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The Impact of Internal Dialogue on Aggressive Driving

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Abstract: The purpose of our study is to research the relation among internal dialogue and aggressive driving. We assumed the following: during driving, the driver is aware of the internal dialogue; internal dialogue of aggressive driver is negative and negative internal dialogue increases aggressive driving of car drivers. With the purpose of answering the set questions and to check presumptions in our study we describe various theories of aggressive behaviour and internal dialogue, influence factors and differences in occurrence of both constructs. Further, we connect and present internal dialogue and aggressive driving within the theoretical model of impact of internal dialogue on aggressive driving. Connectedness of internal dialogue and aggressive driving is also checked using survey with a population sample of 727 Slovenian drivers. The results of the survey show that to a great extend drivers are aware of internal dialogue during driving that internal dialogue coinfluences the emergence of aggressive driving and that internal dialogue of aggressive drivers is negative.

INTRODUCTION

The research is concerned with tremendously important behavioural aspects influencing safe road transport. Aiming to improve understanding of a complex variety of internal and external factors causing road fatalities and accidents, the study tackles with crucial scholarly and also wider societal issues. European countries face great challenges in reducing the toll of traffic causalities on the road. Although, there has been a decrease in fatalities in the recent decade, still >25,000 people died on the roads only in the year 2015 which represents the equivalent of a medium European town. In addition as European commission reports for every death on a road there are approximately four permanently disabling injuries, 8 serious injuries and fifty minor injuries causing high social, emotional and financial costs. One can observe a complex combination of factors influencing a road safety which entail an intertwinement of external circumstances such as road and weather conditions and internal factors ensuing from driver's physical and psychical state[1-12]. However, human factors prevail. It has been shown external factors cause only 5% of all accidents while human factor dominates in 65% of all traffic causalities.

Among human factors there is a big interest in researching aggressive driving as very important and common factor influencing road safety and factors that

influencing this dysfunctional behaviour[13-23, 11]. In the context of researching those proximal factors, the negative emotions, mostly unhealthy anger, lead[13, 14, 24-29]. But resultant Ellis[30] ABC Model and Beck[31] cognitive model, activating events in road traffic (like congestions, time pressure, noise, heat) don't influence on occurrence of unhealthy negative emotions and consequently on tendencies to aggressive driving or aggressive driving. Unhealthy negative emotions can appear only after dysfunctional or irrational appraisal of inferences about activating event. Inferring and appraising are processes which are impossible without inner dialogue. Considering this interpretation we can assume that inner dialogue co-influences on aggressive driving or just tendencies to this dysfunctional behaviour.

Aggressive driving: Aggressive driving is a common phenomenon daily experienced by many participants of road transport. However, there has been an increase in percentage of individuals claiming that such driving behaviour is on the rise. The study "Aggressive behaviour behind a wheel" carried out by EOS Gallup Europe reveals that among 13.673 respondents from 23 different countries having a driving license, >70% agreed that aggressive behaviour of drives has intensified in recent years[32]. It is however, quite a challenge to define what aggressive driving actually denotes as there are different definitions and understandings of the phenomenon. Herein we lean on Tasca's definition seeing aggressive driving as deliberate behaviour, likely to increase the risk of collision and is motivated by impatience, annoyance, hostility and/or an attempt to save time. The specific behaviours which constitute aggressive driving would include tailgating, weaving in and out of traffic, improper passing, passing on the road shoulder, improper lane changes, failure to yield the right of way to other road users, preventing other drivers from passing, unwillingness to extend cooperation to drivers unable to merge or change lanes due to traffic conditions, driving at speeds far in excess of the norm which results in frequent tailgating, frequent and abrupt lane changes, running stop signs and red lights, flashing headlights, sustained horn-honking, glaring at another driver to show disapproval, yelling and gesturing. Aggressive driving is also described as the end result of frustrating experiences and takes one of two forms: instrumental or hostile aggression. Instrumental aggression refers to behaviour drivers engage in to overcome or get past an obstacle. For example, yelling at a driver of a vehicle that is blocking traffic to get that driver to move out of the way or changing lanes and speeding up in order to get around a slower moving vehicle. Hostile aggression refers to behaviour drivers engage in to vent out their anger as a means to feel better rather than solve a problem. Those behaviours include making obscene gestures, yelling, flashing lights, honking excessively and tailgating other drivers[21].

Those behaviours are a global issue[32] with differences in culture and perceptions of acceptable driving impacts the form of aggressive behaviour. As an intentional violation and non-compliance with regulations, aggressive driving highly decreases traffic safety. In 2016 were driving too fast for conditions or in excess of posted limit or racing, failure to keep in proper lane and failure to yield right of way three of four most frequent driving behaviours reported for drivers and motorcycle operators involved in fatal crashes in the USA. In Slovenia driving too fast was cause for 33.6% of fatal crashes in 2016[33].

Different studies reveal[15, 16, 20] that aggressive driving is highly correlated with gender and age, as those drivers are predominantly young males. Aggressive driving is also more often represented in traffic causalities where anonymity and chances for escaping from road scene is relatively high. Aggressive drivers are in general also more prone to seeking adrenalin stimulation. More aggressive while driving are also persons confident to possess outstanding driving skills. Studies also revealed positive correlation between unhealthy negative feelings of anger occurring during driving and aggressive driving style[11]. Positive correlation was discovered between situational (environmental) impacts and aggressive driving[19, 21].

Aggressive driving is on the one hand conditioned by particular emotional states[14] and by external factors stimulating frustrations in drivers on the other[21]. While an influence of the combination of all listed factors on aggressive driving has already been confirmed[34, 35] there is still a relatively open issue remaining which refers to a question what influences an emergence of all those factors? Neuropsychologist Gal'perin is claiming that excerpts of the inner dialogue occur, when automatic flow of thoughts and behaviour is interrupted which can be implied to car driving as well. It is more likely to happen that we initiate an inner dialogue when observing police car or traffic accident implying that certain external stimuli encourage our involvement in inner dialogue[36]. While claiming that human behaviour is not pre-determined and we always have a choice to behave in a particular manner, influence our interpretation and responses our study is primarily concerned with intensity and ways of an inner dialogue emerging when facing circumstances stimulating aggressive behaviour.

Internal dialogue: An internal dialogue has been a subject of various scientific and scholar disciplines such as psychology, sociology, social psychology, neuropsychology, linguistic, cultural anthropology and philosophy. Herein, the focus is on sociological and psychological exploration of the phenomenon which has been a matter of debates already far back in antiquity. Plato wrote in dialogue Teajtet that Socrates identified "pertaining to thought" as a dialogue of a mind with itself. Russian psychologist Sokolov[37] has wrote in his work "Inner dialogue and a thought" that the phrase denotes a voiceless mental speech which emerge at the moment when we are thinking about something, making plans, solving problems, recalling what was written, heard or said or reading silently. Internal dialogue plays in important role in activating and steering goal-oriented behaviour. Therefore, it is an important mean of someone's self-orientation[38]. Some scholars have argued that certain distinction exists between inner speech being a hidden verbalisation and personal dialogue being a loud conversation but usually not intended for other persons to hear it[39].

On the other hand, some researchers have not recognised any differences between personal and inner speech which have advocated with the fact that despite the movement of muscles and lips to create audible speech, a content and function of both is the same[40]. In 1929, Vygotski detected functional and structural similarity between personal speech which Piaget called egocentric speech and internal dialogue. On that basis, he developed a hypothesis about the evolution of an egocentric speech into an internal dialogue.

When a child who is four to 5 years old has to face a certain issue, an egocentric speech occurs aiding him/her to solve that problem. In the beginning, a child speaks aloud to himself/herself, gradually, advancing into whispering which in the age of seven is being transformed into internal speech helping to solve complex issues[37]. Personal speech is therefore, a linkage between external control of others and personality, reflected through self-control ensured by a personal internal speech[41]. Egger and Ballet came to similar conclusions that internal speech is nothing more than a carrier of thoughts. Vigotsky, Sokolov[37] also described internal speech as a process of emerging words through thoughts. In the work "The concept of mind" of the British philosopher Ryle, it is written that most of our everyday thinking occur within an internal, quiet monologue, usually accompanied with internal visual imagination[42]. However, there is also a strand of scholar whose ideas are closer to our theoretical presumption, recognising a dialogical nature of a speech, seeing internal speech also as an internal dialogue[36, 31].

Cognitive-behavioural studies describe internal dialogue and reflexivity as a battle between positive and negative assumption about yourself. That is way an internal dialogue is inseparably linked to conflicts and tensions[42]. Negative dialogue entails intolerance for errors, believes about necessity of success, irrational expectations from others and a must for revenge[36]. In that regard, Beck sees internal dialogue as negative automatic thoughts which are specific, telegraphic and idiosyncratic[31]. Internal dialogue can have a potential negative impact on emotions and behaviour[30].

Theoretical model of the impact of internal dialogue on aggressive driving: Unexpected traffic congestion as frustration[21, 43] activating event[30, 44] or situation[45] is by definition of aggressive driving[21] one of the factors which could impact on occurrence of anger emotions and consequently on occurrence of aggressive driving or tendency to aggressive driving. But this phenomenon is not sufficient by itself. When an individual run into unexpected congestion which represent arousal negative sensations arise. Those sensations lead to primitive association reaction[43]. At that level appears an individual inference about the situation[30, 44]. Irrational beliefs[30] in those inferences can influence on occurrence of rudimentary anger[43]. Thoughts of higher order or appraisal follow. If the situation is evaluated as frustrating blockade of an individual's goal[46] in which an individual doesn't have sufficient resources to getting by Allen *et al*.[45] there could arise anger emotion which leads to tendency to dysfunctional behaviour or dysfunctional behaviour itself characteristic for aggressive driving. That could be weaving in and out of traffic, non-cooperation with drivers unable to merge or change lanes due to traffic conditions, taking advantage self-confidently, impatient horn-honking, light flashing, rude gestures, dirty talk. In that process an importance of internal dialogue as important means of self-management[38] turns up in two segments. First at inferencing about the situation. Where negative internal dialogue can lead to rudimentary anger. And second in processes of attribution of causality. In those processes an individual is looking for intentional or intentional causes for the situation and appraising it as blockade on the way to his goals. This blockade is apprised as unbearable or is overgeneralised.

MATERIALS AND METHODS

For data collecting, we have prepared self-assessment questionnaire with thirty-five statements connected to driving behaviours and fifteen statements about conducting internal dialogue while driving. Participants

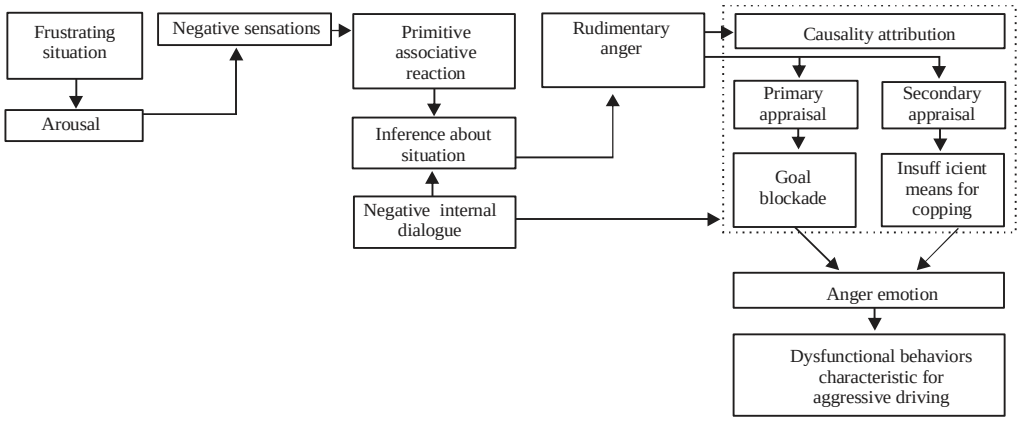

Fig. 1: Theoretical model of the impact of internal dialogue on aggressive driving. Modified by Allen *et al*.[45], Berkowitz[43], Ellis and Dryden[30], Power *et al*.[47], Shinar[21] and Trower *et al*.[44]

were asked to point out their frequency of agreement with each statement using a Likert-type scale ranging from 1-5 (1 = Never; 5 = Very often).

We have checked the reliability of self-assessment questionnaire with Cronbach's alpha coefficient calculation. Cronbach alpha for first compound of statements is 0,87 for second 0,81, consequently we can value reliability as good. Data collection was going on online and face to face. In both cases participants got the same instructions to imagine themselves as they drive the car. Targeted was just Slovenian driving-licence holders who have driven a car in the last 12 months.

To determine the impact of participant's demographic characteristics on conducting internal dialogue and their driving behaviour, we compared means among different participant groups using statistical tests. We firstly checked the assumptions of normally distributed data and since the assumptions were not violated we used parametric tests to compare means. In cases of homogenous group variances we used independent samples t-tests assuming equal variances to compare two roup means and ANOVA F-tests to compare more than two group means. Otherwise, we used independent samples t-tests not assuming equal variances and robust Welch tests, respectively.

To determine what kind of internal dialogue (positive or negative) is typical for those who at least occasionally silently talk to themselves even when driving a car we analysed the association between the statements. We calculated Pearson correlation coefficients and their significance. We also compared mean frequencies of conducting positive and negative internal dialogue between those who almost never silently talk to themselves while driving and those who at least occasionally do. To do so, we used independent samples t-tests. Finally, we also compared mean frequencies of conducting positive and negative internal dialogue among those who at least occasionally silently talk to themselves while driving. In this case, we used paired samples t-test. To analyse whether conducting a negative internal dialogue relates to the frequency of different driving behaviours we analysed the association between the statements. We used Chi-square tests and their significance (Fig. 1).

RESULTS AND DISCUSSION

Sample characteristics: A total of 727 participants responded the self-assessment questionnaire. Among them, 446 (61.3%) were females and 281 (38.7%) were males. There were 116 (16.0%) respondents of age between 18-24 years, 293 (40.3%) between 25-39 years, 254 (34.9%) between 40-54 years and 64 (8.8%) respondents of age 55 years or more.

Conducting internal dialogue: To measure respondent's frequency of conducting internal dialogue we included four statements in the questionnaire regarding different aspects of conducting internal dialogue. Participants were asked to point out their frequency of agreement with each statement using a Likert-type scale ranging from 1-5 (1 = Never; 5 = Very often). The results Table 1 show that the in average, participants at least occasionally conduct internal dialogue or consciously silently talk to themselves and have a positive internal dialogue while driving. On the other hand, in average they less frequently silently talk to themselves or have a negative internal dialogue while driving 496 respondents (68.2%) conduct internal dialogue at least occasionally. About 408 (56.1%) respondents silently talk to themselves even when they are driving a car.

The results Table 2 show positive statistically significant correlation between silently talking to myself and having a negative internal dialogue while driving, meaning that those who more often silently talk to themselves even when driving a car, more often have a negative internal dialogue. On the other hand, there is a negative statistically significant correlation between silently talking to myself and having a positive internal dialogue while driving, meaning that those who more often silently talk to themselves even when driving a car, less often have a positive internal dialogue.

The impact of internal dialogue on aggressive driving: Table 3 presents relation between conducting negative internal dialogue while driving and behaviours significant for aggressive driving. We recoded the variable »I conduct negative internal dialogue while driving «to get two separate values: value 1 meaning almost never for which we combined values of 1 (Never) and 2 (Almost never) of the original variable and value 2 meaning at least occasionally for which we combined values 3 (Occasionally) 4 (Often) and 5 (Very often) of the original variable. The same procedure was done for the statements about driving behaviours.

Results in Table 3 show that those drivers who conduct a negative internal dialogue more often statistically significant more often: make negative comments about the other driver, give the other driver a dirty look, shake their head at the other driver, call the other driver names aloud, get mad while driving, get frustrated when the other driver starts very slowly at the green light, reimburse with horn-honking when they are obstructed are in a desperate hurry when they drive do to other drivers what they do to them, flesh their lights at the

Table 1: Descriptive statistics of respondent's frequency of conducting internal dialogue (n = 727)

Statement	Mean	SD
I conduct an internal dialogue or consciously silently talk to myself	3.07	1.193
I silently talk to myself even when I am driving a car	2.78	1.241
At the time of driving, I have a negative internal dialogue (e.g., I am angry at other drivers, situations, myself)	2.20	0.902
At the time of driving, I have a positive internal dialogue (e.g., anyone can make a mistake)	2.99	0.966

The questions were rated on a five-point scale with anchors of 1 = never, 2 = almost never, 3 = occasionally, 4 = often and 5 = very often

Table 2: Internal dialogue related to conducting positive and negative internal dialogue

Statement	I silently talk to myself even when I am driving a car
At the time of driving, I have a negative internal dialogue	0.477** (R)
(e.g., I am angry at other drivers, situations, myself)	0.000 (p)
	727 (n)
At the time of driving, I have a positive internal dialogue	-0.231** (R)
(e.g., anyone can make a mistake...)	0.000 (p)
	727 (n)

**Correlation is significant at the 0.01 level (2-tailed)

Table 3: Driving behaviors related to conducting negative internal dialogue

		I conduct negative internal dialogue while driving			
Statement	Comments	Almost never (n = 480)	At least occasionally (n = 247)	χ^2-test	p-values
When there is a sudden slow down,	Almost never (n = 712)	472 (98.3%)	240 (97.2%)	1.100	0.294
I overtake in the emergency lane	At least occasionally (n = 15)	8 (1.7%)	7 (2.8%)		
I drive in the left lane of the	Almost never (n = 552)	378 (78.8%)	174 (70.4%)	6.154	0.013*
highway when the right-hand line is free	At least occasionally (n = 175)	102 (21.3%)	73 (29.6%)		
I overtake drivers which	Almost never (n = 423)	298 (62.1%)	125 (50.6%)	8.828	0.003**
drive at speed limit	At least occasionally (n = 304)	182 (37.9%)	122 (49.4%)		
I leave left hand lane at last moment,	Almost never (n = 670)	448 (93.3%)	222 (89.9%)	2.694	0.101
before I leave the highway	At least occasionally (n = 57)	32 (6.7%)	25 (10.1%)		
I am frustrated when the other	Almost never (n = 346)	269 (56.0%)	77 (31.2%)	40.433	0.000**
driverstarts very slowly at the green light	At least occasionally (n = 381)	211 (44.0%)	170 (68.8%)		
I turn off the main headlights when	Almost never (n = 723)	477 (99.4%)	246 (99.6%)	0.144	0.704
crossing another vehicle	At least occasionally (n = 4)	3 (0.6%)	1 (0.4%)		
I use my mobile phone while driving	Almost never (n = 402)	271 (56.5%)	131 (53.0%)	0.772	0.379
	At least occasionally (n = 325)	209 (43.5%)	116 (47.0%)		
In the absence of road markings,	Almost never (n = 385)	258 (53.8%)	127 (51.4%)	0.356	0.551
I drive in the middle of the road.	At least occasionally (n = 342)	222 (46.2%)	120 (48.6%)		
When circulation is very slow, I keep a	Almost never (n = 270)	191 (39.8%)	79 (32.0%)	4.259	0.039*
large distance with the preceding vehicle	At least occasionally (n = 457)	289 (60.2%)	168 (68.0%)		
I like weaving in and out of traffic	Almost never (n = 587)	405 (84.4%)	182 (73.7%)	11.987	0.001**
	At least occasionally (n = 140)	75 (15.6%)	65 (26.3%)		

Table 3: Continue

		I conduct negative internal dialogue while driving			
Statement	Comments	Almost never (n = 480)	At least occasionally (n = 247)	χ^2-test	p-values
I enjoy driving right up on the other driver's bumper	Almost never (n = 704)	470 (97.9%)	234 (94.7%)	5.382	0.020*
	At least occasionally (n = 23)	10 (2.1%)	13 (5.3%)		
I change lane without indicating	Almost never (n = 641)	425 (88.5%)	216 (87.14%)	0.187	0.666
	At least occasionally (n = 86)	55 (11.5%)	31 (12.6%)		
I prevent other driver from passing	Almost never (n = 579)	407 (84.8%)	172 (69.6%)	23.105	0.000**
	At least occasionally (n = 148)	73 (15.2%)	75 (30.4%)		
I don't cooperate with driver unable to merge or change lanes due to traffic conditions	Almost never (n = 535)	343 (71.5%)	192 (77.7%)	3.303	0.069
	At least occasionally (n = 192)	137 (28.5%)	55 (22.3%)		
I take advantage self-confidently	Almost never (n = 653)	436 (90.8%)	217 (87.9%)	1.583	0.208
	At least occasionally (n = 74)	44 (9.2%)	30 (12.1%)		
I drive off very fast	Almost never (n = 585)	408 (85.0%)	177 (71.7%)	18.465	0.000**
	At least occasionally (n = 142)	72 (15.0%)	70 (28.3%)		
Sometimes I deliberately slow down the other driver	Almost never (n = 650)	441 (91.9%)	209 (84.6%)	9.076	0.003**
	At least occasionally (n = 77)	39 (8.1%)	38 (15.4%)		
I slow down to frustrate the other driver	Almost never (n = 723)	478 (99.6%)	245 (99.2%)	0.436[a]	0.509
	At least occasionally (n = 4)	2 (0.4%)	2 (0.8%)		
Occasionally I run the stop sign	Almost never (n = 311)	219 (45.6%)	92 (37.2%)	4.676	0.031*
	At least occasionally (n = 416)	261 (54.4%)	155 (62.8%)		
When someone obstruct me, I reimburse with horn-honking	Almost never (n = 570)	405 (84.4%)	165 (66.8%)	29.745	0.000**
	At least occasionally (n = 157)	75 (15.6%)	82 (33.2%)		
I flesh my lights at the clumsy or the reckless drivers	Almost never (n = 525)	374 (77.9%)	151 (61.1%)	22.893	0.000**
	At least occasionally (n = 202)	106 (22.1%)	96 (38.9%)		
I believe I have remarkable driving abilities	Almost never (n = 413)	268 (55.8%)	145 (58.7%)	0.548	0.459
	At least occasionally (n = 314)	212 (44.2%)	102 (41.3%)		
For me car driving is sensation seeking	Almost never (n = 530)	357 (74.4%)	173 (70.0%)	1.551	0.213
	At least occasionally (n = 197)	123 (25.6%)	74 (30.0%)		
I get angry at sudden slow down	Almost never (n = 368)	288 (60.0%)	80 (32.4%)	49.740	0.000**
	At least occasionally (n = 359)	192 (40.0%)	167 (67.6%)		
Occasionally I drive 20 kmh^{-1} faster as norm is	Almost never (n = 460)	318 (66.3%)	142 (57.5%)	5.385	0.020*
	At least occasionally (n = 267)	162 (33.8%)	105 (42.5%)		
When I drive I am in a desperate hurry	Almost never (n = 429)	311 (64.8%)	118 (47.8%)	19.527	0.000
	At least occasionally (n = 298)	169 (35.2%)	129 (52.2%)		
I like compete with other drivers	Almost never (n = 692)	462 (96.3%)	230 (93.1%)	3.492	0.062
	At least occasionally (n = 35)	18 (3.8%)	17 (6.9%)		
Occasionally I give the other driver the finger	Almost never (n = 687)	466 (97.1%)	221 (89.5%)	18.163	0.000**
	At least occasionally (n = 40)	14 (2.9%)	26 (10.5%)		
I call the other driver names aloud	Almost never (n = 458)	362 (75.4%)	96 (38.9%)	93.462	0.000**
	At least occasionally (n = 269)	118 (24.6%)	151 (61.1%)		
I make negative comments about the other driver	Almost never (n = 332)	285 (59.4%)	47 (19.0%)	106.992	0.000**
	At least occasionally (n = 395)	195 (40.6%)	200 (81.0%)		
I give the other driver a dirty look	Almost never (n = 462)	358 (74.6%)	104 (42.1%)	74.262	0.000**
	At least occasionally (n = 265)	122 (25.4%)	143 (57.9%)		
I shake my fist at the other driver	Almost never (n = 690)	469 (97.7%)	221 (89.5%)	22.893	0.000**
	At least occasionally (n = 37)	11 (2.3%)	26 (10.5%)		
I stick my tongue out at the other driver	Almost never (n = 719)	476 (99.2%)	243 (98.4%)	0.926	0.336
	At least occasionally (n = 8)	4 (0.8%)	4 (1.6%)		
Sometimes I get mad while driving	Almost never (n = 675)	466 (97.1%)	209 (84.6%)	38.173	0.000**
	At least occasionally (n = 52)	14 (2.9%)	38 (15.4%)		
If there is no other way, I must force the other driver to move away	Almost never (n = 699)	467 (97.3%)	232 (93.9%)	4.985	0.026*
	At least occasionally (n = 28)	13 (2.7%)	15 (6.1%)		
I do to other drivers what they do to me	Almost never (n = 701)	473 (98.5%)	228 (92.3%)	18.379	0.000**
	At least occasionally (n = 26)	7 (1.5%)	19 (7.7%)		
I shake my head at the other driver	Almost never (n = 343)	283 (59.0%)	60 (24.3%)	78.646	0.000**
	At least occasionally (n = 384)	197 (41.0%)	187 (75.7%)		

**Association is significant at the 0.01 level; *Association is significant at the 0.05 level; [a] > 25% cells have expected count<5, the likelihood ratio test is used

clumsy or the reckless drivers, drive off fast, prevent other drivers from passing, shake my fist at the other driver, give the other driver the finger, overtake drivers which drive at speed limit, enjoy driving right up on the other driver's bumper, drive 20 $km\ h^{-1}$ faster as norm is keep a large distance with the preceding vehicle when circulation

is very slow, run the stop sign, deliberately slow down the other driver, like weaving in and out of traffic, force the other driver to move away, drive in the left lane of the highway when the right-hand line is free, get angry at sudden slow down. Based on this data can be stated that respondents who conduct negative internal dialogue while driving at least occasionally are more aggressive drivers as those who almost never conduct negative internal dialogue while driving.

CONCLUSION

Aggressive driving is phenomenon which is caused by internal and external factors. Usually intertwinement of both. According to data analysis we can conclude that one of internal factors is also internal dialogue. Most of respondents are aware of their internal dialogue while driving at least occasionally. Internal dialogue of aggressive drivers is negative and drivers with negative internal dialogue more frequently conduct behaviours which are distinctive for aggressive driving.

We are aware of the limitations of our research. The biggest one is application of self-assessment questionnaire. Reporting about types of internal dialogue is subjective, as well descriptions of driving behaviours. Because of that there is a big challenge for further researching of impact of internal dialogue on aggressive driving. By all means to find method which could provide more objectivity in data collecting as far as researching of inner experience could be objective. One option is observation with participation in real setting. Second option is experiment in driving simulator. But in both options loss of anonymity could be a problem when reporting about internal dialogue and conducting bahaviours, social acceptability factor could affect respondents self-reporting and behaviours.

By all means according to our results of the research we can consider in a way of prevention proceedings in road traffic. Learning how to perceive and change the internal dialogue could be one of the preventive actions for decreasing aggressive behaviours behind the wheel. Learning identifying dysfunctional thoughts and cognitive distortions, cognitive restructuring, alternative positive internal dialogue while driving could be some steps to increase safety on our roads.

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