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State of health, fatigue, psychophysical, and psychological characteristics, and their influence on road traffic safety. An evaluation attempt

Abstract

In analysing the causes of the dangers posed in road traffic, which often end up in accidents or other road incidents, we focus on evidence of violated road safety rules. This is an oversimplification of the problem, since it does not allow for getting to know the determinants of indicated violations which often come down to the broadly assessed state of health of road users, their psychophysical characteristics and personality, as well as their fatigue and mental state. The author of this paper not only analyses the aforesaid problems from the legal point of view, but also tries to look at them in an interdisciplinary way. The author further demonstrates how little we know about it; hence without in-depth exploration of the subject, preceded by credible scientific research, it will be extremely difficult to take reasonable preventive measures, whilst deterring with severe sanctions simply does not work.

Key words: road traffic safety, road safety rules, psychological characteristics, road rage

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The driver's state of health, as well as his or her psychophysical and psychological characteristics, are significant factors affecting traffic safety. The driver's sub-health is a major element posing a danger to traffic safety. Such risks can result from the driver's inability to drive a vehicle. They can also be due to physical or mental deficiencies, and even to personality traits which disqualify a particular person from driving¹. In the categories of road traffic risks, the most significant are personal, mental, medical, and anthropological dangers. The first ones include dangerous mental states and activities; the second bodily diseases, impairment, and the lack of certain organs or functions; and the third anatomical abnormalities².

The scientific rationale of this paper is an attempt to ascertain the reasons why drivers and other road users take risky and dangerous actions, with the omission of such circumstances as the impairment of psychomotor skills by consumed alcohol and the use of intoxicants, but in relation to the state of health, fatigue, and personality traits. The above deliberations are presented based on a dogmatic and juridical analysis, as well as on empirical research. The author makes an attempt to seek out the reasons for risky behaviour in road traffic, which can have a significant preventive implication. Thus, the deliberations presented in this paper are interdisciplinary, mostly based on practical determinations.

Therefore, the causes of accidents, as well as of other infringements of road safety, can be driver states or changes related to, in particular, spinal conditions, which lead to sudden blackouts and diseases reducing the speed of response and motor coordination, as well as vision and hearing defects³. Simultaneously, undoubtedly the driver's knowledge of his or her poor state of health, especially the awareness of, e.g., the possible loss of consciousness, is a deliberate violation of safety rules. A bold view in this regard was presented by A. Gaberle⁴, who wrote: "The majority of faults in road traffic result from the fact that people decide to drive despite the fact that their physical condition doesn't allow it". The matters related to the state of health, as well as the fatigue, of the person driving a motor vehicle, and the persons directly

1 R.A. Stefański, *Prawo o ruchu drogowym. Komentarz*, Warszawa 2008, p. 725 Cf.: K.J. Pawelec, *Sprowadzenie niebezpieczeństwa w ruchu drogowym*, Warsaw 2017, p. 127.

2 P. Boesler, *Zarys psychologii zapobiegania wypadkom drogowym*, Warsaw 1981, pp. 8–9.

3 R.A. Stefański, *Prawo...*, pp. 725–726.

4 A. Gaberle, *Najstabsze ogniwo (Człowiek jako źródło zagrożeń w ruchu drogowym)*, Warsaw 1986, p. 15.

engaged in the provision of traffic safety, and the impact of such conditions on the accident rate in the field of criminal law, constitute a quite new category, which is related to advanced technology, and the resistance of individuals to the impact of various factors. For instance, such factors include sustained concentration, monotony, noise, stress, etc. This raises two questions. How is the driver's culpability affected by his or her illness or fatigue, which might lead to the slowing down of the psychomotor reaction, an error, or a distraction, and consequently to an accident, a tragedy, or the causing of an immediate danger thereof? Does the state of stress or disease weaken the said ability, cause the driver to make mistakes, and in consequence infringe the criminal law? So, can a person be held liable for mistakes made in a state of half-sleepy dozing caused by fatigue or disease, or by being on prescribed medications? Or maybe his or her liability should be excluded or mitigated under the general criminal law regulations on the liability of persons whose capability to control their behaviour is to a large degree limited? These questions were asked nearly half a century ago by A. Bachrach⁵, but no unambiguous answer has been provided so far. According to the view which has been consistently maintained in case law, a driver who is aware of his or her state and decides to drive a car, or does not stop driving, bears the risk of liability for what might result from such behaviour. For instance, the Supreme Court stated, in its judgment of 12 April 1985, V KRN 175/85, (OSNPG 1986, no. 4, item. 50), the following: "If the accused was driving a motor vehicle in violation of the road traffic safety rules, and in particular being all the time aware of the possibility that he or she could have an epileptic seizure at any time, which occasioned a tragic accident, then with this act he or she met the statutory criteria of a crime (...)". Whilst the Court of Appeal in Warsaw, in its judgment of 24 May 2016, II Aka 355/15, expressed a view relevant to establishing the principle "A perpetrator of a road accident might possibly successfully plead a temporary and non-culpable loss of consciousness, only when he or she had suffered a medical condition, ailment, or other hidden dysfunctions, not revealed at the time of the incident, of which he or she had not been aware, and which ailments or medical conditions could result in an uncontrolled mental blackout. This is the only situation in which a possible uncontrolled falling asleep or collapsing could be beyond the perpetrator's capability and obligation to foresee".

5 A. Bachrach, *Przestępstwa i wykroczenia drogowe w prawie polskim*, Warsaw 1980, p. 274 et seq.

A poor state of health in the driver usually determines his or her use of certain medications, either prescribed or taken on one's own part. Their influence on the accident rate has not been investigated, although from time to time there appear cases in the cause list which are related to the influence of medications on the impairment of psychomotor skills, including most often within the meaning of Article 178a § 1 c.c. Let's support the above statement with the following example:

P.Ł. was accused of driving his car while under the influence of abusive substances in the form of benzodiazepines. According to unquestioned determinations, the substance in question was detected in the blood of the accused, but it was an ingredient in his medication Xanax SR, prescribed to him by a doctor. According to the procedure of blood collection, the psychomotor state of P.Ł. corresponded to a state of inebriation. The District Court severely punished the accused. It had no doubts as to his guilt. However, the Regional Court in Warsaw, when examining the appeal for the benefit of the accused, had second thoughts, so it reversed the decision of the first instance court, and referred the case for re-examination. An important fact was that the medication taken by P.Ł. had no indication whatsoever that it couldn't be taken by persons driving a motor vehicle, and no one provided such information to the accused, or at least such information wasn't included in the medical documentation⁶.

At this point, it is worth quoting the Supreme Court's judgment of 4 October 2013, IV KK 136/13 ("Biuletyn Prawa Karnego" 2013, no. 10, p. 18-25), in which the following principle was formulated: "The Court, when examining a specific case regarding an act consisting of driving a vehicle while under the influence, or after the use, of an abusive substance other than alcohol, must not only state the existence of such a substance in the body of the motorist, but must also determine whether it analogically affected his or her behaviour, as if in the state of inebriation. Only after establishing the foregoing would it be possible to ascribe an additional qualifying attribute to the offender, i.e. the state of being under the influence of an abusive substance, within the meaning of Article 178a § 1 c.c."

6 More [in:] K.J. Pawelec, *Leki a substancje odurzające*, „Paragraf na Drodze” 2014, no. 11, pp. 25-28.

Nevertheless, it should be noted, as emphasised by M. Kała in the paper “Lek a kierowca”⁷, that nearly 314 medications which are available on the market contain substances listed in the Annex to the Act on Counteracting Drug Addiction⁸. The list includes such popular medications as Librium, Valium, and the aforementioned Xanax. Besides, there is a wide range of medications which cause the impairment of psychomotor skills, and are prescribed in the case of certain chronic conditions. Adverse effects can also be produced by the ubiquitous aspirin, or remedies applied by allergy sufferers. Hence, the dictum formulated by the Supreme Court, although deserving approval, should be supplemented, especially with regard to medications containing prohibited substances. Therefore, before a given person is held criminally responsible, it is worth trying to find the answers to two fundamental questions. 1) Should a motorist be obligated to mistrustfully treat the information provided by the manufacturer who neglects to put any warning on the medication? 2) Should a motorist compare the composition of the medication with the Annex to the so-called Drug Act?

In answering the questions posed above, it seems to be unreasonable to impose such obligations on motorists. It is the duty of the prosecuting authorities to gather evidence showing, for instance, that the motorist took the medication not for therapeutic purposes, but to be intoxicated. In any case, the reactions of a human body to certain substances can vary. Even if a specific preparation is taken for medical purposes, it can cause an unforeseeable disorder in the psychomotor skills. A situation which is as complex as the one of the driver’s taking medications when suffering from an ailment can also apply to fatigue as the cause of an accident or other road crime. The Supreme Court, in its judgment in court file number IV K 273/60⁹, expressed the position that “the accused shouldn’t have driven a car in a state of indisposition. If the defendant had known that he was tired and sleep-deprived, he should have foreseen that further driving in such a state could lead to a life-threatening catastrophe”. As we read in the Supreme Court’s judgment of 15 October 1960, III K 632/60¹⁰, the guilt of the accused did not lie in falling asleep while

7 M. Kała, *Lek a kierowca* [in:] *Problematyka prawna i techniczna wypadków drogowych*, Kraków 1998, pp. 466–470. Cf.: K.J. Pawelec, *Dowody w sprawach przestępstw i wykroczeń drogowych*, Warsaw 2011, pp. 77–80.

8 Journal of Laws of 179, no. 179; item 1485 as amended.

9 Quoted after A. Bachrach, *Przestępstwa...*, p. 274.

10 The judgment referred to after K.J. Pawelec, *Sprawadzenie...*, p. 152.

driving a car, or in being unable to resist a bout of somnolence, but in driving at night, in difficult conditions, in a state of extreme fatigue, knowing that in this unfavourable situation his mental powers were not sufficient for driving the car. In such a state, the motorist was not allowed to drive the car, which was indicative of an intentional violation of the safety rules applicable in road traffic. However, if the motorist had been unable to foresee such a situation, then Article 31 § 1 or 2 c.c.¹¹ might apply, if, due to mental disturbances, his or her abilities to control his or her behaviour had been largely limited, or had not existed at all. According to conducted research, even in cases of the loss of consciousness or memory, no actions were taken to verify the presented versions, which were important for the defence of the accused. The accused persons were convinced that the most reasonable solution for them would be to submit voluntarily to punishment, although lenient, which was probably the main argument for them not to raise a defence, and thus not to require the prosecuting authorities to take further actions. In the Supreme Court's guidelines in the judgment of 1975, V KZP 2/74, (OSNKW 1975, no. 3-4, item. 33), the matter of fatigue was addressed in the following sentence: "The driver of a motor vehicle basically may not effectively refer to fatigue as an attenuating circumstance". This thesis was expressed non-categorically. So the court provided for some exceptional situations, which would objectively justify the decision to drive even when made by an extremely exhausted driver.

A separate problem, which is significant for the safety of road traffic, is undoubtedly related to deviant behaviour not resulting from disease, insobriety, or a state after the use of psychoactive drugs, which might incline to expressing a view about the inclinations of certain persons to cause hazards or commit crimes and offences. Inclinations to cause accidents have been researched for years, but with little effect. The only determination was made based on statistical data, according to which the persons' being punished for crimes were more often associated with accidents' being caused, just as were the persons infringing the Law on Road Traffic¹². In a nutshell, the view of T. Willet, according to which road offenders drive their vehicles the same way as they live, may not be considered as scientifically proven¹³. Nevertheless, it is worth noting the view of J. Okuń who wrote: "all attempts to subsume

11 See more broadly: K.J. Pawelec, *Sprawozdanie...*, p. 130.

12 A. Gaberle, *Wypadki drogowe. Aspekty kryminologiczne*, Warsaw 1986, pp. 129-138.

13 T. Willet, *Criminal on the road. A study of serious motoring offences and those who commit them*, London 1964, no. 310.

anything which might contribute to increasing road traffic danger posed by people, due to flaws of a biological nature, sensorimotor disorders, or personality variables, and stretching it to both casual and permanent states – all this burdens this term with ambiguity, and even causes a terminological mess. It is still unknown what an inclination to accidents is: is it an unfavourable constellation of psychophysical factors, a syndrome related to an improper formation of personality, or maybe one peculiar factor which hasn't been identified so far?"¹⁴. So, the author referred to above aptly emphasised that "when we don't know what to study, it's difficult to achieve full success in this field"¹⁵. Therefore, it should not be surprising that we can observe an abandonment of studies on inclinations to accidents, or at least on the use of this term. Nevertheless, it should be noted that road users, both offenders and victims of accidents and other road incidents, repeatedly undertake risky actions or omissions, or cannot prevent such situations. A risky situation is construed by T. Tyszka¹⁶ as a situation of choice, involving actions of which the effects are uncertain, but they depend on factors which are beyond control of the person who makes the choice. Perception, identification, and evaluation of risk can be determined by various factors. According to M. Goszczyńska and T. Tyszka¹⁷, the most important of these are the size and weight of the infringed human needs and values, the immediacy of the adverse effects of hazards, their disastrous nature, the persistence of adverse effects, the perceived relative frequency of accidents, the possibility to control the effects of a risky incident, the voluntary character of exposure to risk, the conceivability of the causes and effects of an incident, the degree of familiarity with the danger, and the level of aroused fear. As B. Hołyst¹⁸ wrote, the voluntary nature of exposure to risk is one of the most important dimensions people take into account when evaluating the riskiness of the choice made or projected. He emphasised the significance of the carelessness of both the perpetrator and the injured. As a rule, it was connected with the unawareness of the effects of the behaviour. He distinguished incidental carelessness as specific to road

14 J. Okuń, *Psychologia bezpieczeństwa pracy* [in:] red. J. Okuń, *Psychologia przemysłowa*, Warsaw 1977, pp. 515–518.

15 Ibidem, p. 501.

16 T. Tyszka, *Psychologia pułapki oceniania i podejmowania decyzji*, Gdańsk 1999, p. 187.

17 M. Goszczyńska, T. Tyszka, *Jak spostrzegamy zagrożenia*, „Przegląd Psychologiczny” 1986, no. 1, pp. 39–64

18 B. Hołyst, *Wiktymologia*, Warszawa 2011, p. 1097.

behaviour¹⁹. Danger to life or health arises not only in extreme situations, but also when for a long time, often in a working environment, people are exposed to harmful factors, often not fully realising the effects they might cause. Such factors include overwork, which can have a pathological dimension, the effects of which can unravel, even after many years²⁰.

As mentioned above, taking actions (or omitting to act) can apply to every road user, including the injured. The possibility to control such behaviour in road traffic is extremely limited, which stems from the fact that an accident, a catastrophe, or causing the immediate danger thereof, is an indivisible and unexpected process. It can be determined by aggressive actions by both the offender and the victim, which requires separate deliberations. Unfortunately, it is extremely difficult to undertake such studies, especially based on practice, since repeatedly assumed legal qualifications absolutely do not apply to the offences defined in Chapter XXI of the Criminal Code, and in Chapter XI of the Code of petty offences. An example can be the Supreme Court's decision of 10 January 2019, III KK 531/19, (OSNKW 2019, no. 2, item 13), regarding the conditional suspension of the imposition of the penalty of imprisonment on the person committing an act of hooliganism, or on the perpetrator of the crime as defined in Article 178a § 1 c.c. In the case at hand, two offenders, jointly and in collusion, publicly and without any reason, beat the injured party. The foregoing happened in connection with a minor incident in road traffic. The Supreme Court emphasised that imposition of the penalty of imprisonment for committing an act of hooliganism, as well as for the crime under Article 178a § 4 c.c., can be conditionally suspended only when the court finds a particularly justified case, as provided for in Article 69 § 4 c.c.

Situations of aggression in road traffic, which should be of concern, are not rare. The media are increasingly reporting such incidents, exposing brutal reactions, these often being acts of hooliganism. However, they do not explore the problem, which is difficult and complex, and at the same time not fully investigated. In general, it can be stated that, regardless of the adopted criteria, all aggressive acts connected with risky behaviour have two characteristics, i.e. they are unwanted, aggravating, and cause distress, loss, and pain to the victim; and they occur in the process of interactions between people²¹. While the term 'aggression' is often used, it has no generally accepted definition but

19 Ibidem, pp. 1103–1109.

20 Ibidem, pp. 1107–1107.

21 R.A. Stefański, *Prawo...*, p. 726.

those who investigate the problem admit that this is “behaviour intended to make the other person suffer, whilst that other person is motivated to avoid the suffering”²². Currently, the authors postulate using the general definition of ‘road rage’ as meaning containing milder and sharper forms of aggressive reactions on the road. They include rushing past horn-honking, flashing lights, shouting, threatening, driving very close, etc. Behaviour of this type is perceived by most drivers as being aggressive, but on the other hand they might do the same themselves²³.

In general, it may be stated that aggressive driving means using a car in a way posing the danger of an accident or another road incident, or at least posing danger to traffic safety. Such manner of driving a car is characterised by speeding, disregard for traffic regulations, risky manoeuvres, disrespect for other road users, forcing the right of way, etc. The studies indicate an increase in the frequency of the phenomenon called road rage. The term ‘road rage’ usually means a physical attack on another road user, most often with the use of the vehicle or another tool. The most frequent causes of such outbursts are slow driving by another motorist in the middle or left road lane, overtaking on the right side, driving faster than other vehicles, etc. A phenomenon related to road rage and aggression is so-called anger behind the wheel, which means the occurrence of this type of emotion while driving a vehicle, regardless of the outcome of the excitement. Anger increases the likelihood of dangerous behaviour on the road, and impairs perception, attention, information processing, and reflexes. Possible reactions following the feeling of anger include physical attack, verbal aggression, non-verbal showing of disapproval, indirect aggression, and suppressing fear. This fear might be already exhibited at an early stage, e.g. through the tone of one’s voice, or facial expression when speaking²⁴.

At this point it is worth trying to identify the factors which contribute to road rage intensification. They include environmental and individual factors. The environmental factors are such elements as traffic congestion and observed obstacles in traffic, high air temperature, and the anonymity of drivers. The

22 B. Wojciszke, *Człowiek w relacji z innymi* [in:] red. J. Strelau, *Psychologia*, t. 3, Gdańsk 2006, pp. 147–148. Cf.: B. Hołyst, *Psychologia kryminalistyczna*, Warszawa 2018, pp. 1730–1731.

23 Cf.: D. Shinar, *Aggressive driving. The contribution of drivers and situation*, „Transportation Research” 1998, no. 1, pp. 137–160.

24 See more broadly: B. Hołyst, *Przeciwko życiu. Wymiar kryminologiczny i psychologiczny*, t. 3, Warsaw 2018, pp. 631–634.

individual variables which potentially contribute to road rage intensification, and have been repeatedly observed, include differences in the behaviour between men and women, younger drivers with little experience, and those with substantial experience. Correlations between road rage and personality traits are also worth considering²⁵. When analysing the correlations between road rage and personality traits, it emerged that the traits mostly linked with road rage were excitability, impulsiveness, susceptibility to boredom, finding oneself being treated unfairly in the workplace, and self-esteem²⁶.

To sum up, it may be stated that the studies on road rage in various dimensions and aspects can be a crucial seedbed for road accident prevention. It is assumed, and this is quite a common view, that road rage should be singled out because of the uncommon problems with interpersonal communication, limited by the available means of expression, and the ambiguity of interpretation²⁷. The studies on the phenomenon of road rage in various dimensions and aspects should become the basis for formulating a concept significant for road rage prevention. It could be assumed that road rage should be singled out because of the uncommon problems with interpersonal communication, limited by media of expression and ambiguity of interpretation. Undoubtedly, looking at this problem only as a violation of road safety rules, and an aggravating circumstance, is an oversimplification²⁸.

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25 Ibidem, pp. 634–636.

26 Analysis and Prevention 2006, no. 38, pp. 800–810; K. Grunt-Mejer, J. Grunt-Mejer, *Agresja drogowa, jej uwarunkowania i metody pomiaru*, „Psychologia Społeczna” 2011, no. 6, p. 163.

27 B. Parkinson, *Anger on and off the road*, „British Journal of Psychology” 2001, no. 92, pp. 507–526.

28 K.J. Pawelec, *Agresja w ruchu drogowym i jej karno-materialna ocena. Zagadnienia wybrane*, „Monitor Prawniczy” 2018, no. 3, pp. 128–139.

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Stan zdrowia, zmęczenie, właściwości psychofizyczne i psychologiczne oraz ich wpływ na bezpieczeństwo ruchu drogowego. Próba oceny

Streszczenie

Analizując przyczyny wywoływanych zagrożeń w ruchu drogowym, które częstokroć kończą się wypadkami lub innymi zdarzeniami drogowymi, skupiamy się na wskazaniu naruszonych zasad bezpieczeństwa. Jest to znaczne uproszczenie problemu, gdyż nie pozwala na poznanie determinantów wskazanych naruszeń częstokroć tkwiących w szeroko rozumianym stanie zdrowia uczestników ruchu, ich właściwościach psychofizycznych, osobowościowych, jak też zmęczeniem oraz stanem psychologicznym. Publikacja niniejsza analizuje te problemy nie tylko od strony prawnej, ale stara się spojrzeć w sposób interdyscyplinarny. Wykazuje, jak mało wiemy na ten temat, toteż bez dogłębnego poznania zjawiska, poprzedzonego rzetelnymi badaniami naukowymi, niezmiernie trudno będzie o podjęcie rozsądnych działań profilaktycznych, a odstraszenie surowymi sankcjami pro prostu nie działa.

Słowa kluczowe: bezpieczeństwo ruchu drogowego, zasady bezpieczeństwa, właściwości psychologiczne, agresja drogowa