adjacent levels and users in adjacent categories. I conducted four logistic regressions, each of which points up differences between two successive consumptions levels and compares user characteristics for the two categories.

TABLE II. – Logistic regressions comparing successive consumption levels

<table>
<thead>
<tr>
<th>Odds ratios</th>
<th>Abstinence → experimentation</th>
<th>Experimentation → occasional use</th>
<th>Occasional use → repeated use</th>
<th>Repeated use → regular use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boy</td>
<td>1.28**</td>
<td>1.01 ns</td>
<td>1.44***</td>
<td>1.66***</td>
</tr>
<tr>
<td>Reference: girl</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
</tr>
<tr>
<td>Age (years)</td>
<td>1.39***</td>
<td>0.90**</td>
<td>1.07 ns</td>
<td>0.99 ns</td>
</tr>
<tr>
<td>Length of time using (years)</td>
<td>0.81***</td>
<td>1.46***</td>
<td>1.39***</td>
<td></td>
</tr>
<tr>
<td>Use among peers:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most, all</td>
<td>8.09***</td>
<td>6.53***</td>
<td>3.44**</td>
<td>4.67**</td>
</tr>
<tr>
<td>Some, several</td>
<td>4.83***</td>
<td>3.50***</td>
<td>1.07 ns</td>
<td>1.64 ns</td>
</tr>
<tr>
<td>Reference: none</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
</tr>
<tr>
<td>Procurement locations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle school, high school: yes</td>
<td>1.13 ns</td>
<td>1.23*</td>
<td>1.12 ns</td>
<td>0.83 ns</td>
</tr>
<tr>
<td>Reference: no</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
</tr>
<tr>
<td>Street, park: yes</td>
<td>1.11 ns</td>
<td>0.96 ns</td>
<td>1.29*</td>
<td>1.11 ns</td>
</tr>
<tr>
<td>Reference: no</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
</tr>
<tr>
<td>Dealer’s: yes</td>
<td>1.16 ns</td>
<td>1.14 ns</td>
<td>1.55***</td>
<td>1.38*</td>
</tr>
<tr>
<td>Reference: no</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
<td>-1-</td>
</tr>
</tbody>
</table>

***, ***, *, ns: respectively, p <= 0.001, 0.01, 0.05, not significant.
Source: ESPAD 99, INSERM, OFDT, MENRT.
Table II presents the results obtained for the four models. It reads as follows: other things being equal (within the limits of the variables introduced into the model), a boy is 1.28 times more likely than a girl to be an experimenter rather than an abstainer, and being a year older (eg 16 rather than 15) multiplies likelihood by 1.39. It should be noted that the effect of age becomes almost or wholly insignificant when length of time using is controlled for; that variable is obviously not taken into account in the first model since for abstainers it is by definition zero.\(^{(18)}\) Interestingly, experimenters are older and have used longer than occasional users, but that is due to the definition of the former consumption level, which implies that an experimenter has been using for at least a year (he/she’s already used cannabis but not in the preceding year), whereas an adolescent who has consumed cannabis for the first time that year is categorized as an occasional user.

Overall, the results confirm the three hypotheses. First, preferred procurement locations vary by compared use levels: none in particular for experimentation; high school or middle school for occasional use; street, park, or dealer’s for repeated use; and dealer’s for regular use (Hypothesis 3). Furthermore, use among peers remains determinant beyond the experimentation stage, but less and less so, with lower or less significant odds ratios (Hypothesis 2). Relations observed between determinants and consumption levels do indeed vary by levels considered (Hypothesis 1), and this is also valid for sex: excepting comparison between experimentation and occasional use, the higher the use level, the stronger the influence of sex (higher and higher odds ratios). Moreover, for procurement places, it should be noted that only one odds ratio out of six is significant for the first two models, and then only slightly. In other words, it seems that for an adolescent to take his or her “first steps” in cannabis use, there doesn’t need to be procurement ease, probably because at this consumption level one smokes only with one’s peers and does not oneself buy the product.

**Opinions on drugs and self-esteem**

Let us first consider stated opinions on people who take one or another of the drugs and on how dangerous the different substances and using them are. All the combinations presented in Table III are significant at a highly satisfactory statistical level. Table III reads thus: 28.4% abstainers say they are “not against” people who try cannabis once or twice.

A tolerant attitude toward cannabis users is closely associated with consumption level. Starting with experimentation, a large majority of respondents say they are “not against” people who try cannabis once or twice.

\(^{(18)}\) From an interpretive perspective, this mechanical relation between abstinence and length of time using is without interest. From a purely statistical one, if length of time using will tend towards infinity, the maximum likelihood estimator will not converge (odds ratio associated with length of time using will tend towards infinity).
between, on the one hand, occasional and regular consumption levels as defined and, on the other, opinions expressed about people who smoke occasionally or regularly. If we assume that the majority of respondents say they are “not against” a use level as soon as it corresponds to their own perceived level, then the names given to the different consumption levels here seem to correspond fairly well to the ones respondents spontaneously use. Exactly the same is true for questions about associated risks. For example, only 6.8% of occasional users think that occasionally smoking cannabis involves “high risk”, and only 8.8% of regular users say so for regular use. The first part of hypothesis 4 has thus been confirmed. For the other substances, the tendencies are similar for judgments of users (“against” or not) but reversed for assessment of danger. Tolerance is positively correlated to respondent’s consumption level: the proportion of respondents saying they are “not against” people trying heroin or crack is twice as high among regular smokers than abstainers (21.8% and 11.1%, 22.7% and 11.5% for the two drugs respectively). However, the higher respondent’s consumption level, the more likely the other substance, whether it be heroin, crack, or cocaine, is perceived as dangerous, from “trying” to “regular use”. The second part of hypothesis 4 may therefore be amended and confirmed thus: when cannabis users’ consumption level increases, they are more likely to stress the risks of “hard drugs” but to stigmatize their users less.

### Table III. – Cannabis consumption levels and opinions on drugs and users (% in columns)

<table>
<thead>
<tr>
<th></th>
<th>Abstinence</th>
<th>Experimentation</th>
<th>Occasional use</th>
<th>Repeated use</th>
<th>Regular use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opinions about cannabis:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trying it: not against</td>
<td>28.4</td>
<td>72.3</td>
<td>88.8</td>
<td>96.5</td>
<td>97.6</td>
</tr>
<tr>
<td>Occasional use: not against</td>
<td>21.7</td>
<td>50.5</td>
<td>77.6</td>
<td>95.0</td>
<td>97.5</td>
</tr>
<tr>
<td>Regular use: not against</td>
<td>11.2</td>
<td>23.4</td>
<td>36.5</td>
<td>66.6</td>
<td>89.5</td>
</tr>
<tr>
<td><strong>Opinion on trying heroin:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not against</td>
<td>11.1</td>
<td>14.3</td>
<td>15.0</td>
<td>15.8</td>
<td>21.8</td>
</tr>
<tr>
<td><strong>Opinion on trying crack:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not against</td>
<td>11.5</td>
<td>14.8</td>
<td>17.2</td>
<td>16.4</td>
<td>22.7</td>
</tr>
<tr>
<td><strong>Risks associated with cannabis:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trying: high risk</td>
<td>28.7</td>
<td>6.7</td>
<td>2.4</td>
<td>1.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Occasional use: high risk</td>
<td>38.8</td>
<td>17.5</td>
<td>6.8</td>
<td>2.3</td>
<td>1.8</td>
</tr>
<tr>
<td>Regular use: high risk</td>
<td>74.4</td>
<td>54.9</td>
<td>37.6</td>
<td>17.1</td>
<td>8.8</td>
</tr>
<tr>
<td><strong>Risks associated with heroin:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trying: high risk</td>
<td>47.4</td>
<td>61.2</td>
<td>56.4</td>
<td>63.2</td>
<td>65.4</td>
</tr>
<tr>
<td>Regular use: high risk</td>
<td>85.9</td>
<td>87.6</td>
<td>86.2</td>
<td>90.7</td>
<td>89.7</td>
</tr>
<tr>
<td><strong>Risks associated with cocaine and crack:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trying: high risk</td>
<td>48.8</td>
<td>62.5</td>
<td>57.5</td>
<td>67.4</td>
<td>66.4</td>
</tr>
<tr>
<td>Regular use: high risk</td>
<td>86.6</td>
<td>88.3</td>
<td>86.3</td>
<td>90.6</td>
<td>90.6</td>
</tr>
</tbody>
</table>

*Source: ESPAD 99, INSERM, OFDT, MENRT.*

Answers relative to self-esteem are presented in Table IV.

In general, ordinal responses to the questions are coded numerically and added together to obtain a unidimensional synthetic index. T. J. Owens (1994)
points out, however, that it is crucial to distinguish between “positive self-worth” and “self-deprecation” and use two distinct scales. As a precaution, I have first done factorial analysis on the items so as to explore simultaneously all statistical relations between them two by two. A sharp “size effect” appears on the first axis and drains off half the inertia: items themselves are positively correlated.

TABLE IV. – Questions on self-esteem

<table>
<thead>
<tr>
<th>Self-esteem</th>
<th>Responses to choose from:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel that I am a person of worth, at least on an equal plane with others.</td>
<td>Agree strongly</td>
</tr>
<tr>
<td>I feel that I have a number of good qualities.</td>
<td>Agree slightly</td>
</tr>
<tr>
<td>I tend to feel I’m a failure.</td>
<td>Disagree slightly</td>
</tr>
<tr>
<td>I am able to do things as well as most other people.</td>
<td>Disagree strongly</td>
</tr>
<tr>
<td>I feel I have reasons to be proud of myself.</td>
<td></td>
</tr>
<tr>
<td>I take a positive attitude toward myself.</td>
<td></td>
</tr>
<tr>
<td>I’m satisfied with myself overall.</td>
<td></td>
</tr>
<tr>
<td>I would like to respect myself more.</td>
<td></td>
</tr>
<tr>
<td>Sometimes I feel really useless.</td>
<td></td>
</tr>
<tr>
<td>Sometimes I think I am no good at all.</td>
<td></td>
</tr>
</tbody>
</table>

Source: ESPAD 99, INSERM, OFDT, MENRT.

I have therefore opted for the usual index: the responses “agree strongly”, “agree slightly”, “disagree slightly”, “disagree strongly” were coded respectively 4, 3, 2, and 1. Responses to the 5 self-approving statements were added and responses to the 5 self-deprecating ones were subtracted from the sum. The index thus obtained varied from –16 to +16.

Table V presents the average values of this index for each consumption level and the entire sample.

TABLE V. – Cannabis consumption levels and self-esteem

<table>
<thead>
<tr>
<th></th>
<th>Abstinence</th>
<th>Experimentation</th>
<th>Occasional use</th>
<th>Repeated use</th>
<th>Regular use</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem index</td>
<td>4.33</td>
<td>4.35</td>
<td>4.18</td>
<td>4.88</td>
<td>5.14</td>
<td>4.39</td>
</tr>
</tbody>
</table>

Source: ESPAD 99, INSERM, OFDT, MENRT.

Self-esteem seems to increase with consumption. We should, however, be careful in interpreting this result, since self-esteem is also closely correlated with age and sex: it increases with age, and boys have more of it than girls. To control for these effects, a linear regression was done, modeling the index as a function of age, sex, and consumption level.

Table VI reads thus: with sex and age controlled for, an experimenter’s self-esteem index is half a point lower than an abstainer’s. Likewise an occasional user has 0.29 of a point lower self-esteem than an abstainer. For the other two consumption levels, however, the estimated parameters are not significant: a repeat or regular user does not have lower self-esteem than an ab-
Hypothesis 5 is thus partially confirmed: while cannabis users seem characterized by lower self-esteem than non-users, this relation is only valid for the two intermediate consumption levels, beyond which it disappears.

Analyzing data from the ESPAD survey thus confirms the hypotheses proposed here. Characteristics of cannabis users vary by consumption level. Use among peers is particularly determinant for consumption level but its impact becomes less and less pronounced as consumption level increases. As for the places where respondents think they can procure the drug easily, they vary by consumption level, with repeat and regular users finding it easier to procure at a dealer’s. A high level of consistency between consumption level and judgments about cannabis users and risks associated with that substance is also observed. Moreover, the higher respondent’s cannabis consumption level, the less likely he will be to stigmatize “hard” drug users but the more likely he will be to stress risk associated with those substances. The neutralization mechanisms observed by Becker and by Duprez and Kokoreff thus have quantitative resonance. Lastly, cannabis use does not seem closely associated with self-esteem. The validation of our hypotheses brings to light both the relevance of Becker’s sequential approach and the possibility of exploring it with quantitative tools. And that approach should be kept in mind when studying the consumption of other products, namely legal ones, such as alcohol and tobacco, and misused ones, such as inhaled glue. This would enable us to refine interpretation of the role played by peers. If we suppose, for example, that in contrast to what was observed for cannabis, use among peers has no impact on high consumption levels for legal products, this could mean that for illegal substances peers continue to play an important “supply” role as consumption level rises.

Obviously I do not claim to disqualify studies by psychologists and epidemiologists. Drug use is unquestionably a transversal research object and should not be monopolized by sociology. However, the analyses developed in

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**TABLE VI. – Linear regression on self-esteem index**

<table>
<thead>
<tr>
<th>Estimated parameter</th>
<th>Sex:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy</td>
<td>2.66***</td>
<td></td>
</tr>
<tr>
<td>Reference: girl</td>
<td>-0-</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>0.40***</td>
<td></td>
</tr>
<tr>
<td>Consumption level:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimenter</td>
<td>-0.50*</td>
<td></td>
</tr>
<tr>
<td>Occasional user</td>
<td>-0.29***</td>
<td></td>
</tr>
<tr>
<td>Repeated user</td>
<td>-0.07 ns</td>
<td></td>
</tr>
<tr>
<td>Regular user</td>
<td>-0.28 ns</td>
<td></td>
</tr>
<tr>
<td>Reference: abstainer</td>
<td>-0-</td>
<td></td>
</tr>
</tbody>
</table>

***, **, *, ns : respectively, p <= 0.001, 0.01, 0.05, not significant.

Source: ESPAD 99, INSERM, OFDT, MENRT.
Outsiders remind us that methods used often reflect an implicit conception of individual free will. As A. Ogien has pointed out (1994, p. 9), “What is called into play when we utter the word ‘drug’ is our idea of human nature, human freedom and its limits.” In this case the various approaches to drug use fall into two categories: those that follow the “disease model” and those that don’t (Valleur, 1994). In my view, having a quantitative perspective does not necessarily mean one belongs to the first category. Above and beyond the field of drug-related social practices, the quantitative perspective is not incompatible with the hypothesis of an individual actor making reasoned choices and controlling his or her practices. Once statistical and ethnographic data become complementary, the second type will enable us to greatly enrich the interpretations we propose of the first.

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