Substance consumption and willingness to drive – a comparison of illegal drugs and alcohol

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Keywords
Illegal drugs, alcohol, willingness to drive

Abstract
The relationship between illegal drug consumption and the willingness to drive under the influence of illegal drugs was examined using the data of a field study in 1998 funded by the BAST. Young drivers at discotheques were contacted and asked to participate in a short interview concerning drugs and driving. Subjects who had consumed drugs and were driving at this evening or at similar occasions were asked for an extended interview and a driving-simulator test. Moreover, blood, urine and saliva samples were taken. Additionally, sober control subjects and subjects under the influence of alcohol were included. Due to the patterns of drug consumption, the analyses are constrained to the use of amphetamines / ecstasy, cannabis and alcohol. The results show that on the one hand users of illegal drugs are much more likely to drive under the influence of these drugs as (alcohol) drinkers. On the other hand, a substantial percentage of the drug users is not willing to drive after consuming illegal drugs. Moreover, a comparable positive relationship between level of consumption and willingness to drive under the influence of substances is found for users of illegal drugs and alcohol drinkers. The probability to refrain from driving under the influence of a psychoactive substance is increased when trips under the influence of these substances are condemned, when they are regarded as being risky and when there is a large likelihood of being detected by the police. In drug users, these attitudes are more liberal than in alcohol drinkers and the likelihood of detection for driving with illegal drugs is estimated very low. This explains the larger willingness to drive after consuming illegal drugs. However, modifying these attitudes and increasing detection rates may thus prove an effective tool to reduce this risky behaviour. As increasing detection rate will probably also influence the attitudes. This seems to be the most urgent task of preventing drug-impaired driving.

Introduction
While factors influencing the decision to drive under the influence of alcohol have been examined extensively, it remains uncertain if similar factors are important with regard to driving under the influence of illegal drugs. Additionally, illegal drug consumption (even without driving under the influence of illegal drugs) poses a special problem in Germany: If someone is caught having consumed illegal drugs, the governmental licensing agencies may re-draw
the drivers’ licence. It can only be re-granted if a medical-psychological examination
(‘medizinisch-psychologische Untersuchung’ MPU) has been passed by the driver in which
he or she has made certain that he or she doesn’t consume illegal drugs any more. Thus, the
ability to drive depends on refraining from drug use. While this practice may be criticized
from several points of view, an the underlying assumption remains to be proven: It is argued
that illegal drug consumers are either not able or not willing to refrain from consuming drugs
when driving and thus should not be allowed to drive at all. This assumption will be exam-
inied in the context of this paper by comparing attitudes and behaviour of drivers under the
influence of illegal drugs (cannabis, amphetamines and ecstasy) and alcohol.

Methods
The study was conducted in three larger cities in Bavaria, Germany (Munich, Nuremberg and
Wuerzburg). In and around these towns, 29 discotheques were selected where a large part of
the visitors attended by car and where experts rated drug use as highly probable. Between
July and November of 1998, 66 events were visited. 54.5% of those were so-called Techno-
Parties where amphetamines and ecstasy were supposed to be the dominant drugs. The other
45.5% consisted of Heavy Metal, Independent and various events with cannabis as the domi-
nant drug. 62 of the events took place on Friday or Saturday night. Depending on the time
schedule of the discotheques, the investigation times were either between midnight and 6 a.m.
or between 10 p.m. and 4 a.m.

For the investigation, a camper van was used where a driving simulator was installed. Addition-
ally, two tents were erected for an extended interview and a medical examination. A re-
search team consisted of 6 researchers. Two of these conducted short interviews with poten-
tial subjects in order to select participants for the intensive investigation. One researcher per-
formed an extended interview, another attended the driving simulator. A fifth researcher pro-
vided coordination between the different researchers. A medical doctor took blood, urine and
saliva samples and conducted a short medical examination.

In order to find the subjects of interest, different selection criteria were defined: First of all,
when researchers contacted a group of incoming or leaving people, they asked who the driver
was and selected him or her for the short interview. If no driver was present, people were
asked if anybody was driving regularly at comparable events (but just not at the evening of
the study). Thus, either a driver or a potential driver was selected for the short interview.

In the short interview, subjects were asked about drug use and driving under the influence of
drugs. The answers provided the basis for the second step of the selection process. First of all,
subjects under the influence of drugs were selected. Additionally, five groups of control sub-
jects were searched for: a performance control group (no drug use during the last year), an
alcohol control group (BAC between 0.03% and below 1.1%), a group of drug users currently
not under the influence of drugs (long-term effects of drug use), drugs users and drivers who
do not, however, drive under the influence of drugs, and subjects admitting driving under the
influence of alcohol. The latter two groups were not examined in the driving simulator but
just questioned extensively. Subjects meeting these criteria were asked to participate in the
intensive investigation including driving simulator, extensive interview and a medical exami-
nation. For the extensive investigation subjects were rewarded with DM 60 (about $30 US).
Overall, 3081 subjects were selected for the short interview and 2779 participated (90.2%
responder rate). From these, 832 were asked to participate in the extensive investigation, 503
took part in at least some parts of the investigation and n = 483 subjects provided answers in
the extended interview concerning the consumption of illegal drugs and alcohol and driving
under the influence of illegal drugs and alcohol. The following results are based on this sam-
ple of 473 drivers.
Results
Drivers were questioned about illegal drug consumption during the last year and the last month. 67% of the drivers who indicated drug consumption during the last year stated that they had been driving with illegal drugs. 40% of them drove with illegal drugs within the last 30 days. 75% of the drivers who indicated drug consumption during the last 30 days had been driving with illegal drugs. 64% of them did so within the last 30 days. Thus, a quite strong correlation between drug use and willingness to drive with illegal drugs is found. For alcohol, drinking and driving is more likely to be separated. Only 14% of the drivers who were sober at the time of the study indicated that they had been driving with a (self-estimated) BAC of 0.05% and above within the last 30 days. For drivers under the influence of alcohol at the time of the study, this percentage rises to 27%. Moreover, illegal drug drivers state to have been driving 10 of 30 days while alcohol drivers tell of 4 trips under the influence of alcohol during the last 30 days. Thus, on the one hand drug users show a larger willingness to drive under the influence of drugs as compared to the willingness of alcohol drinkers to drive under the influence of alcohol. On the other hand, a quite large percentage of drug users state that they do not drive when having consumed drugs. Thus, illegal drug use does not automatically imply driving under the influence of illegal drugs.

Table 1: Willingness to drive under the influence of alcohol and drugs with regard to the quantity of alcohol and drugs consumed.

<table>
<thead>
<tr>
<th>Alcohol consumption</th>
<th>Driving under the influence of alcohol</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Doesn’t drive</td>
<td>Drives</td>
<td>Overall</td>
</tr>
<tr>
<td>Low</td>
<td>32</td>
<td>25</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>56.1%</td>
<td>43.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>High</td>
<td>22</td>
<td>45</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>32.8%</td>
<td>67.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Overall</td>
<td>54</td>
<td>70</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>43.5%</td>
<td>56.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Drug use</td>
<td>Driving with illegal drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doesn’t drive</td>
<td>Drives</td>
<td>Overall</td>
</tr>
<tr>
<td>Medium</td>
<td>38</td>
<td>57</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>40.0%</td>
<td>60.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Strong</td>
<td>12</td>
<td>122</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>9.0%</td>
<td>91.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Heavy</td>
<td>1</td>
<td>118</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>0.8%</td>
<td>99.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Overall</td>
<td>51</td>
<td>297</td>
<td>348</td>
</tr>
<tr>
<td></td>
<td>14.7%</td>
<td>85.3%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

With regard to the quantity of drugs consumed, strong correlations were found which are shown in Table 1. Drug users were divided into three groups: (1) Medium drug use: cannabis, only, in up to 10 of 30 days, (2) strong drug use: cannabis, only, in 11 to 30 of 30 days or amphetamines / ecstasy in up to 10 of 30 days, (3) heavy drug use: amphetamines / ecstasy in 11 to 30 of 30 days or use of other drugs like cocaine, LSD, heroine. Subjects who did not
consume any drugs were divided into two groups with regard to alcohol consumption (n = 11 of these subjects were excluded because they did not consume any alcohol): (1) low alcohol consumption: below 45 grams pure alcohol per drinking occasion or less than 75 grams pure alcohol per drinking occasion and only up to 9 of 20 days with alcohol consumption. (2) high alcohol consumption: 45 to 75 grams of pure alcohol in 10 to 20 of 20 days or more than 75 grams of pure alcohol per drinking occasion.

With regard to alcohol consumption, 43.9% of drivers with a low consumption are willing to drive with a (self-estimated) BAC of 0.05% and above as compared to 67.2% of drivers with a high alcohol consumption. A comparable correlation is found with regard to drug consumption: 60% of subjects with medium drug use indicate a willingness to drive with illegal drugs as compared to 91% of subjects with strong drug use and 99.2% of subjects with a heavy drug use.

Thus, for alcohol as well as for illegal drugs the willingness to drive under the influence of a substance depends on the quantity and frequency of substance consumption: The stronger the substance use the larger the probability to drive under the influence of the substance. However, illegal drug users are more willing to drive under the influence of illegal drugs than alcohol drinkers are willing to drive with alcohol.

How can this be explained? On the one hand, cannabis users are convinced to be able to drive as well under the influence of cannabis as without drugs (1). This conviction is probably due to the fact that drivers think that they are able to compensate any negative drug effects. Experimental studies in the driving simulator as well as in real traffic have shown that drivers under the influence of cannabis drive more slowly than without drugs (e.g., 1, 2). This effect is opposite to that of alcohol where drivers tend to drive faster under the influence of alcohol.

The combination of the subjectively low danger exerted by drug consumption with the conviction to be able to compensate any drug effects contributes to the high willingness to drive under the influence of illegal drugs.

On the other hand this conviction is highly correlated with the subjective evaluation of illegal drug driving (‘How bad is it to drive under the influence of illegal drugs?’). Figure 1 gives the subjective evaluation (0: ‘not bad at all’, 10: ‘extremely bad’) with regard to quantity of drug use and the kind of drug used. Subjects who do not consume drugs regard driving under the influence of any drug comparable to driving with 4 beers (2 liters of beer, clearly above...
the legal limit). Drug users differentiate between different drugs. This effect is seen most strongly for cannabis: The higher the quantity and frequency of drugs consumed, the less driving with cannabis is condemned. Driving with amphetamines and cocaine is evaluated as somewhat worse, however less bad than driving with alcohol. On the one hand, this differentiation reflects the actual risk exerted by the drugs. On the other hand, subjective evaluation of driving with illegal drugs clearly depends on the quantity of drugs consumed. Last but not least the amount and effectiveness of police controls exerts a decisive influence. Figure 2 shows the answers to the question ‘How likely is it that drug consumption is detected in a police control?’ For alcohol, drivers indicate a detection rate of 40.3% and 45.5% for one and four beers (0.5 liters), respectively. For cannabis and stimulants this percentage lies below 5%.

![Figure 2: Estimated percentage of substance use detected in police controls with regard to the kind of substance used.](image)

**Discussion**

Summing up the results, both driving under the influence of alcohol and drugs depends on similar factors. Drivers are more likely to refrain from driving under the influence of a substance if they believe the substance to be dangerous and if they think it is bad to drive under the influence of the substance. This conviction results from the objective danger posed by the drug, by legal consequences of driving under the influence of the substance and by the probability to be detected when driving under the influence of the substance. The subjective evaluation will be less negative, if more of the substance is consumed. Thus, the large willingness to drive under the influence of illegal drugs as compared to alcohol does not depend on other decision processes in drug users but is due to a lower subjectively estimated danger posed by illegal drugs, a less negative evaluation of drug use while driving and a lower subjective probability to be detected when driving under the influence of illegal drugs.

On the one hand, illegal drug users are thus more likely to drive under the influence of illegal drugs as compared to alcohol. On the other hand, some percentage of drug users refrains from driving when being under the influence of illegal drugs. Moreover, influencing factors are similar when alcohol and illegal drugs are compared. However, the negative subjective evaluation of drug effects and driving under the influence of drugs as well as the probability to be detected when driving with illegal drugs is lower as compared to alcohol. For alcohol it has been shown that increasing the probability to be detected by the police is the most effective tool to reduce driving under the influence of alcohol. Thus, this also seems to be the most
important factor with regard to illegal drugs. From this point of view the most urgent task for drug driving prevention remains to increase the possibilities to detect drug use when driving.

References