

Recidivism among suspected drugged drivers in Norway with benzodiazepine detection

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ABSTRACT

During 1995, 3343 drivers were apprehended by the police in Norway due to the suspicion of influence by drugs. Benzodiazepines (BZD) which represented some of the most frequent detected drugs, were found in approximately 30% of the cases (n=1051), representing 14% (n=150) female and 86% (n=901) male drivers. In 8% of the cases (n=82), one BZD only was detected. The blood drug concentrations in most of these cases were above therapeutic levels. For the rest of the cases, one or more BZD were combined with illegal drug(s) (73%), other prescribed drugs (10%), or alcohol (15%). The frequencies of BZD detected among drivers from different Norwegian counties, correlated with BZD prescriptions from the same area. 62% (n=541) of the drivers had been arrested earlier for the same reason, when followed retrospectively for 11 years, representing 5,6 cases per rearrested driver. Alcohol was most frequently detected for those arrested for the first time before 1992, while BZD or illegal drugs were most frequently found for those with the first arrest during 1992 – 1995. Our study shows that apprehended drivers using BZDs are mainly represented by drug abusers, combining prescribed and illegal drugs and/or alcohol. A treatment program or other reactions, are thus necessary in addition to fines, prison penalty and suspension of driving licence.

INTRODUCTION

During the last years, driving under the influence of alcohol has gained considerable attention as a problem to road traffic safety (de Gier 1998). From several countries, increasing occurrence of drugged driving has been reported (Lillsunde et al. 1995; Augsburger et al. 1997; Christophersen et al. 1997a; Seymore et al. 1999). In Norway, the number of apprehended drivers due to influence of drugs, has been more than doubled from 1990 (n=2050) to 1998 (n=4417). During the same time period, the number of apprehensions due to drunken driving have decreased more than 30% to a stable level of about 5300 - 5500 cases per year (blood alcohol concentration (BAC) legal limit 0,05%). The number of apprehended drugged drivers in Norway appears to be much higher than most other countries

(population, 4, 3 mill inhabitants). The most common detected drugs are tetrahydrocannabinol (THC), benzodiazepines (BZDs), amphetamine and opiates. BZDs are frequently combined with illegal drugs and/or other prescribed drugs and/or alcohol (Christophersen et al. 1997a). In most BZD positive cases, the blood drug concentrations demonstrate drug intake above recommended therapeutic doses. It has earlier been documented that the frequency of rearrests among drugged drivers are about three times higher compared to drunken drivers during the first years after selections (Christophersen et al. 1997b) and that male drugged drivers have significantly higher rearrest rate compared to female (more than twice). Earlier results from recidivism studies, showed that apprehended drunken drivers from the 1980ies, continued as drugged drivers during the 1990ies (Christophersen et al. 1997a; Skurtveit et al. 1999). The purpose of the present study was to study earlier arrests among drugged drivers with BZD detections when followed retrospectively for 11 years (1995 to 1984) and to find possible changes in their drug use pattern from the first arrest. Differences in rearrest rate among male and female were followed, and also among multi-drug and single drug users with BZD detections. In order to follow if BZD detected among drivers were from medical prescription and pharmacy sales, the frequencies of BZD detections among drivers in different Norwegian counties, were related to BZD sales from the same area.

MATERIALS AND METHODS

The cases included in this study were selected from 1995. During this year, the police apprehended 3343 drivers due to the suspicion of influence by drugs other than alcohol. All blood samples (n=3156) with BACs below 0,15% were analysed for drugs by an analytical program covering the most frequently abused drugs in Norway (alcohol, amphetamines, cannabinoides, opiates, BZDs, cocaine) (Christophersen et al. 1997a). One or more drugs were detected in 1625 of the samples. The most common detected drugs besides alcohol in 1995 were tetrahydrocannabinol (n= 995), amphetamine (n=937), diazepam (n= 712), flunitrazepam (n=270) morphine (n=261) and 6 –monoacetylmorphine (6-MAM detected in urine) (n= 172). Other BZD detections were represented by clonazepam, oxazepam, nitrazepam and alprazolam. One or more BZDs were found in 1051 of the cases, representing 874 different drivers with BZD detections, as some of these drivers were apprehended more than once during the selection year. The selected drivers with BZD detections (n=874) were represented by 85% male (n=740) and 15% (n=134) female, mean age 29 and 30 years old, respectively. The drivers were further divided in multi-drug and single drugs users. They were also divided in groups related to the different counties from where the drivers were apprehended, to compare with BZD sales from pharmacies in the same area. The selected drivers were thus followed retrospectively for 11 years (1995-1984) and recorded as a recidivist when registered in our data system with a traffic case and with alcohol and /or drugs detected in their blood samples.

RESULTS

Our results showed that 62% (n=541) of the selected drivers with BZD detections had earlier been arrested due to drunken or drugged driving, when followed retrospectively during the 11 years. The earlier arrested drivers (n=541) were totally recorded by 3056 cases, or 5,6 cases per driver. The frequency of recidivism among male drivers was significantly higher (67%, n= 496) compared to female drivers (34%, n=45) ($p<0,001$) and 6% (n=48) of the male drivers were registered for more than 10 cases during the 11 years. No female drivers were registered for more than 10 cases. The corresponding figures for male and female drivers recorded with 4 – 10 cases, were 26 % (n=196) and 10% (n=13), respectively. The majority

of the recidivist drivers were between 23 and 32 years old (55%), with no significant difference between male and female. Most of the recidivist drivers were apprehended for the first time before 1992 (70%, n=380) while 30% (n=161) were recorded for the first time during the period from 1992 and to the end of 1995 (figure 1). Among the second group, 8% (n=43) were arrested for the first time in 1995 and were rearrested at least once during this year.

BACs above the legal limit (0,05%) were detected in 66% (n=249) of samples taken from those apprehended for the first time before 1992. The corresponding figure for BAC detections among those apprehended for the first time from 1992-1995, was 47% (n=75). Other drugs (amphetamines, BZDs, THC) had significantly lower detection rate among those apprehended for the first time before 1992. However, the occurrence of these drugs increased among those with the first apprehensions after 1992. Thus, the frequencies for THC at first apprehension before 1992 and from 1992-1995 were 12% (n=47) and 35% (n=35), respectively, for amphetamine 5% (n=19) and 25% (n=39), respectively, for BZDs 13% (n=48) and 48% (n=77), respectively (figure 1).

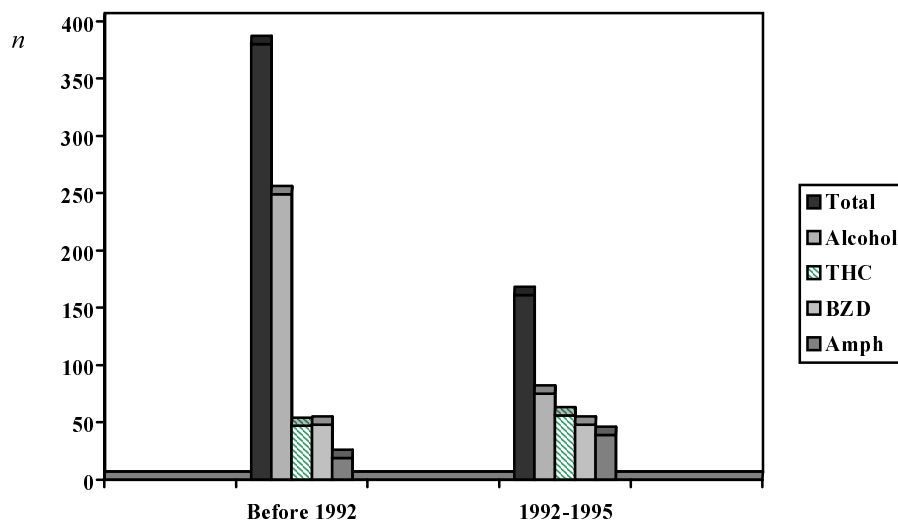


Figure 1. Recidivist drivers with BZD detections at selection in 1995, with earlier arrests back to 1984 (n=541). The drivers are divided in two groups: Those with the first arrest before 1992 (70%, n=380) and from 1992 to the end of 1995 (n=161). The most frequent drugs at first arrest are indicated.

Benzodiazepines combined with other drugs

In most cases selected from 1995, BZDs were combined with other drugs. The BZD blood concentrations were frequently detected at concentrations representing doses above recommended therapeutic levels. For 4% of the cases (n=43), only one BZD was detected at concentration which could represent therapeutic doses, while in other 4% of the cases (n=43), one BZD was detected at concentration representing doses above therapeutic levels (figure 2). For the rest of the cases (92%), BZDs were combined with other BZDs (10%, n=105), illegal drugs (73%, n=763) or one BZD only combined with alcohol (9 %, n=95) (figure 2). Totally one or more BZDs were combined with alcohol in 15% (n=158) of the cases. Our results show that drugged drivers with BZD detections are mainly represented by drug abusers, due to frequent multi-drug use (illegal drugs, other psychoactive drugs and/or alcohol) and blood concentrations representing doses above therapeutic levels.

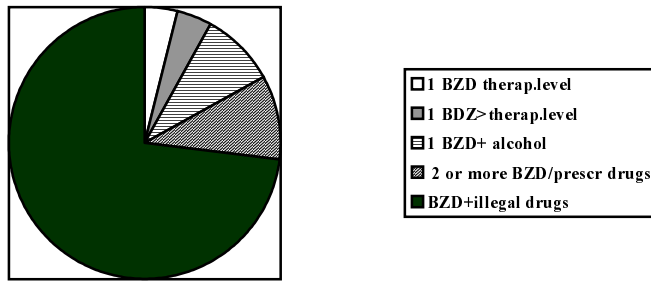


Figure 2. Apprehended drivers during 1995 with BZD detections ($n=1051$), alone (therapeutic and above therapeutic level), BZD combined with other drug; illegal drugs, other BZDs or prescribed drugs, one BZD and alcohol above the legal limit (0,05%)

BZD sales in different Norwegian counties related to BZD detections among drivers

According to statistics from Norwegian Health Authorities, the BZD sales from different pharmacies in Norwegian counties, show significant variations (factor x 3) when calculated as “Defined Doses per million inhabitants/Day (DDD)” (Norsk Medisinaldepot 1995). When relating BZD detections among drivers apprehended in the different Norwegian counties, with BZD sales from the corresponding area (calculated as DDD), a correlation coefficient of 0,68 was found (figure 3). Most counties showing high BZD sales, had high rate of BZD detections among drivers, while those with lower BZD sales had lower detection rate. The result was not influenced by variation in drugged driving cases from the different counties, which showed good correlation (0,98) when related to the number of inhabitants. Our results then indicate that BZD among drugged drivers are frequently represented by sales from pharmacies, or based on prescription from medical doctors. Our study indicates that

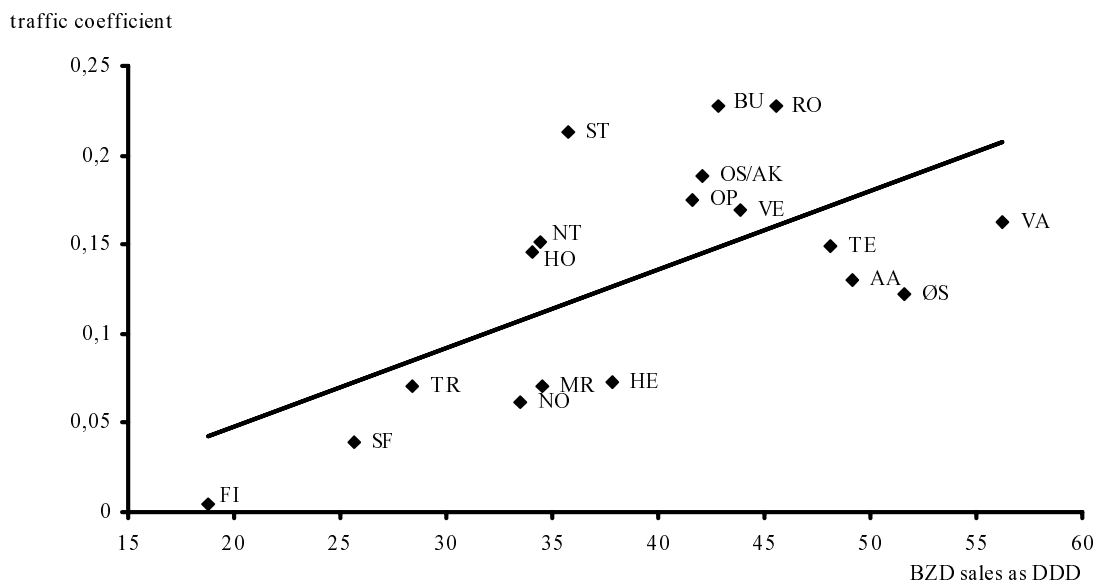


Figure 3. Traffic coefficient F (total number of BZD detections/ number of inhabitants in each county), related total BZD sales in Norwegian counties as DDD.

recommended prescriptions have not been followed. Some of the drivers may have used several doctors or pharmacies, or received their drugs from others with prescriptions.

DISCUSSION

BZDs represent one of the most frequently detected drugs among Norwegian drivers apprehended due to the suspicion of impairment. The compounds are often combined with alcohol and/or illegal drugs, normally responsible for increasing degree of impairment. It is therefore important to include BZDs when analysing blood samples from suspected drugged drivers for impairment evaluation. Our study also shows that the majority of Norwegian drugged drivers with BZD detections have earlier been arrested for the same offence, similar to what has been documented for drivers with amphetamine detections (Skurtveit et al. 1999). The majority of the drivers had earlier been arrested several times for the same offence, often starting before 1992 and mainly during the 1980ies, with alcohol as the most frequently detected drug at first arrest. Other drugs were more frequently detected among those with the first arrest after 1992.

Based on frequent multi-drug use and BZD concentrations representing doses above therapeutic levels, our study indicates that the majority of the drivers with BZD detections are drug abusers, frequently between 20 - 35 years. This age group is not commonly represented among BZD users in medical practise. Due to statistics from Norwegian Health Authorities, the majority of patients with BZD prescriptions are older (>50 years).

The correlation between BZD sales and BZD detections among drivers from different Norwegian counties, indicates that the BZDs detected among these drivers have been dispensed through prescribing doctors and pharmacies. Drug packages on the marked in Norway containing BZDs, are marked with red triangle as warning sign. However, due to our results, the warning has not been followed indicating that BZD prescriptions to drug abusers should be followed more strictly.

The penalty reactions in Norway for driving under the influence of drugs, are fines, conditional or unconditional prison sentences and the driving license is normally withdrawn for at least two years. However, high frequency of rearrests indicate that other reactions are necessary, to get these drivers away from the road in order to prevent accidents.

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