

Analyzing the decision making process of drunk drivers before driving

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1. Abstract

The aim of the present study was to further our understanding of the cognitions and motives underlying decision making in drunk driving (MacDonald, Zanna & Fong, 1995). Oriented to the theory of planned behavior (Ajzen 1985) and the model of alcohol-myopia (Steele & Josephs, 1990), aspects of the decision making process were investigated. 185 drivers who have been officially registered by the police for drunk driving were compared to a group of 145 drivers who have never been detected for drunk driving. Each subject was asked to imagine a standard scenario with low (BAC < 0.5 ‰) and one with high alcohol consumption (BAC > 1.1 ‰). Descriptive analysis shows that a decision process takes place, that the number of both, inhibiting and impelling beliefs is reduced under the condition of high alcohol consumption, and that there is a lack of inhibiting beliefs in the group of detected drivers. These drivers show a strong and significant tendency to neglect social norms and to lower the perceived risks of detection and accident.

2. Introduction

In Mecklenburg-Western Pomerania a major social issue is the problem of inadequate alcohol consumption. Each inhabitant of the region has an annual intake of 16 liters pure alcohol (average in Germany in 1997: about 11 liters, following DHS-standards). As a consequence of a high prevalence of alcohol abuse in this region, there is a lot of drunk driving and round about 10% of all accidents are alcohol related. In association with a comprehensive epidemiological study of health in Pomerania (SHIP) common and differential causes of drinking and driving are investigated in order to give advice how to reduce alcohol consumption effectively and how to increase drivers' norm conformity.

From a theoretical point of view it could be assumed that deterrence in Mecklenburg-Western Pomerania is not sufficiently established. Usually, deterrence is based on a combination of two factors: Risk of detection which describes the probability of getting controlled by police when driving while impaired and threat of sanction which describes the intensity of punishment. The effects of these "objective" legal reactions are to be seen in combination with reactions of the social context: Awareness of the official reactions leads to moral predicaments and social disapproval. Thus, delinquency is influenced by objective measures of the legal as well as negative reactions of the social system. There are a lot of empirical investigations which show that socially shared moral standards and social costs like social disapproval have even more impact on norm-conforming behavior than the formal factors of deterrence (s. Williams & Hawkins, 1986; Clarke & Cornish, 1985). Other influential factors are own and vicarious experiences of delinquency and legal reactions (s. Karstedt, 1993). Thus, drunk driving (driving while impaired or intoxicated) in Mecklenburg-Western Pomerania could be determined by a lack of formal and informal deterrence. On the one hand, there is a lack of sufficient measures of law enforcement and moral attachment, on the hand there even seems

The goal of the present research is to investigate this process of reasoning and balancing, which finally leads to drunk driving, and to gain insight into different patterns of reasoning with different populations of alcohol misusers. In an impressive program of research, Steele and his colleagues demonstrated that alcohol intoxication decreases a lot of cognitive capacities, thereby limiting the amount of information to which one can attend. This limitation concerns different aspects: The number of processed (impelling and inhibiting) beliefs is reduced, only salient cues get attention and the total perspective becomes dramatically short-sighted and narrow. Steele and Joseph (1990) describe this phenomenon of an impaired cognitive capacity as alcohol myopia. Thus, if inhibiting cognitive cues are salient, drunk driving will not take place, however, if salient impelling cues are present drunk driving will become more likely. MacDonald, Zanna & Fong (1995) confirmed this assumption in an experiment with contingent (impelling or inhibiting beliefs) and non-contingent items in a questionnaire (e. g. "If I only had a short distance to drive, I would drive while intoxicated"). For the non-contingent items there were no differences between the intentions of sober and intoxicated participants. In the presence of an impelling belief, however, intoxicated subjects were more likely to express intentions to drink and drive. Alcohol myopia may have diminished the capacity of intoxicated participants to attend to (non-present but well known) inhibiting cues.

There is a second effect of intoxication which is described as an inflation of one's self-evaluation or as drunken invincibility (Steele & Josephs, 1990). When impaired by alcohol, people decide to drive, because they feel invulnerable, and because they overestimate their driving capacities (or underestimate their impairment). This cognitive bias leads to a distortive perception of one's own capacities and risk assessment, which could have a strong impact on the intention of driving while impaired (s. Hull, 1987).

Based on these assumption in the present study different patterns of reasoning concerning impelling and inhibitive beliefs, which could have been processed in a hypothetical situation, are analyzed and systematically compared between participants who have been detected or not detected as drunk drivers by police. Our major working hypothesis is that the patterns of reasoning in favour of drunk driving will differ as a function of alcohol intoxication in a given hypothetical scenario.

3. Materials and Methods

3.1 Sample and design

A basic description of the project is to be found in Glitsch et al. (2000, in this volume). The present sample consisted of 330 persons. Subjects were divided in those participants who have been detected when they drove while impaired (n=185) or who have never been detected (n=145). Groups differed concerning their distribution of age and sex of participants. Self-reported annual alcohol intake in the group of detected drivers was 26,5 liters, in the group of non-detected drivers 14,9 liters. The group of detected drunk drivers imposes with lower scores on items related to moral attachment.

Material:

Each subject was asked to imagine a standard hypothetical scenario with low alcohol consumption (BAC < 0.5 ‰) and a second one with high alcohol consumption (BAC > 1.1 ‰). Following both scenarios, participants had to fill in a battery of questionnaires concerning impelling (15 items) and inhibiting beliefs (15 items) as well as prospective attitudes (23

items). On the basis of expert ratings, items containing impelling and inhibiting beliefs were selected out of a pool of 136 different causes and reasons of drunk driving. Attitude scales were constructed by reference to items of the Jenenser / Würzburger traffic-questionnaire (Krüger, 1998) and to a scale used by Donovan and Marlatt (1982). In order to get an impression of worrying before drunk driving, subjects were asked whether they normally worry about driving while impaired. 65,8% of all participants give a positive answer to this question. About 30 % deny any worrying.

In a first step data of all participants have been factor analyzed; in a second step comparative analysis of group means (detected vs. non-detected) were run (ANOVA).

4. Results

Based on 330 cases, a factor analysis of attitudes concerning drunk driving and of impelling and inhibiting beliefs show comparable patterns of factors. Scales of high loading items are of sufficient reliability (Cronbach's α between .75 and .89). Interpretation of these factors concerning attitudes and impelling and inhibiting beliefs are shown in table 1. Explained variance for both factor solutions amounts to 67,8 resp. 62,7 %.

Table 1: Factors concerning attitudes as well as impelling and inhibiting beliefs

Factors of impelling and inhibiting beliefs	Factors of attitudes
a) orientation to social norm	e) overestimation of driving capacities
b) perception of risk	f) social approval of drunk driving
c) successful experiences	g) risk of detection and accident
d) overestimation of driving capacities	h) unpleasantness of alternatives

In consideration of the fact that 65 % of all subjects report some worry about drunk driving, the cognitive structure of such worryings and decisions could be characterized as an interplay of excitatory and inhibitory arguments. Both kinds of beliefs are integrated and lead to an expression of an intention to drink and drive. Although the present data cannot be transferred to in vivo situations, they give some valid indications of importance and weight of impelling and inhibiting beliefs underlying general and specific deterrence. As factor analysis shows, social disapproval seems to be the major inhibiting factor, whereas overestimation of one's own capacities is the major impelling belief.

Comparisons of different group means on the extracted factors are summarized in table 2.

Table. 2: Means and standard deviations of detected and non-detected groups concerning attitudes as well as impelling and inhibiting beliefs

Extracted factors	Mean		SD		F-value	p
	d. ¹⁾	n.d. ²⁾	d. ¹⁾	n.d. ²⁾		
a) orientation to social norm	2.2	2.6	1.3	1.4	4.4	0.04
b) perception of risk	2.1	2.5	1.4	1.4	4.3	0.04
c) successful experiences	2.0	1.4	1.4	1.4	10.3	0.00
d) overestimation of driving capacities	1.9	1.9	1.0	1.0	0.0	0.99
e) overestimation of driving capacities	1.0	0.8	1.0	0.8	3.1	0.08
f) social approval of drunk driving	0.6	0.7	0.8	0.8	0.7	0.40
g) risk of detection and accident	3.2	3.5	1.0	1.1	2.8	0.09
h) unpleasantness of alternatives	3.3	3.3	0.9	1.0	0.3	0.57

Note: ¹⁾ d. = detected group; ²⁾ n.d. = non-detected group

As results show, subjects of the detected group show less orientation to social norms and are more convinced, that their positive experiences make them invincible. However, their perception of risk is slightly enlarged. Concerning attitudes, the non-detected group is more aware of the risk of detection and accident involvement.

Thus, as predicted in the working hypothesis, subjects who have been detected by the police show a strong tendency to neglect social norms and to believe in their own coping abilities. Additionally, they underestimate the risk of being detected or entangled in an accident.

A comparison of descriptive analysis shows that non-detected persons feel themselves inhibited to drive while intoxicated. They report more inhibiting beliefs, whereas detected and alcohol abusive persons show an evident lack of inhibiting beliefs (impelling aspects being equal). Furthermore, detected drivers refer to a smaller number of beliefs than non-detected ones. The total number of inhibiting and impelling beliefs as well as their structural distribution do not differ in both scenarios of alcohol intoxication.

5. Conclusion

In total, results of the present study confirm predictions. Drunk driving is the result of a conflict between legitimate and criminal behavioral alternatives and a decision in favour of delinquency. This decision is based on an interplay of impelling and inhibiting cognitive cues, especially concerning social approval of reference groups, risk perception, and drunk driving experience. Thus, the theory of planned behavior with its stress on subjective norms and controllability is corroborated by our empirical data. Whether such reasoning and worrying really takes place immediately before drunk driving starts, remains an open question. There is no direct road of access to such processes. Even experimental procedures based on controlled intoxications are of restricted validity (s. Jaccard and Turrisi, 1984). In everyday life people refer to such cognitive processes predominantly in the context of justification. In this context, impelling and inhibiting beliefs are retrospectively attributed and probably there is always a gap between fact and fiction. Alcohol myopia is a very feasible assumption in order to describe and to explain drunk driving, however it is rather difficult to get unambiguous evidence of this phenomenon.

There is some empirical evidence that shows that in cases of intoxication this reasoning process can be impaired (s. Steele & Joseph, 1990; Hull, 1987), although cognitive guidance is never totally eliminated. However, the question is whether drunk drivers realize their impairment by reference to internally and externally given cues (s. Jaccard and Turrisi, 1984) and whether the initial involvement or standing decisions as some kind of habitual routine have more impact on drunk driving than actual conditions of impairment. In view of the present data it can be assumed, that a habitual low moral attachment together with low self-control and salient impelling cues increase the probability of drunk driving.

The present results of a Western Pomeranian sample indicate such an impairment which in reality could lead to drunk driving, because impelling cues are more salient and strong inhibiting cues are missing. Thus, it could be assumed that as long as (especially young risk-seeking) people do not experience a consistent disapproval of drunk driving on the one hand and a strong social support for any kind of control measures of the police on the other hand, impelling cues will probably be dominant in actual conflicts of drinking and driving and consequently will strengthen the intention to drive while impaired. As already mentioned, person-

ality dispositions like sensation seeking or impulsiveness (s. Zuckerman, 1984) might strengthen this tendency. The same is true for the widely accepted belief that drunk driving is usual and inevitable. This belief probably will compensate all political initiatives of education and of more intense patrolling.

From a practical point of view it seems to be necessary in Western Pomerania to strengthen all approaches of social disapproval and of individual moral attachment. Drunk driving probably is a consequence of a general permissive attitude towards alcohol consumption, which leads to abusive drinking patterns and a lot of social problems. Thus, drunk driving could be seen as a symptom of some underlying general shortcomings. There is strong evidence in the present results that inhibitive mechanisms do not work effectively. As a consequence, the conflict of drinking and driving is resolved in the direction of drunk driving. In future time, measures of inhibition as well as inhibitive cognitive cues have to be strengthened.

6. References

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