

## **Selected aspects of personality and risky road behaviours - initial reports**

### Abstract:

The publication describes initial studies concerning the connection of personality traits (extraversion and neuroticism by Eysenck, locus of control and attitudes towards hazards and risks) and the most common risky road behaviours.

The study used two scales of "Eysenck Personality Questionnaire-Revisited", "The Scale of I-E at Work" by Xymena Gliszczyńska, "Test of Risky Behaviours" by Ryszard Studenski and an own tool, based on previous studies conducted on a group of amateur drivers, describing risky road behaviour. These are defined as intentional behaviour of motorized road users as a threat to road safety. According to the Polish law, the majority of them are defined by the Polish Road Traffic Law.

The presented results were obtained in the course of research conducted in 2009 among category B drivers, using vehicles for private purposes; in nearest future studies of a wider scope will be targeted at drivers working in sanitary transport.

### Streszczenie:

Publikacja opisuje badania wstępne dotyczące powiązania cech osobowości (neurotyzmu i ekstrawersji wg Eysencka, poczucia umiejscowienia kontroli oraz postaw wobec niebezpieczeństw i zagrożeń) z najczęściej występującymi drogowymi zachowaniami ryzykownymi. W badaniach wykorzystano dwie skale „Kwestionariusza Osobowości Eysencka”, „Skalę I-E w pracy” Xymeny Gliszczyńskiej, „Test Zachowań Ryzykownych” wg Ryszarda Studenskiego oraz narzędzie własne, stworzone w oparciu o wcześniejsze badania ankietowe prowadzone na grupie kierowców – amatorów, opisujące drogowe zachowania ryzykowne. Te definiowane są jako celowe zachowania zmotoryzowanych uczestników ruchu drogowego o charakterze zagrażającym bezpieczeństwu na drogach. Z punktu widzenia polskiego prawa większość z nich dookreślona jest przez Ustawę Prawo o ruchu drogowym. Prezentowane wyniki uzyskane zostały w trakcie badań prowadzonych w 2009 roku wśród kierowców posiadających prawo jazdy kategorii B, wykorzystujących pojazdy do celów prywatnych, docelowo badaniami zakrojonymi na szerszą skalę mają być również objęci kierowcy pracujący w transporcie sanitarnym.

## **INTRODUCTION**

This thesis is the result of reflections on the subject of risky road behaviour in Poland and constitutes a basis for developing the discussed subject and deepening knowledge within the scope of works on the PhD dissertation. The results of studies used below constitute the effect of pretests conducted in 2009, being an introduction to the actual study of the phenomenon. The publication takes up the subject of tendencies to risky behaviour and the influence of the personality sphere and locus of control on the occurrence of risky road behaviour in the population of drivers between 18 and 40 years of age.

The problem of risky road behaviour is described in subject literature most frequently in relation to the functioning of drivers with amateur qualifications, using the existing road infrastructure for individual private transport. It is this category of drivers that constitutes the subject of interest in the following thesis. A different category of motorised participants of road traffic presenting risky behaviour are drivers conducting road transport, entrepreneurs personally conducting road transport, persons personally conducting transport for entrepreneurs, entrepreneurs personally conducting transport for own needs or drivers employed by them (art. 39k and 39m of 6 September 2001 on road transport, Journal of Laws 2007 No. 125, pos. 874). Here it does not only deal with so-called “professional” drivers, driving lorry vehicles, special or privileged, but also those using passenger and delivery company vehicles, although not employed at the position of drivers. Despite the formal precision of rules and arrangements, who should be treated as a “professional” driver, the great majority of drivers moving around by company cars, providing services for their employers, do not meet the statutory criteria (e.g. they are not subject to periodical psychological examinations).

### **Healthy, anti-healthy, risky behaviour...**

Behaviour connected with health, illness and risk are understood in science in various ways, beginning from the definition of pro-health behaviour, through anti-healthy actions, and finally at risky behaviour, taking into account the many various name configurations of these phenomena.

By definition, the term risky behaviour in health sciences, is close to the terminology of anti-healthy behaviour, for these constitute an inseparable definition whole with pro-health

behaviour. Both result directly from the definition of health, for the needs of these reflections, understood in a holistic sense. The contemporarily preferred image of health is a full well-being in the physical, psychological sphere, while man is treated as a system functioning not only biologically (soma) and separately psychologically (psyche) – as in the biomedical model – but also socially and spiritually. And also holistically, entirely, although each of these elements functions also as a separate whole [1, 2].

Pro-health behaviour, expressed holistically, is determined by three planes: physical (influencing the “soma” element) – this is caring for the good physical state of the organism, the psychological plane, embracing all types of methods of coping, hygiene, psychological health or also shaping desired attitudes, as well as social health – the skilful shaping of correct social, interpersonal relations, both within the family system, among the closest surroundings, as well as in widely understood communities [3]. To sum up, activities in the scope of health protection and preventing threats are identified here, which are above all about making every effort to maintain an adequate level of health.

Anti-health behaviour can be defined by any forms of conscious human activity contributing to the formation of disturbances in the state of health. The following are considered to have a negative influence in the emotional, physical and psychosocial sphere: smoking cigarettes, overusing alcohol and other psychoactive substances or harmful nutritional habits, as well as a lack of physical activeness. They can be associated with pleasant experiences, most often they do not cause quickly succeeding changes, but the final effect is always pointing directly at health. This suspension of pro-health motivation, often called a moratorium period, appears in the case when the anti-health effect is very distant (e.g. smoking), in order to temporarily satisfy psychological needs (e.g. alcohol in reducing tension accompanying collision) or when the function of the organism’s self-regulation is weakened (e.g. eating additional meals in excessive amounts). Such behaviour may also have positive values, hidden, especially among youth – smoking cigarettes or risky driving may increase attractiveness of a young person in peer groups; it may also constitute an “initiating” element of belonging to a prestigious group, “organisation”, be a sign of intra-group solidarity, or also a distinguishing element in the context of similar groups. Tendency to risky behaviour and risking is an inseparable and common feature of the human existence. The popularly understood term “risky behaviour” is most often associated with creating a balance of profits and losses – the balance accompanies us in the case of a majority of even trivial decisions. Science limits the scope of searches to activities carrying the risk of negative consequences, both for physical and psychological health, as well as for its social surrounding. Therefore,

such an expression unifies anti-health and risky behaviour, although aggressive and criminal behaviour is also considered as risky behaviour, as well as early sexual activity (inferred as behaviour with direct and serious health consequences and not those distant psychological and social, which are again attributed to anti-health behaviour) [4]. In literature of the subject, we often come across definitions such as “risky health behaviour” [5]. Risky road behaviour seldom constitutes a category attributed to the most important risky behaviours described in literature. In looking at the list of such behaviours, taking their toll in Polish drivers, it must be claimed that the term “risky road behaviour” will be closer to the definition of “risky behaviour”, and not “anti-health”, although undoubtedly the health consequences may be an element accompanying this type of behaviour, both in the form of direct threat, as well as distant consequences of a psychological character. In practice, however, the most commonly met risky behaviour of road users in Polish conditions overlap with lists of road offences and crimes.

The psychological grasp of risk concentrates above all around the balance of profits and losses, as well as the search for emotions of an exciting character. Comparisons of those two groups of concepts were made by Zaleśkiewicz [6], differentiating two types of risky behaviours. At the basis of the existence of instrumental risk there is a desire for achieving widely understood profit (or avoiding losses), the second group of behaviour relates to man searching for stimuli of an exciting or stimulating character, that is satisfying the need for experiencing pleasure – in such a situation this is a stimulating risk. Both instrumental risk, as well as stimulating can be found in the behaviours of participants of road traffic.

### **Locus of control**

In defining locus of control, it is impossible to overlook Julian Rotter, who in the mid-XX century, basing on such theoretical bases, such as the social theory of learning, theories of attribution and assumptions of cognitive psychology defined it as subjectively feeling the location of achievement and control over events [7]. Locus of control in the objective sense is defined as “a cause relation taking place between some activity and events, which provoked this activity” [8]; however, in the subjective sense, it is “a conscious and deliberate activity directed at achieving a specific effect” [8]. As a feature, locus of control is based on gaining experience (thereby the relation to processes of social learning) and despite the lack of clear indications on biological influences, it allows to distinguish two various dichotomous categories of perceiving sources of human activeness: externalism and internalism. Those

with an external locus of control believe that others, fate or the social environment determine events – strengths coming from the outside. Therefore, everything in their lives depends on external factors, on which they do not have an influence. Here a poetic comparison to a flag moved by the wind can be applied. Those with an internal locus of control believe that man himself decides for his own fate and takes over control of strengths; therefore, it is worth making efforts and act in order to achieve a specific goal [9, 10]. From the point of view of efficient psychosocial functioning of the individual, in this also using roads, high internal locus of control is more advantageous, enriched under road conditions by the necessity to take into account the rule of limited trust (*I have control over myself, the surroundings in which I am moving, fully understand the situational context, which concerns me – however, I am aware of the fact that I am not its only element*). However, basing on the natural need for searching and ensuring oneself psychological comfort in order to protect a positive image of oneself, this same person has a tendency to delegate authorisations for liability on the outside, where this most frequently concerns activities, which finished with defeat. In such cases, people prefer to locate the causes of occurred events and situations outside of themselves [11].

### **Extraversion and neuroticism – two dimensions of personality**

Extraversion (introversion) and neuroticism constitute two primary and widely described personality features in the Eysenck concept. In accordance to this concept, both these dimensions constitute primary regulators of human behaviours, both in terms of personality, as well as temperament.

A fundamental basis of intro- and extraversion (as well as a supplementary feature: ambiversion) is constituted by the concept of Carl Gustav Jung [12]; however, it is Hans Eysenck together with his co-workers, who spread the concept in psychobiological sciences. Together with the feature of neuroticism and psychoticism, extroversion contributed to the biological temperamental model PEN (*Psychoticism/Extraversion/Neuroticism*), constituting one of the factor concepts of personality, assuming its biological (however, not uniquely!) sources.

In defining the term of extroversion and introversion, a bipolar expression of the one and the same feature is found – directing psychological forces to the outside or to the inside. According to Sanocki [13], a theoretical extrovert will characterise in openness to the world, a necessity of establishing a large number of interpersonal contacts (also at work), impulsivity

in actions, optimistic approach to reality, as well as hedonism, aggression, or a changeability and chaos in acting. An introvert in this definition is a restrained person, preferring solitude, careful and organised, liking order and peace in life. An introvert type is also characterised by a pessimistic approach to the future. A buckle clipping both these poles together is ambiversion, which characterises people having extro- and introvert features that do not rule each other out. Ambivert people are definitely more flexible individuals, being able to suit their behaviour to the needs of the moment depending on the context.

Eysenck determined neuroticism as a state of a lack of emotional balance, taking into account also an anxious approach to the surrounding world. People of neurotic characteristics often submit themselves to the power of their own emotions, both positive and negative, losing control over them. Having features of a neurotic person often links with a number of somatic and psychological disorders (e.g. disorders of a depression character, anxiety or lower resilience to stress-inducing factors) [14]. The contrast to neuroticism constitutes a state of emotional stability (emotional balance), where it can be assumed that people with complete balance do not exist.

## **MATERIALS AND METHOD**

The studies were conducted in 2009 on the territory of Poland. 32 people were studied – drivers having a category B driver’s license, between the ages of 18 to 40, using vehicles for private purposes. Ultimately more elaborate studies are to embrace drivers working in sanitary transport. The results of 30 people were used for the final statistical analysis. Four questionnaire methods were applied as the most appropriate:

1. personality questionnaire – two scales derived from “Eysenck’s personality questionnaire” (hereinafter in short “EPQ-R”), therefore, the scale of “Neuroticism” and “Extroversion”. The used tool is a Polish adaptation of *Eysenck Personality Questionnaire – Revisited* from 1985 by Piotr Brzozowski and Radosław Łukasz Drwal. In the adapted version there are 4 primary scales, expressed in the form of 100 closed questions, referring to the personality structure according to Hans Jürgen Eysenck, namely the Extroversion scale (E), Neuroticism (N), Psychoticism (P) and Lying (L) [14]. Scales used in the essay: Neuroticism (24 questions) and Extroversion (23 questions) characterised by the largest among the 4 scales by reliability [14].

2. tools for measuring locus of control – test “I-E at work” by Xymena Gliszczyńska, created in Polish interpretation on the basis of Rotter’s “I-E” test. Polish

adaptation, developed in the years 1982-1990, serves for measuring locus of control in work conditions, and was based on the original works of Julian B. Rotter and earlier works of Polish scientists (among others J. Karyłowski and R. Ł Drwal) [6] and consists of 25 points containing 2 opinions marked by the letters *a* and *b*. In each of the points of the questionnaire, one of the opinions refers to the internal locus of control (I), while the second to external locus (E). Today's level of advancement over the process of obtaining standards enables the use of tools in scientific studies.

3. tools for measuring risky behaviour – “Test of risky behaviours” (TRB) by Ryszard Studenski [15]. This tool consists of 25 definitions referring to risky behaviours and motives of undertaking them. The author based his questionnaire on the scale of chronic self-destructiveness by K. Kelley (translated into Polish by A. Suchańska from the Institute of Psychology at the Adam Mickiewicz University). Verified method reliability of the test enables the use of the tool for measuring the frequency of undertaking risky behaviour and the tendency to risk for scientific aims.

4. own questionnaire concerning risky road behaviour among drivers, developed for the needs of the publication (together with a demographic part containing the primary information on sex and age, and in a further part of the studies – also work seniority at the position of a driver (also in sanitary transport), number of driven kilometres (privately and officially) annually and the type of ambulance driven. The aim of the first stage of creating a tool (conducted in the first half of 2009) was the verification of most frequently occurring risky road behaviours (excluding elements of bravado, aggressive behaviour towards others participants of road traffic and road anger). In answering the open questions: “What risky road behaviours do you come to contact with on Polish roads”, respondents indicated at:

1. exceeding the speed limit
2. taking over in prohibited places (double continuous line, crossroads, bridges)
3. driving without safety belts
4. not adjusting speed to the existing atmospheric conditions
5. driving in a bad physical/psychological state (fatigue)
6. using a mobile telephone (without a loud speaker set or headphones) while driving a vehicle
7. performing distracting activities (drinking coffee, tea, eating)
8. driving a faulty vehicle
9. driving in a bad physical/psychological state (illness)

10. maintaining too small distance from the vehicle in front.

These results are compliant with the data of the Central Police Headquarters for the year 2008 published on the websites of the CPH ([www.policja.pl](http://www.policja.pl)) and in sheets presented in scientific studies conducted around the whole world [16, 17, 18, 19]. Due to the form of questions directly relating to personal experiences in the studies, the question of driving vehicles under the influence of alcohol and/or other similarly acting substances was deliberately eliminated, expecting unreliable answers, despite the fact that respondents observed such behaviours among participants of road traffic.

### **Study results**

- 30 people participated in the study, in this 22 men (73% of studied) and 8 women, which constitutes 27% of studied persons.
- All those studied were between the ages 18 and 40, in this 6 between 18 and 25 years of age (20% of all studied), and 24 – between 26 and 40 years of age (i.e. 80% of studied).
- The results obtained through Studenski's Test of Risky Behaviour showed, that the studied population obtained an average result at the level of 5 sten (36 points within the limits of raw data), which gives an average preference of risky behaviour and an average tendency to risk. Extravert and ambivert persons, like the general population, obtained average results. Among introverts, only the population between the ages 21 and 40 obtained low results, the remaining part of studied persons also had average results.
- The average result on the level of extraversion of Eysenck's test EPQ-R (arithmetic mean) amounted to 14.7, which gives a result at the level of 5 sten for women and men, while the average raw result on the level of neuroticism – 8.8, which gives a converted value at the level of 4 sten in the population of women and 5 sten among men.



- In Studenski's Test of Risky Behaviour, introvert drivers (n=7) obtained an average raw result of 22, while extroverts (n=11) a result of 44.6, ambiverts (n=12) obtained 37 points. The means are arithmetic means. Differences in such small samples are not statistically significant.
- In the test "I-E at work" mean raw data were obtained at the level of 16.4 points (out of 25 points relating to internal control and the mean 14.33 with standard deviation SD 4.92, obtained in the studied population by X. Gliszczyńska [7]); therefore, they can be treated as mean on the basis of results obtained in Gliszczyńska's studies. Six (out of 30 studied) persons obtained mean results, 15 persons – results within the limit of 1 SD; 4 at the level of 2 SD and: 4 at the level of -1SD, as well as one person at the level of -2SD.
- On the level of "I-E at work", introverts obtained raw results at the level of 14.2 points, extroverts 15.6, while persons with ambivert features 18.3. At the low number of the group of respondents, these results do not guarantee obtaining statistically significant differences.
- Among the possible behaviour in the part of the study concerning risky road behaviour, 28 persons (i.e. 93%) indicated at exceeding the speed limit, 23 persons (76%) – at performing distracting activities (drinking, eating or others). The third in frequency choice of category is driving vehicles while in a bad psychophysical state. Such behaviour was declared by 19 people (i.e. 63% of respondents). Full data is found below:
  1. exceeding the speed limit: 28 people (i.e. 93%)
  2. using a mobile telephone (without a loud speaker set or headphones) while driving a vehicle: 23 people (i.e. 76%)
  3. driving in a bad physical/psychological state (fatigue): 19 people (i.e. 63%)
  4. performing distracting activities (drinking coffee, tea, eating): 16 people (i.e. 53%)
  5. driving a faulty vehicle: 14 (i.e. 47%)
  6. driving in a bad physical/psychological state (illness): 12 (i.e. 40%)
  7. taking over in prohibited places (double continuous line, crossroads, bridges): 11 (i.e. 37%)

8. not adjusting speed to the existing atmospheric conditions: 8 (i.e. 27%)
  9. driving without safety belts: 5 (i.e. 17%)
  10. maintaining too small distance from the vehicle in front: 5 (i.e. 17%)
- Both extroverts, as introverts, most frequently chose the answer concerning exceeding speed limit. Among extroverts, the most frequently mentioned behaviour at the second position was using mobile telephones without the appropriate accessories and in introverts – driving while in a bad psychophysical state (fatigue). Introverts chose this possibility as often as the answer concerning exceeding the speed limit. At the third position of the ranking of introverts' behaviour were the use of a mobile telephone (without a loud speaker set or headphones) while driving a vehicle and performing distracting activities (drinking coffee, tea, eating), while extroverts indicated answers concerning driving a faulty vehicle at third place. Ambivert persons chose the option of exceeding speed limit equally frequently as the risky use of mobile telephones. Performing distracting activities and driving in a bad psychophysical state (fatigue) came in second evenly. The third place was obtained by (also evenly): taking over in prohibited places (double continuous line, crossroads, bridges) and driving a faulty vehicle.
  - Two people, who defined themselves as observing of speed limits, obtained low results on the scale of neuroticism (1 and 2 sten respectively); the remaining 28 people obtained a mean result at the level of 5 sten. On the scale of risky behaviour, both persons obtained mean results, not differing from the rest of the respondents (4 and 6 sten respectively in relation to 5 sten for the entire studied population). These results undoubtedly differ from one another, but drawing full conclusions will be possible only after conducting statistic applications on data of a larger population.

### **Conclusions:**

1. Differences are visible in the preferred risky road behaviours within the groups of extroverts, introverts and ambiverts. The presented risky road behaviours seem to be adequate to the primary features describing the particular personality types. Extroverts, who are defined by the feature "recklessness", chose answers concerning irresponsible behaviour anyway (e.g. driving a faulty car), while introverts, characterised by a negative attitude towards life and the future, more often chose answers relating to (most probably) a subjective feeling of worse disposition.

2. Regardless of the obtained results in the psychological tests, it is common to break laws concerning admissible maximum speeds.
3. Perhaps the low results on the scale of neuroticism are connected with a greater respect to binding speed limits. This assumption does, however, require further scientific considerations in greater samples of the population.
4. All of the above conclusions require verification after completing the pretest phase, using a greater sample of the population.

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