Driving behavior and personality in methadon patients

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dedicated to Professor Dr. Walter Schneider, secretary of the Zeitschrift für Verkehrssicherheit
in cause of his 65th birthday

Methadon-maintenance and driver's licence in Germany

In knowledge of the addiction to illicit drugs German authorities responsible for the driver's licence are liable to check what traffic law summarizes to so-called "personal integrity". They have to ask for more than a driver's "fitness in car-steering" and the absence of disturbances in psychomotor skills. What they have to do is to clear up the question of probability of a drug-influenced driving in future. Regular a "medical-psychological examination" is requested in order to prove the distance to addiction - which means a successful drug-therapy anyway.

German understanding of Fahreignung ("car-driving-ability") - or whatever the term may be - compiles psychological and medical skills of fitness as well as aspects of personality and social integration. Hitherto, just the first of this requirements has been focussed in traffic safety research concerning methadon maintenance. It is long since American scholars could show that psychomotor impairment might be neglectable, and German findings certainly were in the same direction, but policy keeps sceptical in here. Leading dogma remains: methadon-treatment defines addiction, addiction defines unfitness.

Recently a German-Psychological-Association-expertise compiled the psychological state of the art in measurement and examination of driver's ability [KROJ, 1995], which points out: "Being in methadon-therapy, in seldom cases a medical-psychological examination could be made, when the client finds himself treated and free of illicit drugs a minimum of twelve month and favorable social conditions can be found" [p.91]. The medical expertise on deseases and motorized traffic [DER BUNDESMINISTER für Verkehr] goes to the same direction. So, meanwhile still an addict under therapy, experts respect the possibility of participation in motorized traffic.

Aim of the study

The survey presented here was made in order to look for both psychomotor skills and the patients distance to addiction. Examinations enclosed laboratory-testing, driving performance
and anamnesis. An additional testing was made to prove the thesis that comorbidity is suggested between addiction and other (non-psychotic) psychic diseases, especially neuroses and personality disorders. There was a focus on driving tasks given by this study. However, performance skills, supporting the proof of psychomotor functions, cannot be fruitful for the question of "personal integrity", since German situation is as mentioned. The author considered driving performance as part of social behavior. His driving test constructed for this project payed tribute to the demand that (former) addicts are able to behave concurring with norm and in a social adequate manner. This paper to be held for ICADTS 97 will lay its center on this proceeding.

METHOD

Subjects
Subjects of the study were 22 patients methadon-treated by the public health office in Cologne with 16 males and 6 females. Doses ranged from 14 to 120mg (mean 77mg, stdev 34mg). Duration of addiction ranged from 3.5 to 27 years (mean 12.5, stdev 7.2), and there was a range in duration of treatment from 1 growing up to 5 years (mode 2). Age was from 25 to 45 (mode: category 30-34) with mostly ordinary school, 8 patients were educated on secondary non-classical school.

The reader should note the fact of selection in this sample. Entry-criteria made for participation in testing are listed in Table 1. Experience was that it is already up to such a basic checklist, formulating 'minimal-preconditions' to car-driving, to reduce the whole group of patients down to less than a third. Experience also was that the subjective importance of the question was not such as tremendous as expected. In general a lets say 10percent of all treated remains to be serious examined. For control 22 matched-pairs were formed in consideration of age, sex and education and used non-addicts. A drug-screening (Triage-TM, Merck) in both groups was made to filter abusers. The sample used here includes five THC-positive findings, so the results mostly are on a N=17 data basis (Since two patients fall back in abuse between driving task and laboratory-testing, sample partly is N=15). All 22 methadon-user were included to anamnesis.
Table 1: Entry-criteria for participation in the study

- Minimum in duration of treatment of six months
- No considerable somatic deseases (excluding Hepatitis-B or HIV)
- No psychosis
- No alcoholism
- No (medical) application of drugs others than methadon
- No abuse in illicit drugs
- Minimum in visus
- No non-drivers

Instrument

Table 2 presents all instruments used in this study. The listing was made in order to give an idea of the parameters tested; the original trade mark or name of test won't be known out of Germany and is omitted.

Table 2: Instruments and parameters tested

- Qualitative drug-screening before each setting
- Testing on breath-alcohol before each setting
- Driving performance task (s.below)
- Laboratory testing on visual perception and orientation
- Laboratory testing on parameters of reaction time and sensomotoric coordination
- Laboratory testing on peripheric perception and tracking
- Paper-pencil testing on cognitive perceptual speed
- Questionnaire for biographical data (incl. driving data)
- Questionnaire for personality-traits (e.g. emotional stability, aggressivity)
- Questionnaires for tendency in risk and actual state of being
- Questionnaire for the narcissistic personality system (incl. impulse-control)
- Questionnaire for diagnostic in neuroses (incl. frustration tolerance)
- Anamnesis (drug-career, actual consumptions incl. alcohol)
- Anamnesis (social background, contact to scene, motivation to therapy)
- Anamnesis (driving behavior, attitudes toward drugs in traffic)

The driving performance task was realized on a private suburb-look-alike area of approximately 0.5 kilometers in square. It includes a net of streets with sidewalks partly as well as crossings with "zebra-marks" for pedestrians. You will find buildings and greens. No hint was given to the driver that we arranged for closing to public during a measurement's run. Inbetween traffic...
movements of all kind could be observed. So all subjects were in mental awareness of others on the parcours. Expected speed was as the law is for town centers (km/h 50); signs asked for km/h 30 in three of the streets. A stopp-sign and a traffic light were added. Since a "tabula rasa" of free street-net was established, various sceneries could be formed with experimental character. On several places lane was narrowed asking for a skillful passing (simulated construction, parking car/boxes etc.). Other simulations asked for moderate behavior (man with baby-carriage on sidewalk, a cyclist coming, a partly wet driveway etc.). Figure 1 is presented just to give an idea of what kind this tasks were. For the complete description of setting please note KUBITZKI, 1997.

Testvehicle was a special equiped car allowing 360°-around video recordings and distance measurement; measurements parameters also were speed (km/h), break using (kp), steering wheels position in degree, to name the most important. Choosen frequency was a measurement all 2ms. Duration of a running was about 20 minutes for the 6,8 km course. Time was late summer 1995 on week-ends around 11am to 3pm. The driving task, together with additional questionnaires, was the first setting, followed by a second in the same week (laboratory testing, questionnaires, anamnesis) and a third if required, for the questionnaires’ handling had a wide range in duration. A 150.-DM consideration was given.

RESULTS

In accordance with other authors no differences could be observed between the groups tested in the psychological laboratory concerning reaction parameters, tracking, cognitive perceptual speed or other parameters of perception; no statistical tendency was computed either (base N=22 and 15). Findings in testing personality traits were merely different. Most important to the clinical practice the fact may be that no statistical significance was determined concerning the patients status of "impulse control", "frustration tolerance", "depersonalization/derealization", "emotional unstablenss" and other aspects of therapeutic evidence. Methadon-maintained patients are quite comparable to controls in terms of description of the organization and regulation of the narcissistic personality system. This finding cannot be used to reject the well-known clinical thesis, which indicates a comorbidity of addiction and narcissistic disorder in personality; but in fact, disturbances with an actual condition of suffer, as it appears to the patient, seems much more evidently located in the neurotic circle of diagnoses. A statistical difference could be detected on several scales including such "classical" as phobia. Further results were increased scores on scales concerning the status of depressivity. All data were verified for both sizes in sample. Table 3 presents the biographical findings, but an allmost wide range in data has to be noted, so standard deviation surpasses mean in single cases.
<table>
<thead>
<tr>
<th>Status of vocational training</th>
<th>patients frequency</th>
<th>controls frequency</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>complete education</td>
<td>16 (72.7%)</td>
<td>19 (86.4%)</td>
<td>no sign.</td>
</tr>
<tr>
<td>no education</td>
<td>6 (27.3%)</td>
<td>3 (13.6%)</td>
<td></td>
</tr>
<tr>
<td>on job</td>
<td>7 (31.8%)</td>
<td>19 (86.4%)</td>
<td>signif.</td>
</tr>
<tr>
<td>unemployed</td>
<td>15 (68.2%)</td>
<td>3 (13.6%)</td>
<td></td>
</tr>
<tr>
<td>detected alcoholized rides</td>
<td>7 (31.8%)</td>
<td>2 (9.1%)</td>
<td>no sign.</td>
</tr>
<tr>
<td>no alcoholized rides detected</td>
<td>15 (68.2%)</td>
<td>20 (90.9%)</td>
<td></td>
</tr>
<tr>
<td>professional drivers</td>
<td>6 (27.3%)</td>
<td>8 (36.4%)</td>
<td></td>
</tr>
<tr>
<td>no professional driver</td>
<td>16 (72.7%)</td>
<td>14 (63.6%)</td>
<td></td>
</tr>
<tr>
<td>loss of licence in cause of law violances in the past</td>
<td>11 (50.0%)</td>
<td>3 (13.6%)</td>
<td>signif.</td>
</tr>
<tr>
<td>no loss of licence</td>
<td>11 (50.0%)</td>
<td>19 (86.4%)</td>
<td></td>
</tr>
<tr>
<td>km absolved since licence achieved (in thousand)</td>
<td>m 224 sd 189</td>
<td>m 371 sd 327</td>
<td>Wilcoxon p 0.110</td>
</tr>
<tr>
<td>violances of traffic law</td>
<td>2.5 3.0</td>
<td>1.8 1.5</td>
<td>0.469</td>
</tr>
<tr>
<td>alcohol consumption (number of 0.2 liter beer/wine and 0.01cl liquor per week)</td>
<td>12.3 15.1</td>
<td>4.5 5.4</td>
<td>0.063</td>
</tr>
</tbody>
</table>

Anamneses led to the most important outcome related to the question of the patients distance to addiction and other aspects relevant to traffic safety. One of all twenty-two methadon users fulfilled the formal criterion of a one-years treatment without relapse in any abuse. All others confessed occasional heroin and regular hashish consumption in past. Twenty of them confessed regular "smoking" in presence, answers to the questions of actual heroin abuse were quite indifferent. Indications for abuse in alcohol and/or psychotropic medicaments (Benzodiazipene, Codeine) are evident for seven patients, while the answers of ten patients were allmost doubtful. Only five dialogs allowed the conclusion that no abuse is on practise.

Congruent with this results for most of the methadon-users no intrinsic motivation to therapy could be found: Only four of them clearly described their aim to get rid of the addiction. It was the majority, which did not belive in either their own vulnerabilty (the risk to get seduced by drug-scene) nor in the habit-forming power to the "stuff" (which was expected as a question of dosis). A real understanding of own drug career as disease was pointed out by six patients only. Distance to drug scene can be assumed in nine cases.
Fifteen of all twenty-two did not believe that heroin could really impair the driver's fitness, as long as the "shoot" isn't overdosed. Against this, seven patients gave different descriptions of impairment. Two could see a problem in smoking hashish concerning driving, the others could not. All methadon users reported heroin influenced rides as quite normal and regular for the past. The majority of them confessed actual driving under methadone.

Only few efforts in research have been made to enclose driving performance into the design, as ROBINSON & MOSKOWITZ (1985) did. In agreement with their findings no differences between the groups were evident in the present study. Methadon users and controls behaved in similar manner. But, in contribution to the complex setting, this finding includes that patients drove as "defensive" (or not) and "adapted to situation" (or not) as controls did. A "Four-step-hierarchy" in evaluation of driving performance data was used: Car-handling and skillful driving (remaining in lane, to park-in, passing a narrow etc.), accordance with traffic rules (at stopp-sign, maximum speed allowed etc.), the way of securing single maneuvers of a ride (visual behavior at crossings etc.) and adaptation to situation (speed and break-using while passing human beings etc.). Figure 2 presents the outcome for some important sceneries of the course. The curves (with one date per meter) did not differ significantly.

There is no space to present the whole data, but definitely no Wilcoxon-significances could be computed for either N=22 or N=17. So, for example, both groups violated speed limits with same quota, used similar speed in curves, showed similar visual behavior at crossings: both groups glanced in order "to give way" and passed with comparable speed in 14 (mean) of 16 situations. Same quota was between "stopp-sign-ignorers" and drivers, who stopped. Same mean speed, mean steering wheels position, break-using or side-distance to objects were found in all situations. Only a park-in-task was solved quite different: patients accepted a larger distance to curbstone and stopped their parking-maneuvers more quickly.

DISCUSSION

Drawing conclusions out of this findings you ought to be sure of your point of view concerning the question of criteria for participation in motorized traffic and what kind of your countries' policy in traffic law is. Since German law asks for psychomotor skills and parameters of fitness in second after the proof of a personal integrity, conclusions for our situation are clear. The patients certain distance to addiction is to be quested before a favorable prediction of driving-behavior can be made and the state of "ability" can be considered.

Anamneses showed that the "therapeutic effect" of methadon maintenance is poor, if a real distance to drug-scene, to abuse or if a patients motivation is expected, which based on the real wish to step out of any consumption and addiction. However, formal criteria were fullfilled in
only one single case. In all other cases no stable and credible abstinence was verified. Prognoses concerning drug behavior in future, including rides under heroin, cannot be others than negative in majority. A well fitness in psychophysiological and driving performance skills can only be a preconsumption, as set theory teaches: a necessary but no suffice condition. None the less the driving performance task used here clearly demonstrated that methadon-users can manage a ride in comparable skillful way and with the same adaptation to the situation as non-users (non-addicts) do. They are able to behave social adequate; but if they do in reality, certainly was out of possibility to prove by the experimental ride. Here you will find the limit given with driving tests: they can merely give any hint to the expert concerning the question of probability of behavior in future. Finding an answer to this question, outcome of anamneses are unless more evident, special the enormous lack in understanding (and acceptance) of the dangers of heroin in its all as well as in driving.

Final conclusion may be that a positive answer to the question of the methadon-user's participation in motorized traffic is possible. In fact, only a few single cases may remain to get attested a "personal integrity".

REFERENCES


Passing a curved narrow
Comparing the mean steerings position in degree

Approaching a traffic light turning to red
Comparing the mean speed and power to break

Approaching a crossing sidewalk with a cyclist coming
Comparing the mean speed and power to break

Passing a man with baby carriage
Comparing the mean speed