Assessment of personal resources for safe driving: The principles of medical psychological assessment in Germany

Thomas Wagner¹, Jürgen Brenner-Hartmann¹, Joachim Seidl¹, Frank Mußhoff², Hannelore Hoffmann-Born², Sabine Löhr-Schwaab²

¹ Deutsche Gesellschaft für Verkehrspsychologie (German Society of Traffic Psychology)
² Deutsche Gesellschaft für Verkehrsmedizin (German Society of Traffic Medicine)

1. Introduction

In Germany, the Medical-Psychological-Assessment (MPA) is since almost 60 years an important method to assess driver’s requirements for safe driving. According to German legislation a driver himself has to ensure that he or she is of good physical and mental condition and has not violated traffic legislation severely or repeatedly. Personal requirements to drive are therefore more than simply being able to steer a car, personality aspects (e.g. alcohol consumption style, risk taking, hazard perception), health and performance related factors (e.g. reaction capacity or concentration) are integrated in the general concept of fitness to drive. MPA has recently been shown to be highly effective in substantially reducing the number of subsequent driving under the influence offences, as shown in several evaluation studies, a most recent one published in 2012.

The presented manual is an introduction to the minimum standards of requirements connected with driving motor vehicles. It gives a description of the MPA-system and its procedure of decision by giving several examples to illustrate the stages of data collection and integration as well as an overview on the assessment methods used at the diagnostic process.

2. The core principles of medical psychological assessment (MPA)

When people get their driver licence in Germany, they are automatically presumed to be fit to drive a car. Only their vision is checked. This is justifiable as long as the driver concerned is not listed in one of the central registers (Central Index of Traffic Offenders, Federal Central Criminal Register). Thus the driving licence applicant is in a favourable situation because the administration believes in his positive characteristics to obey rules at traffic and keeping the laws. Then a novice driver will begin his motoring career with a positive appraisal of his driving fitness without this having been proven beforehand. It is the driver himself who erases this benefit through his own fault. MPA is only requested by the driver licence authority if the driver caused a severe offence, repeated driving offences and/or criminal offences, aggressive behaviour or he became diseased while those health risks might lead to injure behaviour on the road. That’s why assessing driver’s fitness (in the sense of aptitude or his ability to keep the rules) is important to shed light on the highly risky drivers. MPA is only conducted at the peak of the iceberg, only 0.2 % of the motorists are affected by this measure (about 100,000 medical-psychological assessments each year in contrast to a total of about 50 million motorists who hold a driving licence). Approx. 60 % of these assessments relate to alcohol abuse, whereby this percentage has been decreasing for years while the amount of assessments after drug abuse has been steadily increasing.

To ensure that the diagnostic process is applied using standard methods and generally accepted assessment criteria the guidelines for the evaluation of driver fitness of the Federal Highway Research Institute (Begutachtungsleitlinien zur Kraftfahreignung. Bearbeitet von Gräcmann, N., Albrecht, M., Bundesanstalt für Straßenwesen - Verkehrsblatt Dokument Nr. B 4022, Januar 2014.) are added by special assessment criteria which supplement the appraisal guidelines and help the assessors to prepare their individual examinations and suggest principles for collecting, combining and integrating
data and findings to come to an overall result at the end. The assessment criteria have been summarised in a major book called


The present compendium is based on this publication. The booklet here gives a quick overview of appraisal criteria and how to manage the data obtained within the diagnostic process.

As mentioned before, a driver’s fitness will only be questioned for a specific reason, which leads to an initial question describing the official reservations about a person’s driving behaviour. The question helps the assessor to select the strongest hypothesis and it limits the scope of an assessment and can also include further information on specific topics that are also of interest (e.g. a more comprehensive performance assessment with regard to alcohol dependence and group 2 driver licences).

Driving fitness is assessed through the interdisciplinary cooperation between a physician and a psychologist. The psychological expert is in charge to explore a person’s former behaviour, attitude, health and life situation from the time when his behavioural problems occurred and the consequences out of the negative experience with regard to his fault. An offending driver will have changed his ways through the experience of his problems and their consequences, whereby it still has to be seen if his behaviour has improved or worsened. This is why the following aspects are at the centre of attention in assessing driving fitness:

- How severe was the disorder at the time of the offence?
- What developments have taken place since the offence that would affect the driving fitness?
- How severe is the disorder (still) at the time of the assessment and what consequences does this have for the person’s driving safety?
- If a favourable finding has been assessed, how stable will it be?

Both assessors (psychologist and physician) combine their findings to find out the severity of the disorder, which triggered the traffic offence (see figure 1, y-axis called “problem characteristic”). Each individual assessment can be displayed on a coordinate system. The severity of the disorder is first entered on the Y-axis. The changes since that time are shown on the X-axis. A comparison of both axes allows the seriousness of the disorder to be followed over time. It also allows the stability of a (favourable) change to be assessed.

Irrespective of how a behavioural problem develops, it should always be examined if the disorder has caused serious damage to a person’s psycho-physical performance or his health. This leads to a third dimension on the coordinate system, the Z-axis, which would also potentially change over time and correlate with the characteristic of a problem. Individual traits, performance conditions and the client’s protecting resources would be entered on this dimension.
Figure 1: Problem characteristic and process of change combined in a coordinate system to describe stages of driver’s fitness - An example of drunk drive offence.

The combination of the X-, Y- und Z-axis as a general model of the driving assessment system is displayed in figure 1.

According to this schedule for example the severity of a drinking problem would first have to be established before the functional damages to a person’s cognitive performance and his health are determined. Both are dependent on each other and will affect a person’s expected future development. For example, with alcohol dependence it is reasonable to expect that physical-mental deficits will have manifested themselves, and also that the person concerned will frequently drive a motor vehicle while drunk. On the other hand, findings of physical damage such as an enlarged liver together with vegetative abnormalities would call for the diagnosis of a severe case of alcohol abuse.

To predict a person’s future behaviour his pattern of alcohol consumption pattern would first have to be checked. Here the events both before and after an offence are of significance. If several drinking and driving offences have already been recorded in the past, the prognosis will be worse than after an initial offence. On the other hand it can be assumed that the experience of a sobriety checkpoint or a crash will also have led to a change of attitude and behaviour. The examination will have to assess the extent and stability of a change in a person’s behaviour as well as in his physical and mental performance. A diagnosis of the change is of major importance for predicting a person’s future behaviour. The assessment focuses on examining whether or not sanctions such as withdrawing a driver licence and imposing a probation period have been successful as protective and educational measures.

An assessor can rely on various resources while the assessment criteria are a valuable aid for correctly assigning the significance and the validity of the individual findings to the initial question.
The assessment criteria usually follow a hierarchical structure according to the diagnostic hypotheses, beginning with the most serious disorder and moving on to less severe problems (i.e. from alcohol dependence to a failure to keep drinking and driving apart with socially still acceptable alcohol consumption). A hypothesis which indicates a less severe disorder can only be used as a decision-making tool after a diagnosis with regard to a more serious disorder is not relevant in this single case. A general rule that also applies to alcohol abuse is that once the relevance of hypothesis A 1 (alcohol dependence) has been rejected, alcohol-related questions with relevance of the following applicable hypotheses A 2, A 3 and A 4 will then be examined. If an expert decision has already been made within the scope of the examination of a hypothesis or secured through third-party findings, the following less serious disorders are of course no longer relevant and would therefore also no longer apply.

In order to make this classification, a series of diagnostic criteria are included with the hypothesis to enable the assessor to assign the case history data and his own findings to the seriousness of the disorder as described under the hypothesis. The criteria are defined and developed by assigning them indicators representing the individual findings. The indicators serve as diagnostic elements (findings, data) of a lower level of abstraction and are therefore used to bridge the gap between a situation established during the assessment (e.g. statements made by the client in a first interview) and the criteria.

The diagnostic criteria are supplemented by criteria for assessing a client’s change process which describes the problem changes in a client’s behaviour. These criteria represent requirements that must be completely fulfilled so that a favourable prognosis can be made. The criteria for describing changes are also assigned to descriptive indicators. They serve to elucidate the criteria without substantiating a decision as such. This remains the reserve of the criteria. In many cases indicators will only have an exemplary character or in individual cases they will describe the different conditions under which the criteria can be considered as having been fulfilled. They are usually weighted differently and do not claim to be complete. Occasionally individual (exonerating) indicators are assigned to so-called contraindicators with examples for when a criterion representing a requirement has not been fulfilled.

Figure 2: The system of hypotheses, criteria, and indicators.
The three levels of hypotheses, criteria and indicators thereby serve to explain with an increasing level of detail and concretisation advisory opinion, conclusions and findings regarding the situation and the surveyed individual findings. The individually surveyed data (indicators) can be assessed and weighted with regard to their contribution to a decision regarding the fulfillment of criteria whereby the criteria are important for making a diagnosis (confirming or rejecting the hypothesis).

3. Interventions and methodological “toolbox”

The small reader not only focuses on testing a driver but also presents measures which support promoting, restoring and securing driving fitness. Here behavioural interventions like training, rehabilitation, counselling and individual therapy rely on the critical self-reflection of the participants and their willingness to accept responsibility for their behaviour. The various counselling and therapeutical approaches differ in their objectives, their legal consequences and the allocation of competences, their scale and the length of time they take and according to the respective background of the participants as well as in the way in which the effectiveness of the programmes is controlled. Of course, those measures fundamentally affect also the participant’s lifestyle as well.

The last chapter of the book is an annex, which summarizes the methods at MPA: Chemical-toxicological tests, psychological test procedure, medical examination, psychological interview.

Chemical-toxicological tests are used mainly to detect the use of drugs or alcohol in determining driving fitness. Since evidence of intoxicants or of ethyl glucuronide as an alcohol metabolite remains in urine and hair longer than in blood, these are considered to be more suitable test material for checking abstinence.

The psychological tests used to assess driving fitness have to be developed according to general scientific principles. They have to be specifically selected for the purpose at hand and are therefore suitable for answering the question asked by the driver licence authority. The obtained results have to be professionally produced, analysed and interpreted.

The medical examination must be carried out in response to a specific problem with regard to an initial question and lege artis. The scope of an examination must fulfil minimum standards whereby it can be extended depending on the individual case history.

The psychological interview is not a “normal conversation”, but rather a structured interview designed to lead to a decision. It deals with the crucial factors that led to the recorded behavioural problem and with the change process possibly representing a favourable development in the client’s life. Here it is important to observe changes in the client’s attitude and behaviour and the reason for these changes as well as whether or not they will last.

A favourable prognosis against a troubled background means that the client must be willing to completely break with his past unacceptable behaviour. In changing his behaviour he also has to alter reinforcement structures, subjective norm levels and find that he will have to look for more appropriate ways to satisfy his needs and deal with stress. Instead of disregarding accepted standards he will now have to show his respect for these standards. In other words, it will have to be assessed if the person concerned meets the demands placed on a successful change in behaviour and a successful reintegration. This is what distinguishes a criteria-oriented change diagnosis from other diagnostic processes.

4. Conclusions

The special value of the guidebook presented at the congress is on one hand its interdisciplinarity in a combined medical and psychological approach. On the other hand this publication in English is the
first time to enable a major circle of interested researchers throughout Europe and other countries to access the contributions of psychology, medicine, toxicology and engineering to the assessment of drivers in Germany. A standardized examination process, principles and rules of data integration are important contributions towards a fair, transparent and valid driver assessment which supports the applicant in his or her attempts to get back a withdrawn driving licence. This also allows a person’s driving fitness to be reviewed and, as the case may be, to have this confirmed quicker than in other European jurisdictions. This publication might give some impulses towards the harmonization and further development of basic principles of assessing driver fitness in Europe, i. e. in the context of the 4th EU Driving Licence Directive (Annex III).

Submitting (Main)-author: Thomas Wagner, Deutsche Gesellschaft für Verkehrspsychologie, Ferdinand-Schultze-Str. 65, 13055 Berlin, Germany c/o DEKRA Begutachtungsstelle für Fahreignung, Köhlerstr. 18, 01239 Dresden, +493512855179, Fax +493512855200, thomas.wagner@dekra.com