

Factors predicting driving under the influence of illegal drugs

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Abstract

In the summer of 1998 the Center for Traffic Sciences in Würzburg (IZVW) conducted a large field study investigating factors affecting driving under the influence of illegal drugs. Researchers interviewed 2,779 drivers visiting Bavarian discotheques (responder rate 90.2%). From this pool, drivers under the influence of illegal drugs as well as drunk and sober drivers were asked to participate in an extensive interview (n = 503, responder rate 60.6%).

The analyses revealed that drunk driving (DUI) and driving under the influence of illegal drugs (DUID) share some of the same predictors: a high consumption of the respective substance, a permissive attitude towards driving while intoxicated as well as a permissive attitude within the social network. On the other hand, persons driving under the influence of illegal drugs (especially cannabis) consider their behavior less damnable than persons driving under the influence of alcohol. Therefore, user drivers refrain from driving less often than drunk drivers. Moreover, for the former deterrence variables are less important, and the peer group seems to have less influence. Instead, their decision depends more on personality variables.

Introduction

While factors influencing drunk driving (e.g., Norström, 1978; Berger & Snortum, 1986; Åberg, 1993) and characteristics of illegal drug users (e.g., BZgA, 1994, 1998; Herbst et al., 1996; Kraus & Bauernfeind, 1997; Schneider & Hoeltz, 1995; Schulze, 1998; Künzel et al., 1997; Tossmann & Heckmann; 1997) have been studied quite extensively, epidemiological data for driving under the influence of illegal drugs are scarce. Intoxicated drivers have hardly ever been questioned about their attitudes towards DUID, the behavior of their friends or their perception of deterrence factors. This situation is the more surprising since it cannot be assumed that factors affecting driving under the influence of illegal drugs are the same as those for drunk driving. First, illegal drugs constitute a heterogeneous group of psychoactive substances different from each other and different from alcohol in their effect pattern. Second, many countries have stricter regulations for DUID than for DUI. In Germany, for example, there is a zero tolerance regulation for driving under the influence of illegal drugs, but a 0.05% BAC-limit for driving under the influence of alcohol. Due to these differences the following questions have to be answered:

- What social, personal or criminological factors correspond with driving under the influence of illegal drugs?
- Do reasons for driving under the influence of illegal drugs differ from those for drunk driving?
- Is a specific means of prevention required for driving under the influence of illegal drugs?

Methods

To gather information on DUID, discotheques which are mainly accessed by car and where illegal drug consumption was supposed to be quite frequent were selected. These features were assessed in expert interviews. From July to November 1998, a total of 2,779 drivers were interviewed briefly on their drug consumption and driving behavior in front of selected Bavarian discotheques (responder rate 90.2%).

Table 1: Dimensions of the questionnaire and their indicator variables. Subj.=subjective, DUIP=driving under the influence of psychoactive substance, DUID=driving under the influence of illegal drugs.

related to consumption	sociodemographic data	education occupational situation size of city affinity to subcultural groups
	personality data	sensation seeking (SS-scale) psychoticism (EPI) neuroticism (EPI) extraversion (EPI) frequency of going out music-style of discotheque political preference delinquency in traffic
	health concern	rating of own health concern age of first alcohol consumption smoking age of first nicotine consumption number of cigarettes per day
	consumption	alcohol consumption illegal drug use
	consumption of network	illegal drug use of friends illegal drug use of parents heavy alcohol consumption of friends heavy alcohol consumption of parents
related to driving behavior	social integration	frequency of contacts quality of relationships peer orientation partnership met in a group or alone
	attitude towards driving and psychoactive substances	dangerousness of DUIP damnability of DUIP
	attitude of network towards driving with psychoactive substances	reaction of friends towards DUIP DUID of friends DUID of parents drunk driving of friends drunk driving of parents designated driver for alcohol designated driver for illegal drugs
	deterrence	yearly mileage frequency of police controls subj. probability of controls when DUIP subj. prob. of detection in a control when DUIP knowledge of the law subjective severity of penalty

From this pool, drivers under the influence of illegal drugs as well as drunk and sober drivers were asked to participate in an extensive one-hour investigation (n=503). This consisted of a driving simulator test, an extensive interview and a medical examination which included toxicological samples of blood, urine and saliva (responder rate 60.6%). The epidemiological results are discussed by Vollrath and Widera (see this volume). The results of the driving simulation are given by Krüger and Vollrath (also this volume). Since some subjects did not participate in all parts of the intensive investigation, 483 of the 503 cases remained for the following analysis. 82.4% of this sample were men which is certainly due to the fact that men drive more frequently than women and that only actual drivers or persons having driven by night during the last month were selected. The ages ranged from 18 to 38 with a mean of $m=22.9$ years ($s=4.1$ y.) and a median of 22 years.

Table 1 reveals the dimensions of the questionnaire and the respective indicator variables. The variables can be grouped into sociodemographic data, personality data, indicators of health concern, measurement of the subject's consumption level and of the consumption level of his social network. Furthermore, the interview covered attitudes towards driving while intoxicated, the respective attitudes of the social network and deterrence variables.

Sensation-seeking was measured with a modified version of the sensation-seeking-scale (Zuckerman, Eysenck & Eysenck, 1978) and extraversion, neuroticism and psychoticism with the short version of Eysencks Personality Inventory (Eysenck, 1969). With the help of the egocentric network approach (Bien, Marbach & Neyer, 1991) indicators of social integration, as well as percentages of drug and alcohol consuming friends and family members were gained.

In order to determine the relationships between these variables and DUID, groups of subjects with different behavioral patterns were compared. Figure 1 explains the logic of the analysis: First, information on 30-day prevalence is taken to separate illegal drug users from non-users. Second, the group of users is split into sub-groups of those who drive under the influence of illegal drugs (illegal-drug drivers) and those who do not (drug-sober drivers). Third, the group of non-users is divided into those persons who drive with a BAC of 0.05% and higher (drunk drivers) and those who avoid doing so (alcohol-sober drivers). For all dependent variables, t-tests were carried out to compare users and non-users, user and drug-free drivers, and drunk and sober drivers. Chi-square tests were taken with categorical variables; Mann-Whitney-U-tests were calculated with rank-ordered variables.

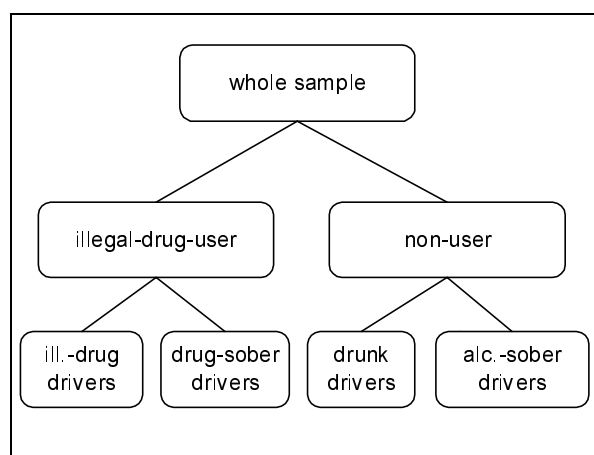


Figure 1: Dividing subjects for the analysis.

Results

Confounding with gender: The groups in figure 1 were partly confounded with gender in that there were more men in the category of drunk drivers than in the category of alcohol-sober drivers. There were no differences in age or gender between users and non-users and illegal-drug and drug-sober drivers.

Evaluation of different illegal drugs: Damnability and dangerousness of driving under the influence of illegal drugs, attitude of friends towards this behavior, and frequency and efficiency of controls were rated separately on scales from 0 to 10 for cannabis, ecstasy, amphetamines, cocaine, hallucinogens, and opiates. As a point of reference, subjects also evaluated “driving after 4 beers”. It emerged that subjects with illegal drug experience differentiate more than do subjects with less experience between the various types of illegal drugs. Figure 2 illustrates the differences between illegal-drug and drug-sober drivers in respect to the damnability-variable. Compared to those who drive after drinking, drug-influenced drivers show a higher tolerance towards cannabis and driving and consider driving under the influence of stimulants like amphetamines, ecstasy or cocaine still less damnable than driving drunk. Only drives with hallucinogens and opiates, which have very strong psychoactive effects, are rated worse than drunk driving. On the other hand, drug-free drivers consider the combination of driving and all illegal drugs as condemnable as driving under the influence of alcohol. Taking into account that the analysis of Krüger and Vollrath (see this volume) showed that the effects of cannabis are less detrimental than the effects of alcohol, it can be concluded that illegal-drug drivers rate damnability according to their experience with the drugs, whereas drug-sober drivers take only illegality into account.

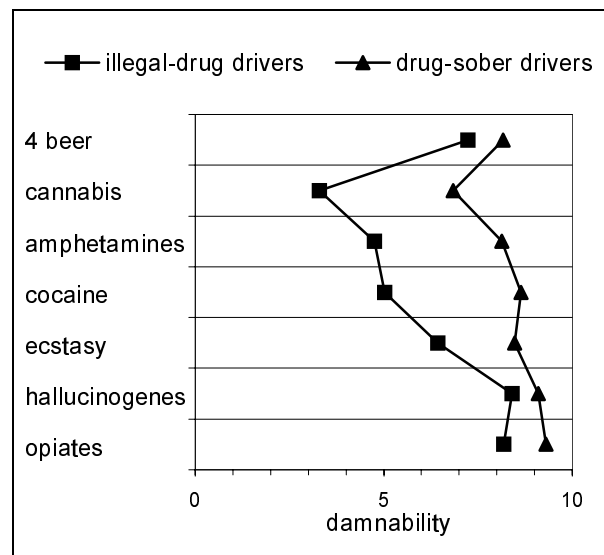


Figure 2: Ratings of illegal-drug and drug-sober drivers of the damnability of driving with psychoactive substances

Driving drunk versus driving under the influence of illegal drugs: Due to the high number of dependent variables a detailed value listing would go beyond the scope of this article. Thus, only an overview is given. Figure 3 shows every indicator (or dimension) of the questionnaire in which significant differences (alpha-level 5%) occurred between both drug-influenced and drug-free and drunk and sober drivers. Both drunk and illegal-drug drivers tend to be quite non-conformistic (high psychoticism-scores). They as well as their friends have a higher level of consumption than their respective control group. Additionally, they care less about their health. Drunk and DUID drivers and their friends have a more permissive attitude towards driving under the influence of the respective substances than do those who are sober and drug-free. This more permissive attitude is also illustrated in figure 4 and 5. Moreover, the two figures reveal that illegal-drug drivers are more permissive in respect to drunk driving and, vice versa, drunk drivers are more lenient in regards to driving under the influence of illegal drugs than are their sober control groups.



Figure 3: Comparison of influence factors on drunk- and on illegal-drug-driving.

In the view of the DUI-drivers, alcohol and illegal drugs thus seem to be exchangeable. This is supported by the finding that drug-influenced drivers also drive over the legal BAC limit, whereas drug-free controls try to avoid this: 63% of drug-influenced drivers indicated driving above the BAC-limit, in contrast to only 22% of the drug-free drivers.

On the other hand, drivers under the influence of illegal drugs differ in some respects significantly from drunk drivers: They have an affinity for the techno-subculture, they are especially risk prone (see figure 6), extroverted and politically left-wing. Moreover, the relationship between amount of consumption and driving under the influence is closer for driving under the influence of illegal drugs than for drunk driving. The behavior of drunk drivers is tied more closely to enforcement (figure 7) and severity of punishment than the behavior of illegal-drug drivers. Drunk drivers are less often controlled by the police, they rate probability of detection lower and they consider the possible punishment to be less severe than do their sober controls. Moreover, they have a higher orientation towards their peer group.

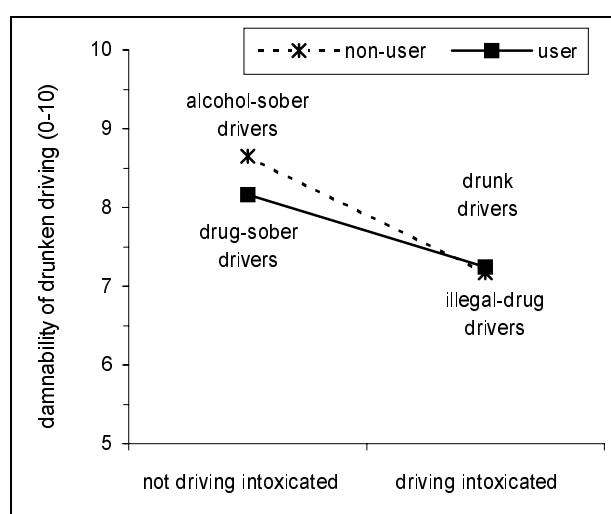


Figure 4: Damnability of drunk driving depending on driving behavior and psychoactive substance.

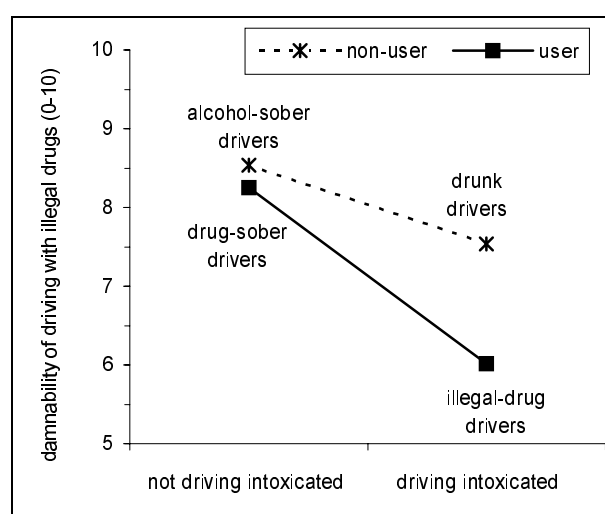


Figure 5: Damnability of driving under the influence of illegal drugs depending on driving behavior and psychoactive substance.

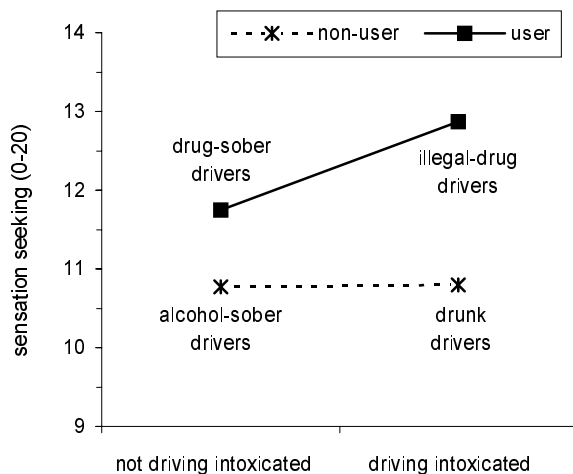


Figure 6: Sensation- Seeking depending on driving behavior and psychoactive substance.

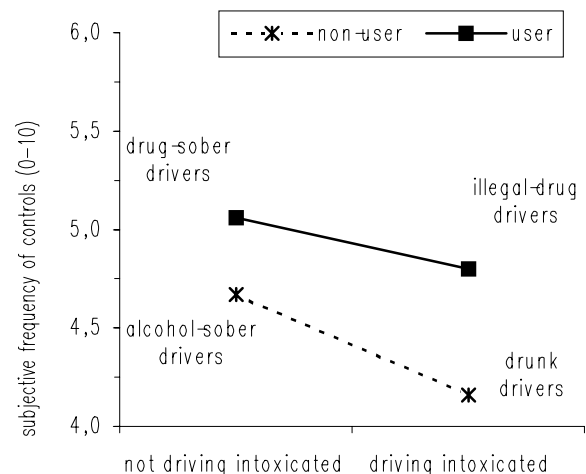


Figure 7: Subjective. frequency of controls for drunk-driving depending on driving behavior and psychoactive substance.

The impression emerges that the behavior of DUID drivers mainly depends on their level of consumption and their experience with the respective drugs. For drunk driving there is a higher awareness of the necessity to separate alcohol from driving. This may be the reason why the behavior of drunk drivers depends more on exterior factors like group pressure and enforcement, whereas driving under the influence of illegal drugs is more closely related to personality factors.

Consequences for prevention

There are mainly three approaches to prevent young drivers from driving drunk:

- prevention campaigns to enhance damnability of drunken driving
- prevention campaigns to try to change group behavior and
- countermeasures like stricter enforcement, lowering of BAC-limits etc.

For driving under the influence of illegal drugs the first two possibilities seem to be less promising. First, illegal-drug drivers appear to be less affected by their social environment. Moreover, no relationship between gender and illegal drug use was found pointing at the fact that women in the discotheque-population consume as many illegal drugs as men. The common method of suggesting to young women that they prevent their boyfriends from driving intoxicated must therefore fail in the context of illegal drug use. Second, it emerged that drug-influenced drivers seem to evaluate driving under the influence of illegal drugs according to their own experiences with the drug's effects. Apparently they consider these effects much weaker than the performance deficits due to alcohol. Therefore, general moral appeals to illegal-drug drivers are likely to be counteracted by those experiences. On the other hand, moral appeals may be effective for drivers who still have no experience driving under the influence of illegal drugs. Thus deterrence remains as the most effective way to impress illegal-drug drivers. To this end, full support should be given to the development of appropriate detection devices as well as to the implementation of drug recognition programs.

Acknowledgments

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