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LICIT AND ILLICIT DRUG USE IN AMSTERDAM II

Report of a household survey in 1994 on the prevalence of drug use among the population of 12 years and over

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9

Drug use and health

9.1 Introduction

In our 1994 household survey, we introduced a series of innovations, resulting in more data for each of the respondents. One of the more important innovations was an instrument to measure aspects of physical and mental health, which was introduced to enable statistical associations between drug use variables and health variables.
Often pure prevalence data are evaluated on their relative position to the same data earlier in time, or in other countries. Thus, policy makers tend to be alarmed when the lifetime prevalence figures for some drug increase or prove to be higher than elsewhere.
As we pointed out earlier (Sandwijk et al. 1991) this type of evaluating pure prevalence is too simple. It may very well be that much drug use is not associated with any particular problems, as we have already found to be the case with cocaine (Cohen and Sas, 1994; see also Harrison 1994). However, proof that drug use is actively and causally associated with health and social problems would be a cause for concern about drug prevalence figures.

Of course, a household survey is no ideal instrument to measure problem-related drug use. That task requires the kind of in-depth investigation of drug use patterns that we are currently conducting on cannabis (Cohen and Sas 1996 forthcoming) and have already done on cocaine (Cohen 1989; Cohen and Sas 1993; Cohen and Sas 1995).
Even high frequency drug use is not a good indicator of problem-related use patterns because frequent drug use is not in itself a reliable indicator of problem-related behaviour. Frequency, combined with the amount of a drug used, *may* be some kind of problem indicator. However, such a combination measurement is impossible within the design of our household study. Thus, we opted for a different approach to gather some preliminary information about problems possibly related to drug use. We decided to introduce a reliable instrument to measure physical and mental health scores and enable comparison of users with non-users for each drug included in the survey. At the very least, that would enable us to determine whether drug users have consistently different (lower) scores on one or more of the health assessment dimensions than do non-users. If that proved to be the case, it would be an indication of a connection between drug use and health problems.

9.2 The Short Form 36 Health Status Scale

The department of Psychosocial Research and Epidemiology (headed by Dr. Neil Aaronson) of the Netherlands Cancer Institute (NCI) was evaluating the suitability of the SF-36 Health Survey[1] (SF-36) for the Dutch population. The SF-36 is a multi-purpose survey of general health status. It measures eight concepts which are not specific to any age, disease or treatment group and which are among those concepts most frequently measured in widely-used health surveys. (Ware and Sherbourne 1992; Ware et al. 1993; Ware et al 1994). The SF-36 has been translated into 30 languages and has been tested for Dutch respondents through the International Quality of Life Assessment (IQOLA) Project (Aaronson et al 1992.; Ware, Gandek et al. 1994). The SF-36 has been translated and tested for Dutch respondents and we assume a sufficient level of validity for use in the Netherlands.[2]

If we were able to detect significant differences between drug users and non-users on one or more of the health dimensions of the SF-36, we would be better prepared to assess associations between drug use and the quality of health or social relations.

The following matrix outlines in brief the structure of the SF-36 and the meaning of its dimensions (Ware et al. 1993)

Table 9.1 Meaning of the nine dimensions in the SF-36 Health Survey

Dimension	No of items	No of levels	Meaning of low score	Meaning of high score
	10	21	Limited a lot in performing all physical activities including bathing or dressing due to health	Performs all types of physical activities including the most vigorous without limitations due to health
Role Physical	4	5	Problems with work or other daily activities as a result of physical health	No problems with work or other daily activities as a result of physical health
Bodily Pain	2	11	Very severe and extremely limiting pain	No pain or limitations due to pain
General Health	5	21	Evaluates personal health as poor and believes it is likely to get worse	Evaluates personal health as excellent
Vitality	4	21	Feels tired and worn out all of the time	Feels full of energy all of the time
Social Functioning	2	9	Extreme and frequent interference with normal social activities due to physical or emotional problems	Performs normal social activities without interference due to physical or emotional problems
Role Emotional	3	4	Problems with work or other daily activities as a result of emotional problems	No problems with work or other daily activities as a result of emotional problems
Mental Health	5	26	Feelings of nervousness and depression all the time	Feels peaceful, happy and calm all of the time
Health transition	1	5	Believes general health is much better now than one year ago	Believes general health is much worse now than one year ago

Table 9.2 Mean scores and standard deviations on health dimensions for the US and Amsterdam populations

	US population		Amsterdam	
	mean	st.dev.	mean	st.dev.
physical index	50.0	10.0	50.6	9.9
mental index	50.0	10.0	51.5	9.7
bodily pain	75.5	23.6	80.8	24.2
general health perc.	72.2	20.2	71.8	20.7
mental health	74.8	18.0	76.2	17.5
physical functioning	84.5	22.9	85.3	22.9
role emotional	81.3	33.0	83.3	32.4
role physical	81.2	33.8	79.9	35.0
social functioning	83.6	22.4	85.4	21.3
vitality	61.1	20.9	68.9	19.2

Normally, the ninth dimension of the scale, a one-item rating, is not used to calculate health-scores. It can, however, provide useful information about "changes in health status during the year prior to the administration of the SF-36" (Ware et al. 1993).
To simplify interpretation of the health scores, the designers of the SF-36 have devised a method of dividing the scores into two main categories:

- the physical health components score and
- the mental health components score.

Scoring and weighing of the scores result in average scores for the U.S. population of 50 points on each index. Although the SF-36 Health Assessment Instrument is still being adapted for use in the Netherlands, so much progress has been made on its validation that we have no reason to believe that the scoring algorithms we applied -provided to us by the owners of the instrument- were not applicable to the Dutch population.
These two indices provide a condensed score of all the physical as well as all the mental items of the SF-36, taken from the relevant dimensions.
As can be seen from Table 9.2, the respective scores for the US and Amsterdam populations are slightly different.

9.2 Health scores and drug use

We have presented the data that show relations between health scores and drug use in Table 9.3, which compares the scores on the items last year and last month for users of alcohol, pharmaceutical drugs, cannabis and difficult drugs to those of non-users.
These data show that drug users scored higher on the physical index than non-users, with the exception of pharmaceutical drug users. On the mental index, almost the opposite is true: drug users scored lower (with the exception alcohol users). These differences are hard to explain. It could be that we were measuring

Table 9.3 Health scores for last year and last month users of several drugs

	alcohol				pharm. drugs			
	last year		last month		last year		last month	
	no	yes	no	yes	no	yes	no	yes
N =	*924*	*3197*	*1234*	*2874*	*3429*	*700*	*3687*	*442*
physical index	46.8 •	51.7	47.4 •	52.0	51.6 •	45.6	51.4 •	43.7
mental index	51.4	51.5	51.0 •	51.7	52.7 •	45.7	52.4 •	43.8
bodily pain	74.9 •	82.5	75.6 •	83.1	83.3 •	68.6	82.8 •	64.2
general health perc.	65.9 •	73.5	66.9 •	73.9	74.2 •	59.7	73.7 •	55.6
mental health	74.5 •	76.8	74.3 •	77.1	78.6 •	64.8	78.1 •	60.9
physical functioning	75.7 •	88.2	77.4 •	88.8	87.6 •	74.2	87.2 •	69.5
role emotional	79.8 •	84.4	79.8 •	85.0	86.7 •	66.8	86.1 •	60.1
role physical	71.4 •	82.4	72.1 •	83.4	83.9 •	60.6	83.0 •	54.0
social functioning	82.1 •	86.4	81.8 •	87.1	88.1 •	72.4	87.6 •	67.4
vitality	66.0 •	69.7	65.9 •	70.2	71.1 •	57.7	70.6 •	54.7

	cannabis				difficult drugs			
	last year		last month		last year		last month	
	no	yes	no	yes	no	yes	no	yes
N =	*3656*	*438*	*3840*	*282*	*4007*	*122*	*4078*	*51*
physical index	50.1 •	54.0	50.4 •	53.6	50.5 •	52.6	50.5	52.7
mental index	51.9 •	48.5	51.7 •	48.3	51.6 •	48.2	51.5 •	48.3
bodily pain	80.4 •	84.1	80.6 •	84.1	80.8	82.0	80.8	82.3
general health perc.	71.3 •	75.4	71.6 •	74.3	71.7	72.3	71.7	73.1
mental health	76.7 •	72.4	76.6 •	71.8	76.4 •	71.0	76.3 •	70.5
physical functioning	84.4 •	92.4	84.9 •	91.4	85.2	88.8	85.3	86.5
role emotional	83.9 •	78.6	83.8 •	77.4	83.5	77.8	83.4	78.9
role physical	79.2 •	85.7	79.6	83.7	79.9	81.6	79.9	82.7
social functioning	85.4	85.1	85.5	84.4	85.5	82.3	85.5	82.2
vitality	69.0	67.7	69.0	67.6	68.9	66.5	68.9	67.3

Significance on F-test • $p < 0.05$

the effects of age or other variables that influence health scores *and* drug use prevalence. The consistently higher scores on the physical index by drug users may be not much more than a reflection of the fact that drug users are usually young and physically healthy.

To prevent elementary mistakes in interpreting health scores of drug users, we decided to begin by examining variation in health scores according to certain important independent variables other than drug use. We found that health scores were correlated to age (scores fall with increasing age), gender (scores were lower for women), ethnicity (scores were highest for North Americans living in Amsterdam, and lowest for Turkish immigrants), education (scores on the physical index fall with lower levels of education), and lifestyles (individuals with a more out-of-house oriented lifestyle scored much higher on the mental index). The effects of these variables can be seen in Table 9.4.

Because all five of the variables we selected showed significant associations with health scores, we decided to control for the variables that were also very relevant to drug use prevalence. Although our selection of three of the five variables may

Table 9.4 Health scores of the Amsterdam population by gender, lifestyle (level of out-of-house orientation), age, education and ethnicity

	gender			out-of-home orientation		
	men	women		low	medium	high
N =	*1931*	*2198*		*1791*	*1114*	*1214*
physical index	51.7	49.6	•	47.4	51.7	54.1 •
mental index	52.4	50.7	•	51.6	51.7	51.1
physical functioning	88.3	82.8	•	77.7	88.6	93.8 •
role physical	83.6	76.7	•	72.9	82.0	88.4 •
bodily pain	83.6	78.4	•	76.1	82.9	85.8 •
social functioning	87.7	83.4	•	82.7	87.2	87.9 •
mental health	78.2	74.5	•	75.4	76.8	77.0 •
role emotional	86.0	81.0	•	80.9	84.6	85.7 •
vitality	71.9	66.3	•	66.7	70.1	70.9 •
general health perc.	73.4	70.3	•	66.7	73.5	77.7 •

	age group									
	12-15	16-19	20-24	25-29	30-34	35-39	40-49	50-59	60-69	70 a.o.
N =	*183*	*175*	*370*	*559*	*512*	*442*	*688*	*382*	*354*	*464*
physical index	53.1	53.2	54.4	53.7	54.3	52.3	51.1	47.3	46.4	41.2 •
mental index	54.3	52.0	50.8	51.4	51.1	50.2	50.7	51.0	53.9	52.3 •
	88.6	90.6	92.6	93.3	93.6	90.6	88.1	79.6	75.7	61.6 •
role physical	89.3	87.9	88.8	86.0	88.4	83.6	80.4	69.4	73.8	59.3 •
bodily pain	87.4	84.8	87.0	85.4	87.2	81.4	80.1	74.8	77.1	67.7 •
social functioning	92.3	89.9	88.9	87.9	87.7	84.8	85.4	82.3	85.1	76.4 •
mental health	82.8	77.3	77.0	77.4	77.1	74.8	74.8	74.0	78.7	73.7 •
role emotional	87.8	86.2	83.3	85.8	86.3	83.2	83.2	78.8	85.0	77.5 •
vitality	75.6	72.5	69.5	70.6	70.1	67.4	68.3	66.5	70.3	64.2 •
	82.0	77.1	78.8	78.3	78.0	73.1	70.1	64.7	64.4	58.4 •

	eductional level						
	lo	lbo	mbo	mavo	havo	hbo	other
N =	*555*	*534*	*394*	*568*	*644*	*1127*	*117*
physical index	44.5	48.0	50.6	50.2	53.1	53.6	46.7 •
mental index	50.8	52.5	51.6	51.7	51.1	51.2	51.1
physical functioning	69.0	79.4	87.4	84.8	91.4	93.1	76.0 •
role physical	65.8	74.5	79.0	78.7	85.8	86.7	74.7 •
bodily pain	71.1	77.4	79.7	80.8	84.4	85.6	75.1 •
social functioning	79.5	84.7	85.2	84.9	87.8	87.1	84.2 •
mental health	72.0	77.2	76.7	76.4	76.8	77.0	72.3 •
role emotional	75.8	81.8	83.7	84.2	84.0	86.4	83.9 •
vitality	64.2	69.1	69.3	69.5	69.6	69.9	64.3 •
general health perc.	61.9	67.8	72.0	70.8	76.0	76.2	64.4 •

Table 9.4 Health scores of the Amsterdam population by gender, lifestyle (level of out-of-house orientation), age, education and ethnicity (continued)

	ethnicity					
	Neth.	Sur./Ant	Mor.	Tur.	o. Eur.	N-Am.
N =	*3359*	*327*	*1465*	*91*	*88*	*16*
physical index	50.7	50.2	48.5	46.5	50.3	52.2 •
mental index	51.8	50.8	50.4	49.7	48.6	53.5 •
physical functioning	85.6	85.5	79.5	75.7	85.4	93.4 •
role physical	80.5	76.9	75.5	70.1	75.9	91.2 •
bodily pain	81.4	77.5	76.8	74.3	76.7	81.1 •
social functioning	85.6	84.9	82.4	81.7	84.7	94.1
mental health	76.7	75.2	73.8	71.1	70.0	80.4 •
role emotional	84.3	79.7	76.0	79.0	75.6	96.1 •
vitality	69.3	67.2	66.8	62.8	64.9	67.0 •
general health perc.	72.2	71.8	66.7	61.9	68.9	76.2 •

Significance (F-scores) • *p < 0.05*

be seen as somewhat arbitrary, we decided to control for age, gender and lifestyle. We felt that controlling for education would yield inconclusive information given the strong relation between age and educational level. Similarly, we decided to omit ethnicity because of the small numbers of the ethnic minorities.
The control procedure for each drug was identical. Consequently, we were able to compare health scores between users of all the different drugs, and not bother about possible differential effects of age, gender or lifestyle on these scores *per drug using group* (Table 9.5).
In the following sections, we will compare health scores of last month and last year users of cannabis, alcohol, difficult drugs and pharmaceutical drugs.

With the exception of alcohol users, the effects of controlling for age, gender and lifestyle were visible for all other drug users, as can be seen by comparing health scores of drug users in Table 9.3 with those presented in Table 9.5 above. Although the effects of controlling were fewer than we expected, we consider the weighted data more reliable for our comparisons. Thus, the weighted data will be the basis for all our further comparisons between users and non-users on health data. Section 9.3, which compares drug users and non-users, broken down per lifestyle is the only exception: our method of controlling there is somewhat different.
Table 9.5 reveals significant differences between users and non-users of drugs, *regardless of the drug*. However, the direction of these differences is sometimes quite surprising. Only two comparisons reveal no differences: the mental index shows no difference whatsoever between last year users and non-users of alcohol. Moreover, the physical index in the comparison between last year difficult drug users and non-users remained identical.
Users of sedatives and/or tranquillizers showed considerable differences on each of the two indices. Non-users scored much higher than users on both the physical and the mental index. Differences between users and non-users of pharmaceu-

Table 9.5 Health scores of Amsterdam users and non-users of different drugs on 8 dimensions, as well as on the physical and mental index, controlled for age, gender and lifestyle

	alcohol				pharm. drugs			
	last year		last month		last year		last month	
	no	yes	no	yes	no	yes	no	yes
N =	*932*	*3181*	*1298*	*2793*	*3415*	*704*	*3725*	*394*
physical index	48.0 •	51.2	48.3 •	51.5	51.2 •	47.7	51.2 •	45.6
mental index	51.3	51.7	51.0 •	51.8	52.7 •	45.6	52.4 •	42.9
bodily pain	76.8 •	82.0	77.2 •	82.6	82.8 •	71.5	82.4 •	66.3
general health perc.	67.0 •	73.1	68.0 •	73.4	73.6 •	62.7	73.2 •	57.8
mental health	75.1 •	76.8	74.9 •	77.2	78.5 •	65.5	77.9 •	60.3
physical functioning	79.7 •	87.0	80.5 •	87.7	86.7 •	79.8	86.6 •	75.3
role emotional	80.8 •	84.3	80.8 •	84.8	86.6 •	68.5	86.0 •	60.1
role physical	73.8 •	81.5	74.0 •	82.5	83.0 •	65.0	82.5 •	55.7
social functioning	83.1 •	86.2	82.6 •	86.9	87.7 •	73.9	87.2 •	67.6
vitality	66.5 •	69.5	66.4 •	70.0	70.9 •	58.6	70.3 •	54.6

	cannabis				difficult drugs			
	last year		last month		last year		last month	
	no	yes	no	yes	no	yes	no	yes
N =	3656	445	3836	259	3999	104	4063	40
physical index	50.6 •	52.8	50.6 •	53.8	50.6	51.0	50.6 •	49.0
mental index	51.9 •	49.7	52.0 •	46.5	51.6 •	46.2	51.5 •	46.2
bodily pain	81.0 •	84.8	81.1 •	85.2	80.9 •	72.7	81.0 •	60.2
general health perc.	72.1	72.6	72.1	73.0	71.9 •	66.8	71.9 •	65.5
mental health	76.9 •	72.3	76.9 •	68.5	76.4 •	68.3	76.3 •	68.1
physical functioning	85.4	86.4	85.1 •	91.0	85.4 •	77.5	85.5 •	67.1
role emotional	84.3	81.2	84.6 •	74.9	83.6	78.5	83.4 •	83.5
role physical	80.2 •	87.4	80.9	82.0	80.0 •	73.3	80.0 •	66.1
social functioning	85.8	86.3	86.1 •	82.3	85.6 •	77.4	85.5 •	76.6
vitality	69.3	69.9	69.7 •	64.6	69.0 •	63.6	68.9 •	65.5

ticals were also larger than were those between users and non-users of other drugs. We know, of course, that use of these drugs increases sharply with age and, therefore, with all manner of physical and mental health problems. However, the differences in the health scores reported here can not be explained by age differences alone because we first controlled for this variable.

In all likelihood, these differences are attributable to the combined effect of certain underlying variables. In other words, users of pharmaceutical drugs may consume these substances *because* they suffer under conditions (underlying variables) that lower their health scores. However, this may be plausible but we cannot be certain of this. Our findings are limited to the statistical association between these variables (use of pharmaceuticals and health scores) and we are unable, as yet, to explain these associations in causal way. The same is true of our findings on other drugs.

In Table 9.6, we summarise our findings of the difference between users and non-

Table 9.6 Differences between users and non-users, on SF-36 scores in physical and mental health index, per prevalence level, and drug. A negative difference indicates a lower score than that of non-users. Data were controlled for age, gender and lifestyle.

SF 36 scores of last year users minus last year non-users	physical index	mental index	overall index	SF 36 scores of last month users minus last month non-users	physical index	mental index	overall index
pharm. drugs	-3.5 •	-7.1 •	-10.6	pharm. drugs	- 5.6 •	-9.5 •	-15.1
difficult drugs	0.4	- 5.4 •	-5.0	difficult drugs	-1.6 •	-5.3 •	-6.9
cannabis	2.2 •	- 2.1 •	0.1	cannabis	3.3 •	-5.5 •	-2.2
alcohol	3.3 •	0.4	3.7	alcohol	3.2 •	0.8 •	4.0

users of each of the drugs we listed among the physical index and mental index scores. This table shows the average difference between users and non-users in health index scores per index, per drug and per prevalence class (last year or last month). A negative difference indicates that the users' score is lower than that of the non-users, whereas a positive difference indicates the opposite. Table 9.6 is based on the data presented in Table 9.5.

We show here, among other things, that last year users of pharmaceutical drugs scored an average of 3.5 points lower on the physical index than non last year users of pharmaceutical drugs. On the mental index they scored an average of 7.1 points lower than non-users.

The differences between the average index scores, arranged per category of user, reveal a certain pattern. Very clearly, the users of *alcohol* scored higher on both indices than non-users. This was the case for both last year users of alcohol and for last month users.

The differences between last year and last month use were negligible, and the total positive difference on health scores for both indices was around 4.

Last year and last month users of *cannabis* differed from alcohol users on the mental index only. There, the cannabis users scored lower than non-users, but higher on the physical index, much as users of alcohol. We found a conspicuous difference between last year and last month users of cannabis. On the mental index, the scores of last month users were markedly lower -compared to non users- than those of last year users (-5.5 as compared to -2.1), resulting in a higher overall negative difference for last month users of cannabis. Overall differences -the sum of the differences on each index between users and non-users- were positive for alcohol users.

Users of difficult drugs also scored higher on the physical index than non-users, but these differences were very small (and statistically not significant). Differences on each of the indices *between* last year use and last month use were negligible. But the overall negative difference for difficult drug users was considerable, mainly due to the large differences between users and non-users on the mental index. Last year users of difficult drugs scored an average of 4.9 points lower than non-users on the combined indices, and last month users 6.9 points.

Users of pharmaceutical drugs scored, as mentioned earlier, lower than non-users on both indices. Overall differences were large for last year users as compared to non-users. These differences reach their highest level for all drug users when we look at last month consumption. The negative difference of 15.0 points on the combined indices for last month users of pharmaceutical drugs was almost three times higher than the same difference for difficult drug users, and seven times higher than for cannabis users.
Apparently, drug use is clearly related to health scores, ranging from positive to highly negative, with very different results for the drugs we studied.
In Section 9.3, we will examine whether the large differences we report here between drug users remain if we regroup the users and non-users of these drugs according to their respective lifestyles. In our earlier surveys, we already established a close connection between drug use prevalence and lifestyle. We found that the greater an individual's out-of-house orientation (visiting café's, theatres, restaurants, friends), the higher the probability that he/she had used (illicit) drugs (Sandwijk et al. 1991, p. 75). Earlier in this chapter, we reported our finding that the more outgoing the lifestyle, the higher the health score. By regrouping all respondents according to drug use and lifestyle, we might find differences in health scores between different kinds of users of the same drug that help us explain the differences between users and non-users of drugs.

9.3 Drug use, lifestyle and health scores

In this section we will examine whether the differences that we found in Section 9.2 between users and non-users of a drug remain once we break down respondent groups according to lifestyle and drugs used. We will also investigate whether the often positive relation between outgoing behaviour and physical health scores (presented in Table 9.4) remains once we control for age and gender and break down respondent groups according to lifestyle and drugs used. Thus, we will examine such questions as: do alcohol users score higher than non-users, regardless of the former's lifestyles; and of those alcohol users, do individuals with an outgoing lifestyles score higher than non-outgoing individuals.
It was impossible to use the same data for these comparisons that were used for our earlier comparisons, controlled for age, gender and lifestyle. Controlling for lifestyle would prevent us from obtaining optimal results on the effects of lifestyle. Therefore, the data on which the comparisons of this section are based were not controlled for lifestyle. For the individual lifestyles, however, we did control for age and gender as both vary drastically per lifestyle.

The concept of lifestyle

In our 1987 household survey of the Amsterdam population, we introduced the concept of lifestyle as a possible determinant of drug use prevalence. Lifestyle was reduced to and measured as a set of variables that simply measure the type and frequency of entertainment people seek.
We divided leisure behaviour into three categories of preferred entertainment: 1)

Table 9.7 Drug use by leisure behaviour

leisure behavior	no drug	alcohol	tobacco	cannab.	diff.drug	pharm.	N
never visits cafes, etc.	23%	65%	36%	3%	1%	19%	2 311
rarely visits cafes, etc.	7%	88%	48%	12%	2%	14%	1 059
occasionaly visits cafes, etc.	2%	95%	61%	24%	8%	14%	670
regularly visits cafes, etc.	2%	94%	69%	37%	12%	100%	283
never visits theaters, etc.	17%	71%	44%	7%	2%	19%	2 488
rarely visits theaters, etc.	14%	82%	46%	13%	4%	14%	806
occasionaly visits theaters, etc.	7%	88%	46%	17%	5%	16%	707
regularly visits theaters, etc.	7%	90%	50%	17%	7%	15%	321
never visits restaurants, etc.	23%	63%	39%	4%	1%	20%	1 645
rarely visits restaurants, etc.	12%	82%	43%	8%	2%	15%	701
occasionaly visits restaurants, etc.	9%	86%	46%	12%	3%	14%	1 015
regularly visits restaurants, etc.	6%	89%	55%	21%	6%	16%	969
total	14%	77%	45%	11%	3%	17%	4 351

Table 9.8 Drug use by level of out-of-home orientation

out-of-house orientation	no drug	alcohol	tobacco	cannab.	diff.drug	pharm.	N
low orientation	23%	63%	37%	2%	1%	20%	1 925
medium orientation	10%	83%	47%	11%	2%	16%	1 171
high orientation	4%	92%	56%	23%	7%	14%	1 255
total	14%	77%	45%	11%	3%	17%	4 351

dance halls, disco's or café's, 2) ballets, concerts or theatres, and 3) fast food establishments or restaurants (Sandwijk et al. 1991, p. 72). As in our earlier household surveys, we found in 1994 as well that the probability respondents will report last year use of cannabis rises steeply by type of entertainment respondents patronize. In 1994, only three percent of the respondents who never visited cafés had used cannabis in the year preceding the survey. The corresponding figure for regular café visitors was 37 percent.

In Table 9.7, we present what we have described as 'leisure behaviour' of our respondents, broken down per type of drug they report having used during the year prior to our interview.
This leisure behaviour is then recomputed into a simple scale of level of 'out-of-home orientation', in which respondents are categorized as low, medium or high. In Table 9.8, we show out-of-home orientation for our 1994 sample, broken down per type of (last year) drug that respondents report having used.

Next, we present Table 9.9 containing all scores of users and non-users (last year and last month) on the physical and mental index, for three lifestyle categories. The scores of these groups on all eight health dimensions are given separately in Appendix 5.

Table 9.9 Health scores per drug per lifestyle, for users and non-users. Data were controlled per lifestyle for age and gender

Alcohol

	out-of-home orientation											
	low				medium				high			
	last year		last month		last year		last month		last year		last month	
	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
N =	*639*	*1143*	*829*	*944*	*184*	*929*	*285*	*816*	*94*	*1115*	*147*	*1057*
Phys. index	47.6 •	50.1	47.9 •	50.4	48.0 •	52.1	48.9 •	52.3	49.1 •	53.7	50.6 •	53.7
	50.4 •	51.7	50.2 •	52.1	52.3	51.6	51.9	51.7	51.9	51.2	50.4	51.3

Cannabis

	out-of-home orientation											
	low				medium				high			
	last year		last month		last year		last month		last year		last month	
	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
N =	*1749*	*41*	*1765*	*23*	*980*	*120*	*1022*	*78*	*921*	*283*	*1039*	*163*
Phys. index	49.0	51.8	49.0	53.3	51.5 •	53.8	51.6	53.3	52.9 •	54.5	53.3	53.0
	51.8	49.4	51.9 •	43.7	51.9 •	47.1	51.8 •	46.2	51.7 •	47.4	51.7 •	43.9

Pharm. drugs

	out-of-home orientation											
	low				medium				high			
	last year		last month		last year		last month		last year		last month	
	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
N =	*1436*	*363*	*1581*	*218*	*932*	*179*	*1013*	*98*	*1040*	*168*	*1115*	*94*
Phys. index	50.1 •	45.8	49.9 •	44.0	51.9 •	48.6	51.9 •	46.4	53.0	52.6	53.0	52.3
	52.8 •	44.7	52.4 •	41.8	52.9 •	45.3	52.7 •	41.9	52.8 •	45.3	52.4 •	43.9

Diff. drugs

	out-of-home orientation											
	low				medium				high			
	last year		last month		last year		last month		last year		last month	
	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
N =	*1782*	*10*	*1789*	*4*	*1088*	*25*	*1107*	*6*	*1126*	*85*	*1156*	*55*
Phys. index	49.0	52.5	49.0	51.3	51.5	54.0	51.5	56.1	53.1	52.8	53.1	53.3
	51.7 •	40.1	51.7 •	31.5	51.8 •	45.1	51.6	48.2	51.2	51.5	51.1	52.4

Because the importance of these data lies in the differences between users and non-users per lifestyle, we also prepared tables showing *only* these differences (Tables 9.10 to 9.13) and their statistical significance.
First, we will compare health scores of *last year* users and last year non-users of pharmaceuticals (sedatives, hypnotics and opiates), difficult drugs (all non-cannabis illicit drugs), cannabis and alcohol, per lifestyle.

In Table 9.10, we observe that users of pharmaceutical drugs almost always score worse than non-users on both indices, irrespective of lifestyle. However, the large difference we found between all pharmaceutical drug users and all non-users on the physical index disappears completely for those scoring high in outgoing

Table 9.10 Difference between last year users and non-users of drugs on the physical and mental indices and combined indices, per lifestyle. A negative difference indicates that users scored lower than non-users. Data were controlled for age and gender per lifestyle.

SF 36 scores of last year users minus last year non-users	outgoing behaviour								
	low			medium			high		
	phys. index	mental index	N	phys. index	mental index	N	phys. index	mental index	N
pharm. drugs	-4.3 •	-8.1 •	383	-3.3 •	-7.6 •	179	-0.4	-7.4 •	94
difficult drugs	3.5	-11.6 •	10	3.5	-5.7 •	25	-0.3	0.3	85
cannabis	2.8	-2.4	41	2.3 •	-4.8 •	120	1.6 •	-4.3 •	283
alcohol	2.5 •	0.7 •	1143	4.1 •	-0.7	929	4.6 •	0.7	1115

behaviour. Apparently the breakdown of drug users into different lifestyles uncovers a group of pharmaceutical drug users for whom drug use was not connected to physical aspects of health. On the mental index scores, the breakdown according to lifestyle had almost no effects.
Users of difficult drugs scored a little better or lower on the physical index than non-users over all three lifestyles, but these differences are statistically not significant. On the mental index, difficult drug users clearly scored far below non-users, *except when they were very outgoing*. In fact, very outgoing users of difficult drugs were statistically identical to non-users , on both indices.
Cannabis users scored significantly higher than non-users on the physical index, but lower on the mental index, irrespective of lifestyle. In contrast to other drug users, we found that the very outgoing cannabis users showed poorer results on both indices (compared to non-users). For difficult drugs and pharmaceutical drugs this was exactly the opposite: with these drugs outgoing users scored best. Alcohol users showed very little differences between lifestyles. Users scored higher than or the same as non-users on both indices.

In Table 9.11, we show the differences between users and non-users for the combined indices only. We expected to see the combined scores rise as behaviour becomes more outgoing. This was indeed the case, except for cannabis users. Last year, very outgoing cannabis users scored lower than very outgoing difficult drug

Table 9.11 Differences between last year users and non-users on combined indices per lifestyle. A negative difference occurred when users scored lower than non-users.

SF 36 scores of last year users minus last year non-users	outgoing behaviour					
	low		medium		high	
	phys. + mental index	N	phys. + mental index	N	phys. + mental index	N
pharm. drugs	-12.4	383	-10.9	179	-7.8	94
difficult drugs	-8.1	10	-2.2	25	0	85
cannabis	0.4	41	-2.5	120	-2.7	283
alcohol	3.2	1143	3.4	929	5.3	1115

users, although they did not reach the very low score of the pharmaceutical drug users. Apparently, lifestyle had a tremendous influence on these scores, and clearly we can recognise totally different groups of drug users. Very outgoing last year alcohol users scored higher than non-users of alcohol and far higher than not very outgoing users of pharmaceutical drugs. Alcohol use was connected to relatively high health scores (compared to non use), which may reflect that, very often, alcohol use is functional under conditions of good health, good and frequent social relations or conditions of pleasure seeking. The alcohol users in our sample showed the largest (positive) differences in health scores with non-users.

Of course, this connection is not causal. These figures may show only that those who do not drink alcohol may have some slight form of health problem (illness and/or use of pharmaceutical drugs) or live in social conditions that often prevent them from drinking alcohol (as is the case with Moroccans or Turkish immigrants).

The scores of pharmaceutical drug users reflected totally different functions of use than alcohol. Since users scored so consistently lower than non-users, irrespective of lifestyle, the use of these drugs can be interpreted as functional in relation to certain problems in health. Although this interpretation is rather trivial, it reflects the soundness of the SF-36 scores for analysing differences between drug users.

Among pharmaceutical drug users, the home-oriented users scored lowest of all, as one could expect. The sickest persons would stay home. It would be ridiculous to interpret these data as indicating that the use pharmaceutical drugs *causes* low scores.

Following this line of analysis, we might interpret the low scores of home-oriented users of difficult drugs (compared to home-oriented non-users) as similar to the low scores of home-oriented users of pharmaceutical drugs. Both sets of scores bear some relation to health impairing conditions.

On the physical index users of difficult drugs score somewhat lower than alcohol users but not worse than non-users of difficult drugs. However, when difficult drug users are home oriented, they score far worse than non-users on the mental index. This might reflect serious situations that impair mental health. However, there is no reason here to presume that difficult drug use *causes* these conditions. We have to be very careful here, because our data on home-oriented users of difficult drugs come from very small groups.

The majority of difficult drugs users (70%) are the very outgoing ones, and they scored much higher than the home-oriented users of difficult drugs. They showed no differences with non-users at all. This may indicate there are important differences *within* the group of difficult drug users. Outgoing users find these drugs functional within an outgoing and socially well adjusted lifestyle. Use of these drugs was not associated with impaired health. But, the home-oriented users of difficult drugs may have found these drugs functional in dealing with health impairments, as was the case with home-oriented users of pharmaceutical drugs. We see here that the relevant contrast was not made between users and non-users, but between home-oriented and outgoing users.

We will present the data given in Tables 9.10 and 9.11 for last year users and non-

Table 9.12 Difference between last month users and non-users of drugs on physical and mental indices. A negative difference indicates that users scored lower than non-users. Data were controlled for age and gender, per lifestyle.

SF 36 scores of last month users minus last month non-users	outgoing behaviour								
	low			medium			high		
	phys. index	mental index	N	phys. index	mental index	N	phys. index	mental index	N
pharm. drugs	-5.9 •	-10.6 •	218	-5.5 •	-10.8 •	98	-0.7	-8.5 •	94
difficult drugs	2.3	-20.2 •	4	1.1	-3.4	6	0.2	1.3	55
cannabis	4.3	-8.2	23	1.7	-5.6	78	0.3	-7.8 •	163
alcohol	2.5 •	1.9 •	944	3.4 •	-0.2	816	3.1 •	0.9	1057

users, as well as for last month users and non-users (Table 9.12 and 9.13). Although for last month use we occasionally have small cell sizes, these data are interesting. If the assumption is true that last month users can be seen as the most regular drug users, we would expect to see the tendencies of the last year users at least confirmed or even amplified, i.e. lowest health index scores for home-oriented users of difficult drugs and pharmaceutical drugs.

The data here on the last month drug users clearly magnify the associations we found earlier between health index scores and the use of drugs. By far, the lowest score is seen with home-oriented last month users of difficult drugs on the mental health index. Again, outgoing users of difficult drugs showed no difference with outgoing non-users.
Last month users of pharmaceutical drugs did not show this marked difference in lifestyles, although differences with non-users rose consistently with the degree of home orientation. But even outgoing last month users scored much lower than outgoing non-users.
Last month cannabis users, both the home-oriented and outgoing individuals, scored low compared to non-users on the mental health index only. Outgoing last month cannabis users scored much worse on the mental index (compared to non-users) than outgoing last month users of difficult drugs! Given the widely accepted notions that difficult drugs (cocaine, amphetamine, ecstasy, hallucino-

Table 9.13 Differences between last month users and non-users, corrected for age and gender per lifestyle- on combined indices per lifestyle. A negative difference occurred when users scored lower than non-users.

SF 36 scores of last month users minus last month non-users	outgoing behaviour					
	low		medium		high	
	phys. + mental index	N	phys. + mental index	N	phys. + mental index	N
pharm. drugs	-16.5	383	-16.3	179	-9.2	94
difficult drugs	-17.9	10	-2.3	25	1.5	55
cannabis	-3.9	41	-3.9	120	-7.5	163
alcohol	4.4	1143	3.2	929	4	1057

gens and heroin) are more related to health risks than cannabis, these data are quite unexpected. The secret of this datum lies of course in the different groups that use these drugs, for different purposes.

Table 9.13 outlines in brief the differences between last month users and non-users per lifestyle for the two indices combined. The negative differences between users and non-users of pharmaceutical drugs were enormous, as we saw before. Home-oriented last month users of difficult drugs scored lowest of all compared to non-users, while home-oriented alcohol users score highest, compared to non-users.

The conceptual function of tables such as those above is that they show how difficult it is to produce causal explanations for the association between drug use and health. One clearly cannot maintain that sitting at home and using alcohol causes one to be healthier than sitting at home and not using alcohol!

Can we say that sitting at home and using pharmaceutical drugs causes one to be a lot unhealthier than sitting at home and not using these drugs? Apparently not. Could we say that using difficult drugs like cocaine, heroin, XTC or amphetamine in a very outgoing lifestyle causes one to be slightly more healthy than not using these drugs, as our data would suggest? Again, the answer is no. Still, in discussing illicit drug use, our data could easily be misinterpreted as indicating that a very outgoing lifestyle and cannabis use *causes* one to be unhealthy as compared to an outgoing lifestyle and abstinence from cannabis. Apparently, this is also wrong.

Unfortunately, our understanding of illicit drug use is such that we are tempted to explain negative associations between the use of these drugs and health scores as causal. We would not do this for pharmaceutical drugs, let alone for positive correlations between drug use and health scores.

We will have to consider that drug use in general is not a very probable cause of health problems, or for that matter, a factor contributing to better health than non-users (as our alcohol data would suggest). A tentative explanation could be that individuals select drugs for certain *functions*, that may be determined by their short-term life situation. According to our findings, outgoing difficult drug users were statistically not different than outgoing non-users . This might mean that the function of their drug use was fundamentally different (mainly recreational) from difficult drug use among home-oriented users (mainly reactive to limitations in life situations). This interpretation of mainly recreational drug use by outgoing last month difficult drug users is supported by the high value of the total health score of the combined indices of outgoing last month difficult drug users (106).This combined score was higher than combined scores of any other group of respondents, all non-users included.[3]

However, upon comparing cannabis users with non-users of cannabis, we see that the outgoing cannabis users scored the highest negative differences with outgoing non-users of cannabis. Outgoing behaviour as well as cannabis use may have very particular functions for these cannabis users, functions determined by a complex set of underlying variables. Such variables may be psychological but also social, as in the case of unskilled and unemployed youth in Amsterdam, who

Table 9.14 Average scores of drug users on Vitality dimension, per lifestyle. Data were corrected for age and gender per lifestyle.

	scores on Vitality dimension per lifestyle					
	last year			last month		
	out-of-home orientation			out-of-home orientation		
drug	low	medium	high	low	medium	high
alcohol	69	70	72	69	71	72
cannabis	69	67	68	61	65	60
diff. drugs	57	67	70	59	76	72
pharm. drugs	54	60	63	52	56	61

are bored and have nothing else to do but hang around in café's or coffeeshops. An indication of this can be found in the scores on the 'Vitality' dimension in the SF-36 scale (Table 9.14, see also Appendix 5). Very outgoing last month cannabis users score an average of 60 on this scale, which is very low compared to non-outgoing cannabis users (average score 69).[4]

However, in the Amsterdam population, the vitality score of last month outgoing cannabis users was very similar to the vitality score of outgoing last month users of pharmaceutical drugs (average 61). On comparing these low scores to the vitality score of very outgoing last month users of difficult drugs (average 72) and of alcohol (average 72) we might infer that, for many respondents, the combination of going out and cannabis use reflects some sort of compensation for particular kinds of non-well being. However, contrasting data are easily found. When we look at the dimension 'Social Functioning' in the SF-36 scale (Table 9.15), we find very outgoing cannabis users scoring among the highest of the total sample, together with very outgoing difficult drug users and alcohol users! Apparently the interpretation of these health scores across drug users is not easy.

Outgoing users of pharmaceutical drugs showed the now familiar low score on Social Functioning. Again, the lowest scores were found among home-oriented users of difficult drugs and pharmaceutical drugs (scores of 70 and lower)[5].
We found the most consistent data (low scores) for the home-oriented users of

Table 9.15 Average scores of drug users on Social Functioning, per lifestyle. Data were corrected for age and gender per lifestyle.

	scores on Social Functioning dimension per lifestyle					
	last year			last month		
	out-of-home orientation			out-of-home orientation		
drug	low	medium	high	low	medium	high
alcohol	85	87	88	87	88	88
cannabis	84	83	86	75	82	83
diff. drugs	69	78	90	63	82	92
pharm. drugs	70	75	78	65	67	75

pharmaceutical and difficult drugs, which indicates health limitations. Medication and self medication might be among the important functions of drug use for these categories of users.[6] However, much drug use does not fit within these functions, as is reflected by outgoing users of difficult drugs and of alcohol.

These interpretations have to be looked at with caution. Not only did we base some of them on data from very small groups, we were, to a great extent, unable to validate them with other data on our respondents, which, unfortunately, we lack. However, designing an explanatory model in which these sometimes contrasting data would fit implies the concept of 'function of drug use'. If we were able to find further empirical evidence for the idea that all drugs can be used for different and even contrasting functions, we would be better able to explain the contrasting data we found on the health association with drug use.

9.4 Cannabis use and health scores

Because we had such strange findings on the cannabis users in our data (usually scoring lower than non-users, especially when very outgoing), we decided to take a particularly close look at experienced cannabis users. Although we have the problem again of small cell sizes, we expected to find some clues about cannabis users if we looked exclusively at those who have used it more than 25 times.
Of course, our lifestyle data were for a period of at most 8 weeks prior to the interview, so lifetime data on cannabis are related to a quite different time span. Table 9.16 repeats some of the findings presented in Table 9.10, but adds last year cannabis users with a lifetime experience of at least 25 occasions of use. We compared these experienced last year cannabis users to the group of non-users

Table 9.16 Difference between last year users and non-users of drugs on physical and mental index. A negative difference indicates that users scored lower than non-users. Data were corrected for age and gender per lifestyle.

SF 36 scores of last year users minus last year non-users	outgoing behaviour								
	low			medium			high		
	phys. index	mental index	N (users)	phys. index	mental index	N (users)	phys. index	mental index	N (users)
cannabis	2.8	-2.4	41	2.3 •	-4.8 •	120	1.6 •	-4.3 •	283
> 25 times	-4.5 •	-1.5	29	2.9 •	-2.7 •	29	1.7 •	-3.8	184

SF 36 scores of last year users minus last year non-users	outgoing behaviour					
	low		medium		high	
	phys. + mental index	N (users)	phys. + mental index	N (users)	phys. + mental index	N (users)
cannabis	0.4	41	-2.5	120	-2.7	283
> 25 times	-6	1 143	0.2	929	-2.1	184

Table 9.17 Scores of experienced (>25 times) last year cannabis users, compared to last year non-users or inexperienced users. Data were corrected for age and gender per lifestyle.

	out-of-house orientation							
	low		medium		high		total	
	no	>25 x	no	>25 x	no	>25 x	no	>25 x
N =	*1290*	*29*	*1021*	*87*	*1004*	*184*	*3743*	*302*
physical index	51.0 •	46.5	51.4 •	54.3	53.0 •	54.7	50.5 •	54.8
mental index	52.1	50.6	51.8 •	49.1	51.4 •	47.6	51.7 •	49.1
bodily pain	83 •	60	83	83	84 •	87	81 •	87
general health perc.	73	73	73	76	75	73	72 •	77
mental health	78 •	71	77 •	72	77 •	70	77 •	71
physical functioning	86 •	70	88	90	92 •	94	85 •	92
role emotional	84	73	85	82	84 •	75	84	84
role physical	81	82	81 •	90	86	82	80 •	90
social functioning	87	83	87	84	87	88	86	86
vitality	70	68	70	70	71 •	68	69	69

and unexperienced users combined. The 'difference' scores we found this way are quite similar to the difference scores of all cannabis users compared to all non-users (last year), except for the least outgoing ones. Here, the physical index was much lower for the experienced cannabis users, which resulted in a higher overall difference with non-users and inexperienced users. The now familiar pattern, of lowest scores for not very outgoing drug users, is established when we look exclusively at the physical index for experienced users only. On the mental index, our findings on the experienced cannabis users were still opposite to those on other drug users: the more outgoing the individual, the lower the average score as compared to non-users. This problem can not be solved here, and requires much further secondary analysis. Also, we may find some clues about this in our ongoing investigations into use patterns of experienced cannabis users in Amsterdam.

9.5 Summary and conclusion

In our household survey 1994, we introduced a new instrument, the SF-36 Health Status Survey. This instrument enabled us to obtain self-reported health scores of each of our respondents.

We compared health scores of drug users to health scores of non-users.

Conspicuous negative associations were found between health scores and pharmaceutical drug use, irrespective of lifestyle. To a lesser degree, we also observed negative associations for outgoing cannabis users, and home-oriented difficult drug users.

However, very outgoing users of difficult drugs (heroin, cocaine, amphetamine, XTC, LSD) showed no difference with very outgoing non-users. Alcohol users

scored, on average, higher than non-users of alcohol on all health dimensions, irrespective of lifestyle.

The differences in health scores between drug users, especially when divided into different lifestyle categories, does not show evidence for the existence of linear causal relations between drug use and higher or lower health scores. Probably, this is due to the large and contradictory variety of functions drug use can have. An overall view does not allow for other hypothetical conclusions than *that drug use can be supporting different lifestyles in which drugs either support depressing or stimulating functions*. In other words, some drugs may be used as reactions to health impairing conditions by one group of users, but for pleasure by another group of users (cf. difficult drugs). A further reaching hypothesis that is suggested by our data is that drugs (it is not really important which ones) may be taken for pleasure, for (self) medication, or alternatively for both functions. As suggested by our cannabis use data, a drug might even be chosen for both functions at the same time. Which of these functions or combinations of functions is chosen depends on many underlying variables that are hardly discussed in this chapter. Pharmaceutical drugs are exceptional in that they seem to be chosen mainly in functions relating to impaired health.

In our perspective, drug use does not *cause* the lower or higher health scores that we were able to measure. Drug use is a particular expression, or rather an adaptation, to general life conditions. In this sense, the use of drugs is active behaviour, intentional in relation to the functions it is required to fulfil.

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1 The SF-36 Health Survey is reproduced with permission of the Medical Outcomes Trust, Copyright © 1992. For permission to use the SF-36 Health Survey, contact the Medical Outcomes Trust, 20 Park Plaza, Suite 1014, Boston, MA 02116-4313, USA.

2 Personal communication Dr Neil Aaronson, Feb. 1995.

3 This outstanding score is approached only by outgoing alcohol users (105).

4 However, this score is very near the average score of the US population as a whole on the dimension of vitality (which is 61, see Table 9.2)

5 Average score on Social Functioning is 85.4 for the entire Amsterdam population, and 83.6 for the US population.

6 Self medication is a vague term, that may indicate purposes of drug use ranging from sedation to stimulation, depending on user needs.