



ICARUS Project
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ICARUS Project

Inter - Cultural Approaches for Road Users Safety

Research report

Results

BULGARIA

CAR DRIVERS (QUESTIONNAIRE SECTION 1)

Sample description

A total of 775 people answered the Section 1 of the questionnaire. Males were 718 (90.8% of the total sample) and females were 57 (7.27% of the total sample). Their mean age was 19.07 years (standard error .11), ranging between 17 and 23 years. Age was no significantly different between males and females. Not all the respondents answered all the items of the questionnaire, thus each analysis was run on the largest sample available for that analysis (missing values were not estimated).

Driving habits

Tables 1 to 9 show the distribution as a function of gender of the answers to items concerning the driving habits and experiences. Approximately half of the Austrian young respondents own a car, with a prevalence of female drivers (but it should be noted that females respondents are poorly represented in the present sample). They however refer to use a car on a regular basis (most of them drive everyday, without a prevalence of one gender), and for relatively long trips. Both male and female drivers refer to rarely drive after midnight (about 68% of them drive after midnight 2 times a week or less). Most respondents also refer not to have received a traffic fine and for those who have received a fine, the more common violation is for having parked where it was forbidden, and for speeding.

Most of the respondents refer not to drive after having drunk alcohol (and it must be noticed that the item do not refer to being drunk, but only to driving after having drunk some alcohol).

Summarizing, Bulgarian young drivers seem to be characterized by being frequent drivers, not very experienced of driving during night hours, and very aware of the dangers associated with driving under the effects of alcohol.

Table 1. Frequency distribution of respondents for item H4 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

H_4 Do you own a car?		
	Yes	No
Males	380 (52.92%)	338 (47.08%)*
Females	41 (71.93%)*	16 (28.07%)
Total	421 (54.32%)	354 (45.68%)

Table 2. Frequency distribution of respondents for item H5 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

H_5 How many times a week do you use the car?						
	Never	1-2 times	3-4 times	5-6 times	Everyday	Only in the weekend
Males	13 (3.98%)	53 (16.21%)	72 (22.02%)	39 (11.93%)	142 (43.43%)	8 (2.45%)
Females	1 (7.14%)	2 (14.29%)	4 (28.57%)	3 (21.43%)	4 (28.57%)	0
Total	14 (4.11%)	55 (16.13%)	76 (22.29%)	42 (12.32%)	146 (42.82%)	8 (2.35%)

Table 3. Frequency distribution of respondents for item H6 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

H_6 How many kilometers do you drive in a week?					
	1-10 Km	11-30 Km	31-50 Km	51-100 Km	More than 100 Km
Males	30 (9.17%)	40 (12.23%)	58 (17.74%)	86 (26.3%)	113 (34.56%)
Females	3 (21.43%)	2 (14.29%)	5 (35.71%)	2 (14.29%)	2 (14.29%)
Total	33 (9.68%)	42 (12.32%)	63 (18.48%)	88 (25.81%)	115 (33.72%)

Table 4. Frequency distribution of respondents for item H7 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

H_7 In the last three months, how often have you driven for more that 2 hours uninterruptedly?				
	Never	1-2 times	2-4 times	More than 4 times
Males	65 (19.88%)	126 (38.53%)	65 (19.88%)	71 (21.71%)
Females	4 (28.57%)	7 (50.%)	1 (7.14%)	2 (14.29%)
Total	69 (20.23%)	133 (39.%)	66 (19.35%)	73 (21.41%)

Table 5. Frequency distribution of respondents for item H8 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

H_8 In the last three months, how often have you happened to drive between midnight and 5:00 in the morning?				
	Never	1-2 times	2-4 times	More than 4 times
Males	111 (33.94%)	111 (33.94%)	57 (17.43%)	48 (14.68%)
Females	10 (71.43%)*	2 (14.29%)	2 (14.29%)	0
Total	121 (35.48%)	113 (33.14%)	59 (17.3%)	48 (14.08%)

Table 6. Frequency distribution of respondents for item H9 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

H_9 Have you ever got a traffic fine?		
	No	Yes
Males	228 (69.72%)	99 (30.28%)
Females	9 (64.29%)	5 (35.71%)
Total	237 (69.5%)	104 (30.5%)

Table 7. Frequency distribution of respondents for kinds of violations as a function of gender. * refers to significant differences ($p < .001$) between males and females.

	Males	Females	Total
No parking	38 (5.29%)	3 (5.26%)	41 (5.29%)
Running a red light	22 (3.06%)	2 (3.51%)	24 (3.1%)
Running a stop sign	24 (3.34%)	0	24 (3.1%)
Speeding	37 (5.15%)	3 (5.26%)	40 (5.16%)
Drunk driving	15 (2.09%)	0	15 (1.94%)
Lack of seatbelts use	35 (4.87%)	1 (1.75%)	36 (4.65%)

Table 8. Frequency distribution of respondents for item H18 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

H_18 Have you ever driven after drinking alcoholic drink?						
	Never					Often
Males	250 (76.45%)	38 (11.62%)	22 (6.73%)	5 (1.53%)	6 (1.83%)	6 (1.83%)
Females	12 (85.71%)	2 (14.29%)	0	0	0	0
Total	262 (76.83%)	40 (11.73%)	22 (6.45%)	5 (1.47%)	6 (1.76%)	6 (1.76%)

Table 9. Frequency distribution of respondents for alcohol effects as a function of gender. * refers to significant differences ($p < .001$) between males and females.

	Males	Females	Total
You could hardly follow the trajectory	27 (3.76%)	0	27 (3.48%)
You could hardly keep your head on straight	19 (2.65%)	0	19 (2.45%)
You had muscle cramps	13 (1.81%)	1 (1.75%)	14 (1.81%)
You could hardly keep your eyes open	12 (1.67%)	0	12 (1.55%)
You got stomach cramps	17 (2.37%)	0	17 (2.19%)
You could not focus on the road	13 (1.81%)	1 (1.75%)	14 (1.81%)
Someone who was with you made you notice it	24 (3.34%)	0	24 (3.1%)

Specific dimensions of the questionnaire scales

Scale A, Attitude toward road safety issues.

Data from the Scale A of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.85, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(153)=4068.99$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 34.77% of the total variance. Table A.1 shows the eigenvalues and the variance accounted for by each factor. Table A.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Negative attitude towards drugs and alcohol", accounting for by the 21.69% of the common variance) refers to the attitude toward driving under the effects of substances. Items such as "*I would never drive after drinking alcoholic drinks*" and "*I would never drive under the influence of narcotic drugs*" load on these factor.

The second factor (labelled "Tolerance toward violations", accounting for by the 13.08% of the common variance) refers to a negative attitude toward traffic rules. Items such as "*To keep traffic smooth-flowing you should ignore many of the road traffic rules*" load on this factor. This factor is negatively correlated to the first factor (Table A.3).

Table A.1. Eigenvalues and variance accounted for by each factor (Scale A)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.726	26.254	26.254	3.556
2	2.532	14.065	40.319	3.454
3	1.223	6.795	47.114	
4	1.016	5.644	52.758	
5	.987	5.485	58.243	
6	.871	4.840	63.083	
7	.852	4.735	67.817	
8	.797	4.429	72.246	
9	.659	3.663	75.909	
10	.653	3.627	79.536	
11	.607	3.373	82.909	
12	.573	3.184	86.093	
13	.554	3.076	89.169	
14	.517	2.872	92.041	
15	.492	2.733	94.773	
16	.413	2.297	97.070	

17	.303	1.685	98.756
18	.224	1.244	100.000

Table A.2. Factor loadings (Scale A).

	Factor	
	Negative attitude toward drugs and alcohol	Tolerance to violations to traffic rules
A_1		0.541
A_2		0.592
A_3	0.335	
A_4		0.610
A_5		0.496
A_6		0.474
A_7		0.554
A_8		0.456
A_9		0.507
A_10		0.529
A_11		
A_12		0.544
A_13		0.461
A_14	0.499	
A_15	0.749	
A_16	0.800	
A_17	0.889	
A_18	0.849	

Table A.3 Factor Correlation Matrix

Factor	1	2
1	1.000	-.344
2	-.344	1.000

Scale B, Locus of Control.

Data from the Scale B of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.816, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(435)=4938.29$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 27.02% of the total variance. Table B.1 shows the eigenvalues and the variance accounted for by each factor. Table B.2 shows the item loadings after Oblimin rotation.

The first factor (labeled "External Locus of Control", accounting for by the 15.08% of the common variance) refers to an external Locus of Control, as respondents attribute responsibility of road accidents mostly to external causes, independent of drivers behaviour. Items such as "*Driving without accidents is mainly a question of good luck*" load on this factor.

The second factor. (labeled "Attention-related LOC", accounting for by the 6.84% of the common variance) refers to an internal, attention-related Locus of Control, as respondents attribute responsibility of road accidents mostly to drivers' failure to be careful or to pay attention to driving. Items such as "*Driving without accidents depends on driver's ability to pay attention to what happens on the road and pavement*" load on this factor.

The third factor (labeled "Internal Locus of Control", accounting for by the 5.08% of the common variance) refers to an internal Locus of Control, as respondents attribute responsibility of road accidents mostly to drivers. Items such as "*A careful driver can prevent any accident*" load on this factor. This factor positively correlates to the first factor (Table B.3).

Table B.1. Eigenvalues and variance accounted for by each factor (Scale B)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	5.123	17.075	17.075	3.594
2	2.643	8.811	25.886	3.139
3	2.084	6.948	32.834	2.513
4	1.481	4.937	37.772	
5	1.311	4.372	42.143	
6	1.261	4.204	46.347	
7	1.111	3.703	50.050	
8	1.088	3.626	53.676	
9	1.003	3.343	57.019	
10	.966	3.219	60.238	
11	.898	2.995	63.233	
12	.826	2.753	65.986	
13	.757	2.525	68.511	
14	.747	2.491	71.002	

15	.713	2.378	73.380
16	.688	2.294	75.673
17	.666	2.220	77.894
18	.657	2.191	80.084
19	.627	2.089	82.174
20	.592	1.972	84.146
21	.568	1.893	86.039
22	.559	1.863	87.902
23	.526	1.753	89.656
24	.514	1.713	91.368
25	.490	1.634	93.003
26	.467	1.557	94.560
27	.448	1.494	96.054
28	.426	1.420	97.474
29	.416	1.386	98.860
30	.342	1.140	100.000

Table B.2. Factor loadings (Scale B).

	Factor		
	External LOC	Attention-related Internal LOC	Internal LOC
B_1			
B_2	0.348		
B_3		0.292	
B_4	0.413		
B_5			
B_6			0.346
B_7			0.392
B_8			0.466
B_9		0.280	
B_10		0.379	
B_11	0.560		
B_12	0.488		
B_13	0.674		
B_14	0.635		
B_15	0.734		
B_16		0.415	
B_17			0.657
B_18		0.411	0.261
B_19		0.549	

B_20	0.284	-0.254	0.377
B_21		0.554	
B_22		0.559	-0.259
B_23	0.440		
B_24			
B_25	0.485		
B_26		0.499	
B_27		0.558	
B_28			0.478
B_29		0.513	
B_30			0.362

Table B.3. Factor correlation matrix

Factor	1	2	3
1	1.000	.181	.305
2	.181	1.000	.157
3	.305	.157	1.000

Scale D, Rage during driving.

Data from the Scale D of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.865, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(91)=2805.70$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 36.44% of the total variance. Table D.1 shows the eigenvalues and the variance accounted for by each factor. Table D.2 shows the item loadings after Oblimin rotation.

The first factor (labelled “Violation-related rage”, accounting for by the 28.31% of the common variance) refers to the rage reactions due to other drivers violating the traffic code. Items such as “*Somebody reverses just in front of you without looking back*” load on this factor.

The second factor (labelled “Obstacle-related rage”, accounting for by the 8.12% of the common variance) refers to the rage reactions due to obstacles preventing drivers to drive the way they want. Items such as “*You are trapped in traffic jam*” load on this factor. The two factors are however negatively correlated (Table D.3).

Table D.1. Eigenvalues and variance accounted for by each factor (Scale D)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.532	32.370	32.370	3.529
2	1.651	11.792	44.161	2.662
3	1.025	7.324	51.485	
4	.945	6.752	58.236	
5	.839	5.991	64.227	
6	.728	5.203	69.431	
7	.679	4.853	74.284	
8	.626	4.470	78.754	
9	.585	4.179	82.933	
10	.558	3.987	86.920	
11	.540	3.855	90.775	
12	.459	3.282	94.057	
13	.436	3.112	97.169	
14	.396	2.831	100.000	

Table D.2. Factor loadings (Scale D).

	Factor	
	Violation-related Rage	Obstacle-related rage
D_1	0.630	
D_2	0.421	-0.268
D_3	0.733	
D_4	0.417	
D_5		-0.650
D_6	0.503	
D_7	0.481	-0.276
D_8	0.316	-0.420
D_9	0.581	
D_10	0.281	-0.310
D_11	0.463	
D_12		-0.792
D_13	0.614	
D_14		-0.585

Table D3. Factor Correlation
Matrix

Factor	1	2
1	1.000	-.407
2	-.407	1.000

Scale F, Personality.

Data from the Scale F of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.80, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(666)=5663.54$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a five-factor solution that accounted for the 29.08% of the total variance. Table F.1 shows the eigenvalues and the variance accounted for by each factor. Table F.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Altruism", accounting for by the 10.86% of the common variance) refers Altruism. Items such as "*I think I'm generous with who is in trouble*" load on this factor.

The second factor (labelled "Egocentrism", accounting for by the 9.60% of the common variance) refers to Egoism. Items such as "*Some people think I am egoist and egocentric*" load on this factor.

The third factor (labelled "Stability", accounting for by the 3.25% of the common variance) refers to being calm and reflexive. Items such as "*It takes a lot to make me angry*" load on this factor.

The fourth factor (labelled "Sensation seeking", accounting for by the 2.98% of the common variance) refers to the Sensation-seeking personality trait. Items such as "*I often wish exciting things*" load on this factor.

The fifth factor (labelled "Anxiety" reversed, accounting for by the 2.37% of the common variance) refers to the absence of Anxiety. Items such as "*I easily panic*" load on this factor. Correlation between Factors are shown in Table F.3.

Table F.1. Eigenvalues and variance accounted for by each factor (Scale F)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.625	12.501	12.501	3.464
2	4.084	11.038	23.539	2.833
3	1.855	5.013	28.552	1.683
4	1.683	4.547	33.099	2.946
5	1.419	3.835	36.934	1.839
6	1.354	3.660	40.594	
7	1.252	3.385	43.979	
8	1.131	3.057	47.036	
9	1.083	2.928	49.964	
10	1.039	2.809	52.773	
11	.991	2.678	55.450	
12	.959	2.591	58.041	
13	.931	2.517	60.558	
14	.880	2.379	62.937	
15	.877	2.370	65.307	

16	.852	2.303	67.610
17	.807	2.182	69.792
18	.760	2.053	71.845
19	.749	2.025	73.870
20	.715	1.932	75.802
21	.671	1.813	77.615
22	.647	1.749	79.364
23	.637	1.721	81.085
24	.618	1.671	82.756
25	.610	1.648	84.404
26	.583	1.576	85.980
27	.562	1.518	87.498
28	.541	1.461	88.960
29	.532	1.437	90.397
30	.522	1.410	91.806
31	.492	1.329	93.135
32	.485	1.311	94.447
33	.456	1.232	95.679
34	.444	1.201	96.880
35	.408	1.104	97.983
36	.396	1.070	99.054
37	.350	.946	100.000

Table F.2. Factor loadings (Scale F).

	Factor				
	Altruism	Egocentrism	Stability	Sensation Seeking	Anxiety (reversed)
F_1				0.282	
F_2				0.309	-0.313
F_3		0.425			
F_4				0.436	
F_5	-0.263	0.260			-0.275
F_6			0.299		
F_7	0.522				
F_8			0.264		
F_9				0.329	
F_10		0.690			
F_11		0.564			
F_12				0.420	

F_13		0.603			
F_14			0.369		
F_15	0.325	-0.280		0.319	
F_16			0.388		
F_17				0.482	
F_18		0.293		0.264	
F_19				0.281	
F_20	0.366			0.321	
F_21	0.382				-0.538
F_22			0.577		
F_23	0.461				
F_24				0.357	
F_25				0.496	
F_26	0.268				-0.263
F_27	0.609				
F_28				0.419	
F_29					
F_30					-0.564
F_31	0.686				
F_32			0.342		
F_33	0.497				
F_34	-0.254		0.417		
F_35	0.501				
F_36	0.269			0.298	
F_37		0.290			-0.257

Table F.3. Factor Correlation Matrix

Factor	1	2	3	4	5
1	1.000	-.217	.103	.245	.019
2	-.217	1.000	.138	.139	-.271
3	.103	.138	1.000	.173	-.041
4	.245	.139	.173	1.000	-.138
5	.019	-.271	-.041	-.138	1.000

Scale I, Driving Behaviour Questionnaire.

Data from the Scale I of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.97, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(561)=15513.78$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 49.24% of the total variance. Table I.1 shows the eigenvalues and the variance accounted for by each factor. Table I.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Slips/Lapses", accounting for by the 44.23% of the common variance) refers to errors due to lapses and slips. Items such as "*I easily panic*" load on this factor. The second factor (labelled "Violations", accounting for by the 5.01% of the common variance) refers to violations of the traffic code and to aggressive behaviour. Items such as "*Run a red light.*" or "*Got angry at another driver and shown him/her that you were angry with an obscene gesture or verbal insult*" load on this factor. This factor correlates with the previous factor.

Table I.1. Eigenvalues and variance accounted for by each factor (Scale I)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	15.424	45.366	45.366	14.041
2	2.093	6.155	51.522	12.149
3	1.198	3.524	55.046	
4	1.090	3.207	58.253	
5	.919	2.703	60.956	
6	.872	2.565	63.521	
7	.758	2.228	65.749	
8	.714	2.100	67.849	
9	.678	1.994	69.843	
10	.673	1.979	71.822	
11	.624	1.835	73.657	
12	.605	1.779	75.436	
13	.579	1.703	77.139	
14	.556	1.635	78.774	
15	.528	1.554	80.328	
16	.513	1.508	81.836	
17	.466	1.371	83.207	
18	.448	1.317	84.524	

19	.438	1.288	85.812
20	.413	1.214	87.027
21	.406	1.195	88.222
22	.397	1.168	89.390
23	.385	1.133	90.522
24	.346	1.016	91.539
25	.334	.983	92.522
26	.325	.955	93.477
27	.320	.940	94.418
28	.312	.917	95.334
29	.294	.865	96.199
30	.287	.843	97.042
31	.269	.792	97.834
32	.258	.760	98.595
33	.251	.737	99.332
34	.227	.668	100.000

Table I.2. Factor loadings (Scale I).

	Factor	
	Slips/Lapses	Violations
I_1		0.462
I_2		0.386
I_3		0.549
I_4		0.667
I_5		0.760
I_6	0.403	
I_7		0.592
I_8		0.597
I_9		0.508
I_10		0.680
I_11		0.653
I_12		0.614
I_13		0.579
I_14		0.518
I_15		0.704
I_16		0.565
I_17	0.349	
I_18	0.630	
I_19	0.753	
I_20	0.621	

I_21	0.689	
I_22	0.854	
I_23	0.740	
I_24	0.835	
I_25	0.728	
I_26	0.707	
I_27	0.701	
I_28	0.826	
I_29	0.666	
I_30	0.727	
I_31	0.711	
I_32	0.793	
I_33	0.561	
I_34	0.731	

Table I.3. Factor Correlation Matrix

Factor	1	2
1	1.000	.722
2	.722	1.000

Scale J, Imagined driving behaviour.

Data from the Scale J of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.91, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(231)=7865.18$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 50.37% of the total variance. Table J.1 shows the eigenvalues and the variance accounted for by each factor. Table J.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Violations", accounting for by the 29.33% of the common variance) refers to violations of the rules. Items such as *"To drive without keeping a safe distance."* load on this factor.

The second factor (labelled "Slowing", accounting for by the 16.72% of the common variance) refers to the caution when required by the traffic conditions. Items such as *"You slow down when approaching a danger sign"* load on this factor.

The third factor (labelled "Speeding" (reversed), accounting for by the 4.31% of the common variance) refers to speeding. Items such as *"You exceed the speed limits by 10 Km/h"* load on this factor. This factor negatively correlates to the first factor. (Table J.3).

Table J.1. Eigenvalues and variance accounted for by each factor (Scale J)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	6.881	31.278	31.278	5.714
2	4.093	18.605	49.884	3.677
3	1.365	6.203	56.087	4.576
4	.923	4.197	60.284	
5	.843	3.830	64.114	
6	.759	3.450	67.564	
7	.724	3.291	70.855	
8	.616	2.800	73.655	
9	.580	2.638	76.292	
10	.549	2.493	78.786	
11	.532	2.419	81.205	
12	.504	2.289	83.494	
13	.463	2.103	85.597	
14	.437	1.987	87.583	
15	.414	1.882	89.466	
16	.386	1.755	91.221	
17	.380	1.729	92.950	

18	.358	1.627	94.577
19	.324	1.475	96.052
20	.307	1.396	97.447
21	.289	1.312	98.760
22	.273	1.240	100.000

Table J.2. Factor loadings (Scale J).

	Factor		
	Violations	Slowing	Speeding (reversed)
J_1			-0.860
J_2			-0.723
J_3			-0.492
J_4			-0.487
J_5			-0.535
J_6	0.702		
J_7	0.631		
J_8	0.694		
J_9	0.574		
J_10	0.417		
J_11	0.427		
J_12	0.444		
J_13		0.584	
J_14		0.750	
J_15		0.755	
J_16		0.659	
J_17	0.661		
J_18	0.691		
J_19		0.749	
J_20		0.785	
J_21		0.690	
J_22	0.668		

Table J.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	-.007	-.529
2	-.007	1.000	-.109
3	-.529	-.109	1.000

Table J.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	-.007	-.529
2	-.007	1.000	-.109
3	-.529	-.109	1.000

Scale K, Driving under the effect of alcohol.

Data from the Scale K of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.76, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(36)=1257.19$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 53.11% of the total variance. Table K.1 shows the eigenvalues and the variance accounted for by each factor. Table K.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Permissive attitude toward alcohol", accounting for by the 28% of the common variance) refers to driving under the effect of alcohol. Items such as "*You drove less than two hours after having drunk alcohol*" load on this factor.

The second factor (labelled "Preventing behaviours", accounting for by the 21.7% of the common variance) refers to the behaviours aimed at preventing someone from driving under the effects of alcohol. Items such as "*You were the designated driver*" load on this factor.

Table K.1. Eigenvalues and variance accounted for by each factor (Scale K)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	3.336	37.062	37.062	2.521
2	1.445	16.051	53.113	1.953
3	.968	10.757	63.870	
4	.773	8.590	72.461	
5	.715	7.948	80.408	
6	.634	7.044	87.453	
7	.533	5.923	93.376	
8	.373	4.149	97.524	
9	.223	2.476	100.000	

Table K.2. Factor loadings (Scale K).

	Factor	
	Permissive attitude	Preventing behaviours
K_1	0.825	
K_2	0.980	
K_3		0.562
K_4		0.563
K_5	0.424	0.358

K_6		0.433
K_7		0.582
K_8	0.406	
K_9	0.355	0.342

Scale L, Effects of alcohol.

Data from the Scale L of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.893, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(190)=6034.51, p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 42.95% of the total variance. Table L.1 shows the eigenvalues and the variance accounted for by each factor. Table L.2 shows the item loadings after Oblimin rotation.

The first factor (labelled “Positive effects”, accounting for by the 26.43% of the common variance) refers to the supposed positive effects of alcohol assumption. Items such as “*Alcohol increases concentration capacity*” load on this factor.

The second factor (labelled “Negative effects”, accounting for by the 16.51% of the common variance) refers to the supposed negative effects of alcohol assumption. Items such as “*Alcohol decreases the level of attention*” load on this factor. Factors are not correlated (Table L.3).

Table L.1. Eigenvalues and variance accounted for by each factor (Scale L)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	5.763	28.816	28.816	5.217
2	3.730	18.648	47.464	3.519
3	1.102	5.510	52.974	
4	.983	4.916	57.890	
5	.897	4.486	62.376	
6	.835	4.177	66.552	
7	.696	3.479	70.031	
8	.673	3.365	73.396	
9	.640	3.199	76.594	
10	.566	2.832	79.426	
11	.519	2.593	82.019	
12	.485	2.425	84.443	
13	.471	2.354	86.798	
14	.465	2.324	89.122	
15	.441	2.206	91.327	
16	.404	2.018	93.346	
17	.393	1.964	95.310	
18	.331	1.654	96.963	
19	.317	1.583	98.546	
20	.291	1.454	100.000	

Table L.2. Factor loadings (Scale L).

	Factor	
	Positive effects	Negative effects
L_1	0.585	
L_2		0.765
L_3		0.793
L_4	0.683	
L_5	0.682	
L_6	0.699	
L_7		0.687
L_8	0.653	
L_9	0.367	
L_10	0.748	
L_11		0.491
L_12	0.691	
L_13		0.552
L_14		0.692
L_15		0.730
L_16	0.387	
L_17	0.619	
L_18	0.651	
L_19	0.665	
L_20	0.563	

Table L.3. Factor Correlation Matrix

Factor	1	2
1	1.000	.146
2	.146	1.000

Cluster analysis

Factor scores on the identified subscales for scales A, B, D, F, I, K, and L were computed through regression analysis, and then submitted to cluster analysis in order to identify groups of respondents. Also the scores on the scale H (Moral disengagement) were included into the analysis. A hierarchical method of cluster analysis was used to identify the number of clusters, then a k-means method was used to identify the groups of respondents.

Results showed three separate groups of respondents. A multivariate analysis of variance yielded a significant difference among the three groups (Wilks' Lambda=0.12, $F_{38,1296}=63.35$, $p<.0001$). A further factorial analysis of variance on the subscales scores yielded a significant difference among the three groups ($F_{2,666}=314.28$, $p<.001$) and a significant interaction between group and subscale ($F_{36,11988}= 92.98$, $p<.001$), meaning that each group of respondents shows a specific profile.

1. **RISKY DRIVERS.** One group can be identified as composed of risky drivers. They have a permissive attitude toward driving under the effect of alcohol and recreational drugs, and are not aware of the negative effects of alcohol upon driving. They also refer not to have a correct behaviour during driving, and indeed they are quite tolerant toward violations of the traffic code and speeding. Furthermore, risky drivers have high scores on driving related rage, especially due to obstacles, and high scores on moral disengagement. Compared to safe drivers, risky drivers have higher scores on sensation seeking and aggressive driving, and have more direct experiences of driving under the effect of alcohol.
2. **OVERCONFIDENT DRIVERS.** People in this group are especially characterized by very high scores on tolerance toward violations of the traffic code, on egocentrism subscale, and on moral disengagement. They have a clear internal Locus of Control, and consider alcohol as having positive effects also on driving behaviour. They are tolerant toward traffic code violations, and have rather high scores on sensation seeking and egocentrism. Similarly to the risky drivers, they show high scores on moral disengagement. They also seem to be aware of the negative effects of alcohol upon driving, though are less involved in preventing behaviours. Interestingly, they seem to be less affected by driving related rage compared to the other two groups of respondents.
3. **SAFE DRIVERS.** Safe drivers are instead characterized by being not tolerant toward driving under the effects of alcohol and drugs, toward violations of traffic rules and speeding. Safe drivers have a rather high score on attention-related Locus of Control, and show intermediate levels of anxiety. They are also aware of the alcohol negative effects upon driving, and do not feel rage during driving. People in the safe drivers group show low scores on moral disengagement.

Interestingly, the three groups do not differ in terms of age or gender. However, it should be noted that the large majority of the sample is composed of male respondents.

The average score per subscale (and standard error) for each group is shown in Table 1. Tables 2, 3, and 4 report the results of the post-hoc comparisons among the three groups. Table 5 shows the respondents' mean age as a function of gender and group. Figure 1 shows the profiles of the three groups of drivers on subscales. The three groups do not differ in terms of their perception of risk of being involved in an accident and of how much they worry about this possibility (Figure 2). Instead, respondents in the overconfident group consider their friends as approving and encouraging their reckless driving behaviour more than respondents in the other two groups (Figure 3). Finally, respondents in the safe drivers group refer their parents would be angry if they would adopt a risky driving behaviour more than respondents in the other two groups (Figure 4).

Table 1. Average scores and standard errors for each group on the subscales of the questionnaire.

	SAFE drivers			RISKY drivers			OVERCONFIDENT drivers		
	Mean	Std.Err.	N	Mean	Std.Err.	N	Mean	Std.Err.	N
Negative attitude toward alcohol/drugs	0.47	0.05	320	-0.59	0.07	159	-0.31	0.06	190
Tolerance toward violations	-0.42	0.05	320	0.14	0.06	159	0.54	0.06	190
External Locus of Control	-0.04	0.05	320	-0.28	0.07	159	0.23	0.07	190
Attention-related LOC	0.46	0.04	320	-0.69	0.06	159	-0.13	0.06	190
Internal Locus of Control	-0.22	0.05	320	-0.20	0.07	159	0.47	0.06	190
Violation-related rage	0.14	0.05	320	-0.50	0.07	159	0.16	0.06	190
Obstacle-related rage (rev)	0.38	0.04	320	0.07	0.06	159	-0.58	0.06	190
Altruism	0.62	0.04	320	-0.81	0.05	159	-0.31	0.05	190
Egocentrism	-0.40	0.04	320	0.01	0.06	159	0.66	0.06	190
Stability	-0.12	0.05	320	-0.20	0.06	159	0.37	0.06	190
Sensation Seeking	0.15	0.05	320	-0.60	0.06	159	0.31	0.06	190
Anxiety (rev)	0.09	0.05	320	0.17	0.07	159	-0.23	0.06	190
Slips/Lapses	-0.68	0.04	320	0.20	0.05	159	0.96	0.05	190
Violations	-0.64	0.04	320	0.12	0.05	159	0.98	0.05	190
Alcohol positive effects	-0.53	0.04	320	-0.03	0.06	159	0.87	0.05	190
Alcohol negative effects	0.35	0.05	320	-0.72	0.07	159	0.01	0.06	190
Experiences with alcohol related issues	-0.53	0.04	320	-0.09	0.06	159	0.94	0.05	190
Prevention behaviors	-0.16	0.04	320	-0.34	0.06	159	0.57	0.06	190
Moral disengagement	-0.35	0.05	320	-0.05	0.07	159	0.70	0.06	190

Table 2. Comparison between Risky and Safe drivers on each subscale.

	SAFE drivers	RISKY drivers	Significance
	N=320	N=159	
Negative attitude toward alcohol/drugs	0.47	-0.59	p<.001
Tolerance toward violations	-0.42	0.14	p<.001
External Locus of Control	-0.04	-0.28	ns
Attention-related LOC	0.46	-0.69	p<.001
Internal Locus of Control	-0.22	-0.20	ns
Violation-related rage	0.14	-0.50	p<.001
Obstacle-related rage (rev)	0.38	0.07	p<.001
Altruism	0.62	-0.81	p<.001
Egocentrism	-0.40	0.01	p<.001
Stability	-0.12	-0.20	ns
Sensation Seeking	0.15	-0.60	p<.001
Anxiety (rev)	0.09	0.17	ns
Slips/Lapses	-0.68	0.20	p<.001
Violations	-0.64	0.12	p<.001
Alcohol positive effects	-0.53	-0.03	p<.001
Alcohol negative effects	0.35	-0.72	p<.001

Experiences with alcohol related issues	-0.53	-0.09	p<.001
Prevention behaviors	-0.16	-0.34	ns
Moral disengagement	-0.35	-0.05	p<.001

Table 3. Comparison between Safe and Overconfident drivers on each subscale.

	SAFE drivers	OVERCONFIDENT drivers	Significance
	N=320	N=190	
Negative attitude toward alcohol/drugs	0.47	-0.31	p<.001
Tolerance toward violations	-0.42	0.54	p<.001
External Locus of Control	-0.04	0.23	ns
Attention-related LOC	0.46	-0.13	p<.001
Internal Locus of Control	-0.22	0.47	p<.001
Violation-related rage	0.14	0.16	ns
Obstacle-related rage (rev)	0.38	-0.58	p<.001
Altruism	0.62	-0.31	p<.001
Egocentrism	-0.40	0.66	p<.001
Stability	-0.12	0.37	p<.001
Sensation Seeking	0.15	0.31	ns
Anxiety (rev)	0.09	-0.23	p<.001
Slips/Lapses	-0.68	0.96	p<.001
Violations	-0.64	0.98	p<.001
Alcohol positive effects	-0.53	0.87	p<.001
Alcohol negative effects	0.35	0.01	p<.001
Experiences with alcohol related issues	-0.53	0.94	p<.001
Prevention behaviors	-0.16	0.57	p<.001
Moral disengagement	-0.35	0.70	p<.001

Table 4. Comparison between Overconfident and Risky drivers on each subscale.

	RISKY drivers	OVERCONFIDENT drivers	Significance
	N=159	N=190	
Negative attitude toward alcohol/drugs	-0.59	-0.31	ns
Tolerance toward violations	0.14	0.54	p<.001
External Locus of Control	-0.28	0.23	p<.001
Attention-related LOC	-0.69	-0.13	p<.001
Internal Locus of Control	-0.20	0.47	p<.001
Violation-related rage	-0.50	0.16	p<.001
Obstacle-related rage (rev)	0.07	-0.58	p<.001
Altruism	-0.81	-0.31	p<.001
Egocentrism	0.01	0.66	p<.001
Stability	-0.20	0.37	p<.001
Sensation Seeking	-0.60	0.31	p<.001
Anxiety (rev)	0.17	-0.23	p<.001

Slips/Lapses	0.20	0.96	p<.001
Violations	0.12	0.98	p<.001
Alcohol positive effects	-0.03	0.87	p<.001
Alcohol negative effects	-0.72	0.01	p<.001
Experiences with alcohol related issues	-0.09	0.94	p<.001
Prevention behaviors	-0.34	0.57	p<.001
Moral disengagement	-0.05	0.70	p<.001

Table 5. Mean age (years) and standard errors as a function of gender and group.

		Mean age	Standard error	N
Males	Safe drivers	19.33	0.20	282
	Risky drivers	18.87	0.27	150
	Overconfident drivers	18.94	0.25	177
Females	Safe drivers	19.28	0.59	32
	Risky drivers	20.00	1.36	6
	Overconfident drivers	18.78	1.11	9

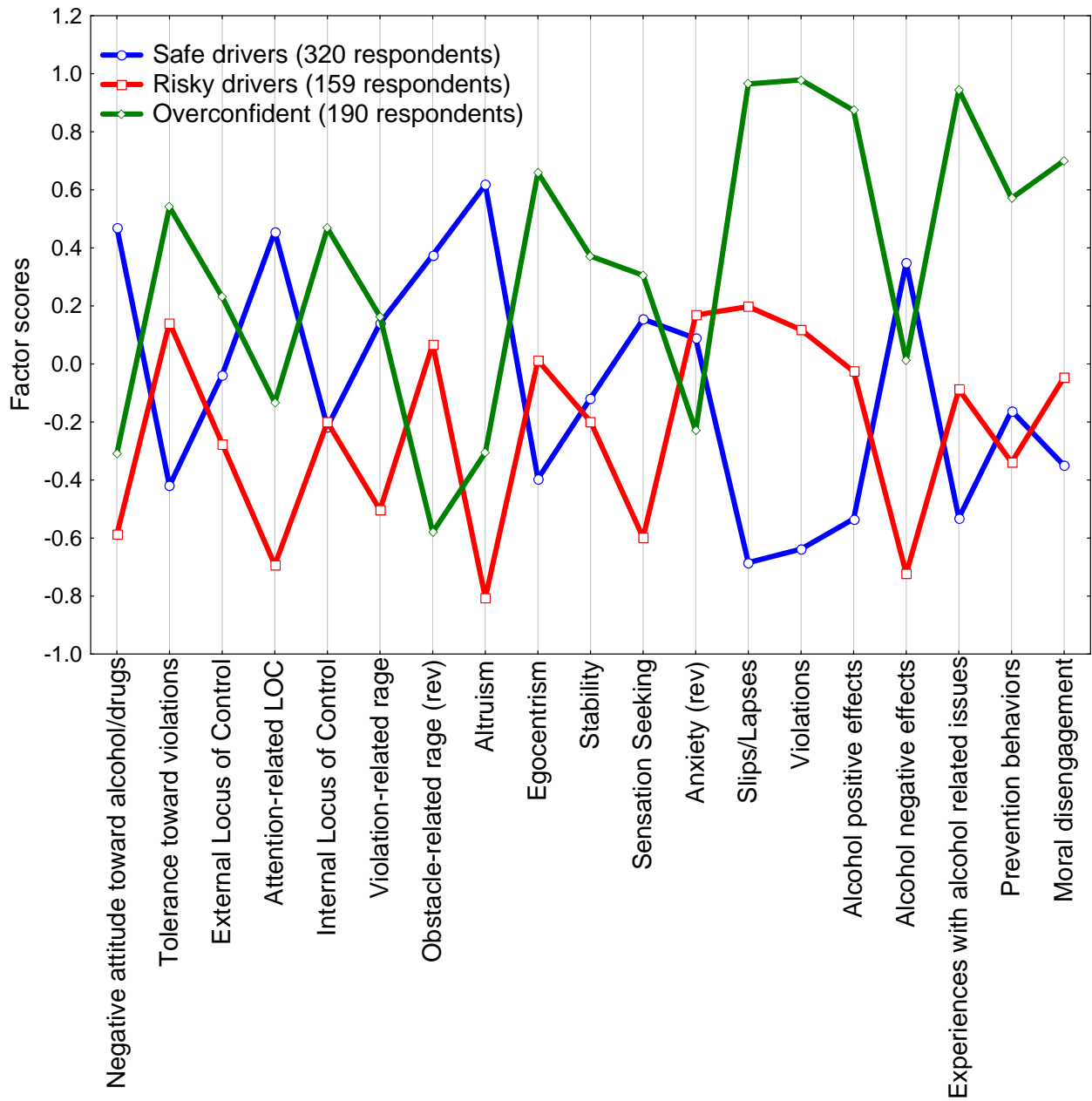


Figure 1. Average scores for each group on subscales of the questionnaire.



Figure 2. Average scores for each group on items concerning risk perception.

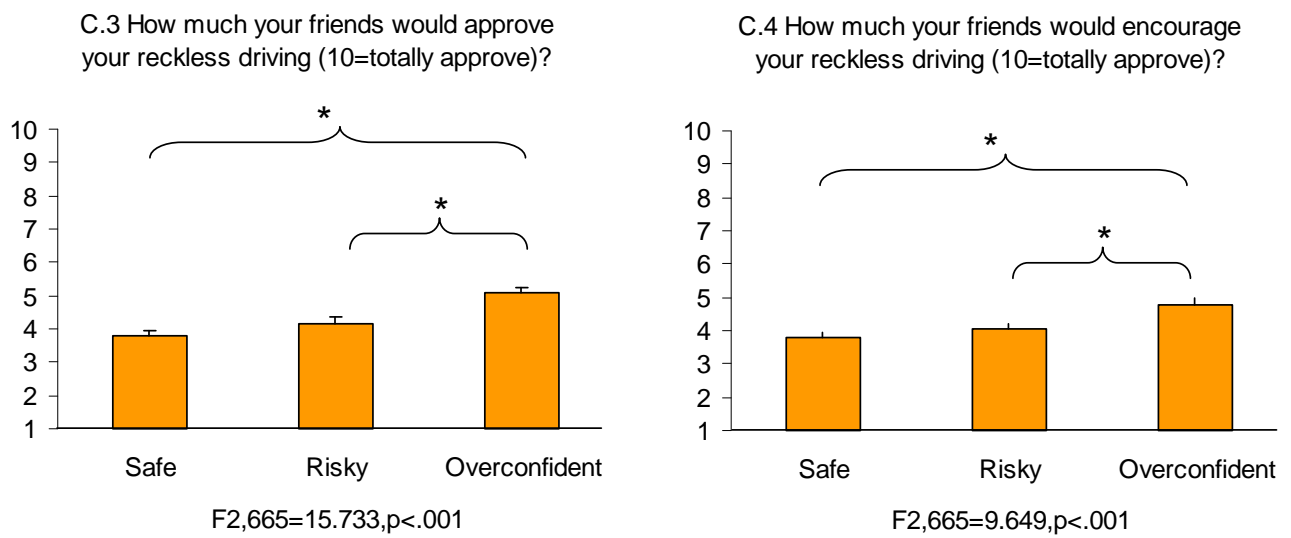


Figure 3. Average scores for each group on items concerning friends' attitude.

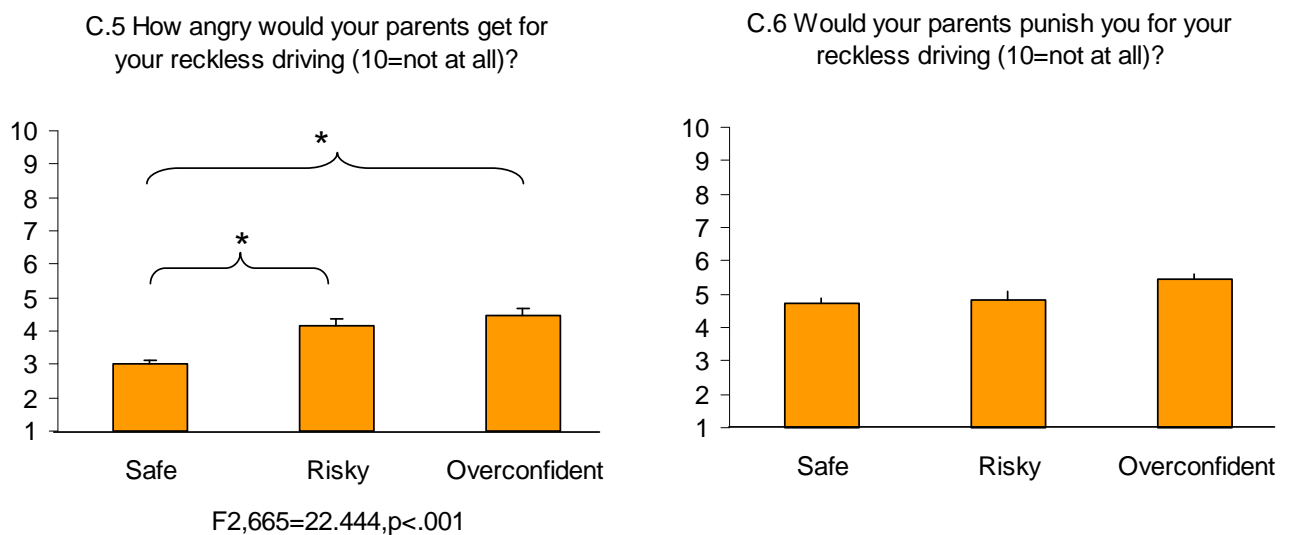


Figure 4. Average scores for each group on items concerning parents' attitude.

SCOOTER DRIVERS (QUESTIONNAIRE SECTION 2)

Sample description

A total of 156 people answered the Section 2 of the questionnaire. Males were 140 (89.7% of the total sample) and females were 16 (10.3% of the total sample). Their mean age was 18.3 years (standard deviation .9), ranging between 16 and 21 years. Age was no significantly different between males and females. Not all the respondents answered all the items of the questionnaire, thus each analysis was run on the largest sample available for that analysis (missing values were not estimated).

Driving habits

Tables 1 to 13 show the distribution as a function of gender of the answers to items concerning the driving habits and experiences. Most scooter drivers from Bulgaria refer to use scooters or motorbikes on a fair regular basis (about 46% of them drive a scooter more than 4 times a week, without a gender prevalence). Their use of scooters is characterized by being very variable in term of number of kilometres travelled, from only few to more than 100 kilometres. Interestingly, male drivers refer to drive after 11.00 pm relatively often (about 47% of them drive after 11:00 pm more than 2 times a week). Bulgarian scooter drivers also are not normally used to go on as passengers. Male drivers also refer to have received a traffic fine less often than female drivers (but it should be noted that female drivers are very poorly represented in the sample), mostly for speeding. and driving without the helmet. Scooter drivers refer not to have been involved in accidents both as drivers or passengers very often, and usually they refer to have had only material damages.

Only few respondents (20% of the total sample, but mostly male drivers) state that they have driven after having drunk alcohol (though it must be noticed that the item do not refer to being drunk, but only to driving after having drunk some alcohol). However, very few of them refer of having recognized some of the symptoms associated with driving under the effects of alcohol, especially difficulties on following the road. This might suggest that a consistent number of young drivers are rather unaware of the negative effects of driving under the effects of alcohol.

Summarizing, Bulgarian young scooter drivers seem to be characterized by being frequent drivers, relatively experienced of driving during night hours, and not completely aware of the dangers associated with driving under the effects of alcohol.

Table 1. Frequency distribution of respondents for item G1.6 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

	G1_6 How many times a week do you use a scooter?					
	Never	1-2 times	3-4 times	5-6 times	Everyday	Only in the weekend
Males	5 (4.42%)	24 (21.24%)	22 (19.47%)	18 (15.93%)	35 (30.97%)	9 (7.96%)
Females	0 (30.%)	3 (20.%)	2 (20.%)	2 (20.%)	2 (20.%)	1 (10.%)
Total	5 (4.07%)	27 (21.95%)	24 (19.51%)	20 (16.26%)	37 (30.08%)	10 (8.13%)

Table 2. Frequency distribution of respondents for item G1.7 as a function of gender. * refers to significant differences ($p<.001$) between males and females.

G1_7 How many kilometres do you drive in a week?					
	1-10 Km	11-30 Km	31-50 Km	51-100 Km	More than 100 Km
Males	17 (15.04%)	20 (17.7%)	23 (20.35%)	28 (24.78%)	25 (22.12%)
Females	2 (20.%)	1 (10.%)	4 (40.%)	1 (10.%)	2 (20.%)
Total	19 (15.45%)	21 (17.07%)	27 (21.95%)	29 (23.58%)	27 (21.95%)

Table 3. Frequency distribution of respondents for item G1.8 as a function of gender. * refers to significant differences ($p<.001$) between males and females.

G1_8 In the last three months, how many times have you driven after 11:00 pm?				
	Never	1-2 times	2-4 times	More than 4 times
Males	35 (30.97%)	24 (21.24%)	26 (23.01%)	28 (24.78%)
Females	4 (40.%)	4 (40.%)	1 (10.%)	1 (10.%)
Total	39 (31.71%)	28 (22.76%)	27 (21.95%)	29 (23.58%)

Table 4. Frequency distribution of respondents for item G1.9 as a function of gender. * refers to significant differences ($p<.001$) between males and females.

G1_9 How often in a week do you go on a scooter sitting behind?						
	Never	1-2 times	3-4 times	5-6 times	Everyday	Only in the week end
Males	31 (27.43%)	29 (25.66%)	24 (21.24%)	13 (11.5%)	15 (13.27%)	1 (.88%)
Females	4 (40.%)	4 (40.%)	2 (20.%)	0	0	0
Total	35 (28.46%)	33 (26.83%)	26 (21.14%)	13 (10.57%)	15 (12.2%)	1 (.81%)

Table 5. Frequency distribution of respondents for item G1.10 as a function of gender. * refers to significant differences ($p<.001$) between males and females.

G1_10 In the last three months how often you accepted a lift on a scooter after 11:00 pm?				
	Never	1-2 times a month	2-4 times in a month	More than 4 times in a month
Males	49 (43.36%)	33 (29.2%)	19 (16.81%)	12 (10.62%)
Females	7 (70.%)	3 (30.%)	0	0
Total	56 (45.53%)	36 (29.27%)	19 (15.45%)	12 (9.76%)

Table 6. Frequency distribution of respondents for item G1.11 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

G1_11 Have you ever been fined?		
	Yes	No
Males	28 (24.78%)	85 (75.22%)
Females	5 (50.%)	5 (50.%)
Total	33 (26.83%)	90 (73.17%)

Table 7. Frequency distribution of respondents for kinds of violations as a function of gender. * refers to significant differences ($p < .001$) between males and females.

	Males	Females	Total
Running a stop sign	8 (5.71%)	0	8 (5.13%)
Running a red light	8 (5.71%)	1 (6.25%)	9 (5.77%)
No parking	6 (4.29%)	1 (6.25%)	7 (4.49%)
Passenger	7 (5.%)	0	7 (4.49%)
Drunk driving	6 (4.29%)	1 (6.25%)	7 (4.49%)
Driving without the helmet	14 (10.%)	2 (12.5%)	16 (10.26%)
Speeding	10 (7.14%)	2 (12.5%)	12 (7.69%)

Table 8. Frequency distribution of respondents for item G1.21 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

G1_21 Have you ever been involved in an accident as a driver?			
	Yes	No	No but I was close to
Males	19 (16.81%)	79 (69.91%)	15 (13.27%)
Females	4 (40.%)	5 (50.%)	1 (10.%)
Total	23 (18.7%)	84 (68.29%)	16 (13.01%)

Table 9. Frequency distribution of respondents for item G1.23 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

G1_23 What were the consequences?			
	Material damages	Personal injuries	Both
Males	20 (42.55%)	12 (25.53%)	5 (10.64%)
Females	2 (40.%)	2 (40.%)	1 (20.%)
Total	22 (42.31%)	14 (26.92%)	6 (11.54%)

Table 10. Frequency distribution of respondents for item G1.24 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

G1_24 Have you ever been involved in an accident as a passenger?			
	Yes	No	No but I was close to
Males	29 (25.66%)	74 (65.49%)	10 (8.85%)
Females	2 (20.%)	7 (70.%)	1 (10.%)
Total	31 (25.2%)	81 (65.85%)	11 (8.94%)

Table 11. Frequency distribution of respondents for item G1.26 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

G1_26 What were the consequences?			
	Material damages	Personal injuries	Both
Males	25 (50.%)	16 (32.%)	9 (18.%)
Females	2 (50.%)	2 (50.%)	0
Total	27 (50.%)	18 (33.33%)	9 (16.67%)

Table 12. Frequency distribution of respondents for item G1.27 as a function of gender. * refers to significant differences ($p < .001$) between males and females.

G1_27 Have you ever driven after drinking alcoholic drinks?		
	Yes	No
Males	24 (21.24%)	89 (78.76%)
Females	1 (10.%)	9 (90.%)
Total	25 (20.33%)	98 (79.67%)

Table 13. Frequency distribution of respondents for alcohol effects as a function of gender. * refers to significant differences ($p < .001$) between males and females.

	Males	Females	Total
You could hardly follow the road	11 (7.86%)	0	11 (7.05%)
You could hardly keep your head on straight	8 (5.71%)	0	8 (5.13%)
You had muscle cramps	6 (4.29%)	0	6 (3.85%)
You could hardly keep your eyes open	8 (5.71%)	0	8 (5.13%)
You got stomach cramps	5 (3.57%)	1 (6.25%)	6 (3.85%)
You could not focus on the road	6 (4.29%)	0	6 (3.85%)
Someone who was with you made you notice it	8 (5.71%)	0	8 (5.13%)

Specific dimensions of the questionnaire scales

Scale A, Attitude toward road safety issues.

Data from the Scale A of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.779, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(153)=921.589$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 42.03% of the total variance. Table A.1 shows the eigenvalues and the variance accounted for by each factor. Table A.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Negative attitude towards drugs and alcohol" (reversed), accounting for by the 19.73% of the common variance) refer to the attitude toward driving under the effects of substances. Items such as "*I would never drive after drinking alcoholic drinks*" and "*I would never drive under the influence of narcotic drugs*" load on this factor.

The second factor (labelled "Justifying violations", accounting for by the 17.57% of the common variance) refers to the attitude to justifying violations of traffic rules. Items such as "*High-speed driving is reasonable if you are a good driver*" load on this factor.

The third factor (labelled "Tolerance toward violations", accounting for by the 13.77% of the common variance) refers to an attitude toward violations of traffic rules. Items such as "*To keep traffic smooth-flowing you should ignore many of the road traffic rules*" load on this factor. Factors are slightly correlated (Table A.3).

Table A.1. Eigenvalues and variance accounted for by each factor (Scale A)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.767	26.481	26.481	3.553
2	2.619	14.552	41.033	3.164
3	1.420	7.889	48.922	2.480
4	1.151	6.395	55.316	
5	1.038	5.764	61.081	
6	.918	5.097	66.178	
7	.868	4.821	70.999	
8	.777	4.319	75.317	
9	.725	4.026	79.343	
10	.625	3.471	82.814	
11	.550	3.053	85.868	
12	.480	2.667	88.535	
13	.477	2.651	91.186	
14	.415	2.303	93.489	

15	.393	2.183	95.672
16	.294	1.631	97.303
17	.272	1.513	98.815
18	.213	1.185	100.000

Table A.2. Factor loadings (Scale A).

	Factors		
	Negative attitude toward drugs and alcohol (reversed)	Justifying violations to traffic rules	Tolerance to violations to traffic rules
A_1			0.520
A_2			0.700
A_3	-0.432		
A_4			0.656
A_5	0.276		
A_6		0.833	
A_7		0.597	
A_8			0.359
A_9		0.486	
A_10		0.729	
A_11			
A_12		0.491	
A_13		0.379	
A_14	-0.575		
A_15	-0.696		
A_16	-0.764		
A_17	-0.830		
A_18	-0.835		

Table A.3. Factor Correlation Matrix

Factor	1	2	2
1	1.000	.236	.235
2	.236	1.000	.412
3	.235	.412	1.000

Scale B, Locus of Control.

Data from the Scale B of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.688, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(435)=1216.47$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 26.9% of the total variance. Table B.1 shows the eigenvalues and the variance accounted for by each factor. Table B.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "External Locus of Control", accounting for by the 12.09% of the common variance) refers to an external Locus of Control, as respondents attribute responsibility of road accidents mostly to external causes, independent of drivers behaviour. Items such as "*Driving without accidents is mainly a question of good luck*" load on this factor.

The second factor (labelled "Internal Locus of Control" (reversed), accounting for by the 9.35% of the common variance) refers to an internal Locus of Control, as respondents attribute responsibility of road accidents mostly to drivers. Items such as "*A careful driver can prevent any accident*" load on this factor. This factor negatively correlates to the first factor (Table B.3).

The third factor (labelled "Attention related LOC", accounting for by the 7.04% of the common variance) refers to an internal, attention-related Locus of Control, as respondents attribute responsibility of road accidents mostly to drivers' failure to be careful or to pay attention to driving. Items such as "*Driving without accidents depends on driver's ability to pay attention to what happens on the road and pavement*" load on this factor.

This factor positively correlates to the first factor and correlates negatively to the second factor (Table B.3).

Table B.1. Eigenvalues and variance accounted for by each factor (Scale B)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.926	16.420	16.420	3.870
2	2.576	8.588	25.008	2.805
3	1.921	6.405	31.413	2.113
4	1.682	5.607	37.020	
5	1.638	5.460	42.480	
6	1.509	5.031	47.511	
7	1.407	4.691	52.202	
8	1.304	4.348	56.550	
9	1.220	4.065	60.615	
10	1.077	3.591	64.206	
11	.967	3.222	67.428	
12	.906	3.022	70.450	

13	.834	2.780	73.230
14	.767	2.556	75.785
15	.748	2.492	78.278
16	.701	2.337	80.615
17	.631	2.103	82.718
18	.591	1.968	84.686
19	.565	1.885	86.571
20	.518	1.728	88.299
21	.483	1.611	89.910
22	.441	1.471	91.381
23	.421	1.403	92.785
24	.407	1.355	94.140
25	.352	1.174	95.314
26	.334	1.114	96.428
27	.306	1.019	97.447
28	.271	.904	98.351
29	.265	.884	99.235
30	.230	.765	100.000

Table B.2. Factor loadings (Scale B).

	Factor		
	External LOC	Internal LOC (rev)	Attention-related Internal LOC
B_1		-0.491	
B_2	0.452		
B_3			
B_4	0.387		
B_5			0.427
B_6		-0.345	0.312
B_7		-0.647	
B_8		-0.750	
B_9			0.465
B_10	0.550		
B_11		-0.278	
B_12	0.472	-0.329	
B_13	0.366		
B_14	0.453	-0.417	
B_15	0.441		
B_16		-0.508	

B_17			0.711
B_18	0.464		
B_19	0.509		
B_20			
B_21			
B_22	0.524		
B_23	0.560		
B_24	0.415		
B_25	0.479		
B_26	0.417		
B_27	0.378		
B_28		-0.293	0.361
B_29			0.446
B_30			0.321

Table B.3. Factor correlation matrix

Factor	1	2	3
1	1.000	-.189	.134
2	-.189	1.000	-.133
3	.134	-.133	1.000

Scale D, Rage during driving.

Data from the Scale D of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.799, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(91)=697.409$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 39.44% of the total variance. Table D.1 shows the eigenvalues and the variance accounted for by each factor. Table D.2 shows the item loadings after Oblimin rotation.

The first factor (labelled “Violation-related rage”, accounting for by the 25.20% of the common variance) refers to the rage reactions due to other drivers violating the traffic code. Items such as “*Somebody reverses just in front of you without looking back*” load on this factor.

The second factor (labelled “Obstacle-related rage”, accounting for by the 19.01% of the common variance) refers to the rage reactions due to obstacles preventing drivers to drive the way they want. Items such as “*You are trapped in traffic jam*” load on this factor. The two factors are however correlated (Table D.3).

Table D.1. Eigenvalues and variance accounted for by each factor (Scale D)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.713	33.667	33.667	3.529
2	1.736	12.400	46.067	2.662
3	1.244	8.883	54.949	
4	1.002	7.156	62.106	
5	.873	6.233	68.338	
6	.741	5.296	73.635	
7	.642	4.583	78.217	
8	.603	4.310	82.527	
9	.547	3.905	86.432	
10	.468	3.346	89.778	
11	.454	3.243	93.021	
12	.392	2.803	95.824	
13	.338	2.411	98.235	
14	.247	1.765	100.000	

Table D.2. Factor loadings (Scale D).

	Factor	
	Violation-related Rage	Obstacle-related rage
D_1	0.565	
D_2		0.611
D_3	0.661	
D_4	0.481	
D_5	0.479	
D_6	0.614	
D_7		0.610
D_8		0.531
D_9		0.603
D_10		0.429
D_11		0.746
D_12	0.523	
D_13	0.788	
D_14	0.703	

Table D3. Factor Correlation
Matrix

Factor	1	2
1	1.000	.373
2	.373	1.000

Scale F, Personality.

Data from the Scale F of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.671, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(666)=2197.97$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 29.55% of the total variance. Table F.1 shows the eigenvalues and the variance accounted for by each factor. Table F.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Calmness", accounting for by the 7.739% of the common variance) refers to being calm and reflexive. Items such as "*It takes a lot to make me angry*" load on this factor. The second factor (labelled "Altruism", accounting for by the 12.24% of the common variance) refers Altruism. Items such as "*I think I'm generous with who is in trouble*" load on this factor. The third factor (labelled "Anxiety", accounting for by the 10.24% of the common variance) refers to the absence of Anxiety. Items such as "*I easily panic*" load on this factor. Correlation between Factors are shown in Table F.3.

Table F.1. Eigenvalues and variance accounted for by each factor (Scale F)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	5.307	14.344	14.344	2.862
2	4.222	11.412	25.756	4.530
3	3.352	9.060	34.817	3.790
4	2.133	5.764	40.581	
5	1.707	4.614	45.195	
6	1.472	3.978	49.173	
7	1.365	3.690	52.862	
8	1.274	3.443	56.306	
9	1.197	3.234	59.540	
10	1.086	2.935	62.475	
11	1.072	2.898	65.372	
12	1.026	2.772	68.145	
13	.890	2.404	70.549	
14	.858	2.320	72.869	
15	.836	2.258	75.128	
16	.790	2.136	77.263	
17	.750	2.026	79.289	
18	.704	1.902	81.191	
19	.643	1.736	82.927	

20	.630	1.702	84.629
21	.528	1.426	86.056
22	.513	1.387	87.443
23	.491	1.328	88.771
24	.464	1.254	90.025
25	.452	1.220	91.245
26	.413	1.116	92.361
27	.374	1.011	93.372
28	.363	.981	94.353
29	.336	.907	95.261
30	.300	.810	96.071
31	.267	.723	96.794
32	.249	.673	97.466
33	.241	.652	98.118
34	.217	.587	98.705
35	.194	.523	99.228
36	.156	.423	99.651
37	.129	.349	100.000

Table F.2. Factor loadings (Scale F).

	Factor		
	Calmness	Altruism	Anxiety
F_1		0.558	
F_2			0.338
F_3			0.805
F_4		0.415	
F_5			0.750
F_6	0.248		
F_7		0.515	
F_8		-0.298	
F_9	0.532		
F_10			0.496
F_11			0.712
F_12		0.459	
F_13			0.508
F_14	0.964		
F_15			-0.311
F_16		-0.364	
F_17	0.420		

F_18			0.422
F_19			0.238
F_20		0.503	
F_21			
F_22	0.351		
F_23		0.421	
F_24	0.123		
F_25	0.465		
F_26		0.450	
F_27		0.662	
F_28		0.444	
F_29	0.473		
F_30			0.389
F_31		0.611	
F_32	-0.198		
F_33		0.684	
F_34			0.423
F_35		0.694	
F_36		0.486	
F_37			0.382

Table F.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	-.081	-.106
2	-.081	1.000	.053
3	-.106	.053	1.000

Scale I, Driving Behaviour Questionnaire.

Data from the Scale I of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.861, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(253)=1945.07$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 47.09% of the total variance. Table I.1 shows the eigenvalues and the variance accounted for by each factor. Table I.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Violations", accounting for by the 29.36% of the common variance) refers to violations of the traffic code. Items such as "*To exceed the speed limit by over 10 Km/h.*" load on this factor.

The second factor (labelled "Caution", accounting for by the 19.96% of the common variance) refers to the caution when required by the traffic conditions. Items such as "*To slow down near a sign of danger*" load on this factor. This factor slightly correlates with the previous factor.

Table I.1. Eigenvalues and variance accounted for by each factor (Scale I)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	7.515	32.675	32.675	6.754
2	3.966	17.242	49.917	4.591
3	1.617	7.030	56.946	
4	1.126	4.894	61.841	
5	1.063	4.621	66.462	
6	.921	4.005	70.466	
7	.738	3.211	73.677	
8	.709	3.085	76.761	
9	.613	2.665	79.426	
10	.590	2.565	81.990	
11	.523	2.275	84.266	
12	.479	2.083	86.349	
13	.437	1.898	88.247	
14	.407	1.771	90.018	
15	.370	1.607	91.624	
16	.357	1.552	93.176	
17	.276	1.202	94.378	
18	.269	1.171	95.549	
19	.262	1.137	96.687	

20	.234	1.015	97.702
21	.206	.896	98.598
22	.178	.773	99.371
23	.145	.629	100.000

Table I.2. Factor loadings (Scale I).

	Factor	
	Violations	Caution
I_1	0.255	
I_2	0.479	
I_3	0.616	
I_4	0.690	
I_5	0.578	
I_6	0.765	
I_7	0.648	
I_8	0.792	
I_9	0.631	
I_10	0.641	
I_11		0.425
I_12	0.642	
I_13		0.393
I_14		0.706
I_15		0.643
I_16		0.726
I_17	0.634	
I_18	0.674	
I_19	0.737	
I_20		0.865
I_21		0.827
I_22		0.716
I_23	0.723	

Table I.3. Factor Correlation Matrix

Factor	1	2
1	1.000	.184
2	.184	1.000

Scale J, Imagined driving behaviour.

Data from the Scale J of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.818, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(231)=1619.315$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 47.14% of the total variance. Table J.1 shows the eigenvalues and the variance accounted for by each factor. Table J.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Violations", accounting for by the 23.77% of the common variance) refers to violations of the rules. Items such as *"To drive without keeping a safe distance."* load on this factor.

The second factor (labelled "Caution" (reversed), accounting for by the 13.89% of the common variance) refers to the caution when required by the traffic conditions. Items such as *"You slow down when approaching a danger sign"* load on this factor.

The third factor (labelled "Speed", accounting for by the 19.15% of the common variance) refers to speeding. Items such as *"You exceed the speed limits by 10 Km/h"* load on this factor. This factor positively correlates to the first factor and negatively to the second factor. (Table J.3).

Table J.1. Eigenvalues and variance accounted for by each factor (Scale J)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	6.462	29.374	29.374	5.230
2	3.483	15.832	45.206	3.057
3	1.632	7.419	52.625	4.213
4	1.438	6.534	59.160	
5	1.147	5.213	64.372	
6	.909	4.133	68.505	
7	.824	3.746	72.251	
8	.735	3.342	75.592	
9	.664	3.020	78.612	
10	.593	2.696	81.308	
11	.571	2.595	83.903	
12	.498	2.262	86.165	
13	.480	2.182	88.347	
14	.417	1.894	90.241	
15	.386	1.753	91.994	
16	.328	1.489	93.483	

17	.314	1.428	94.911
18	.267	1.212	96.123
19	.261	1.185	97.308
20	.234	1.063	98.371
21	.209	.949	99.320
22	.150	.680	100.000

Table J.2. Factor loadings (Scale J).

	Factor		
	Violations	Caution (reversed)	Speed
J_1			0.586
J_2			0.442
J_3			0.773
J_4			0.752
J_5			0.668
J_6	0.490		
J_7	0.684		
J_8	0.882		
J_9	0.685		
J_10	0.557		
J_11	0.347		
J_12	0.504		
J_13		-0.337	
J_14		-0.979	
J_15		-0.751	
J_16		-0.735	
J_17	0.428		
J_18	0.562		
J_19		-0.658	
J_20	-0.624		
J_21	-0.464		
J_22	0.616		

Table J.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	.030	.358
2	.030	1.000	-.342
3	.358	-.342	1.000

Scale K, Driving under the effect of alcohol.

Data from the Scale K of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.76, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(36)=517.267$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 51.27% of the total variance. Table K.1 shows the eigenvalues and the variance accounted for by each factor. Table K.2 shows the item loadings after Oblimin rotation.

The first factor (labelled “Permissive attitude toward alcohol”, accounting for by the 34.31% of the common variance) refers to driving under the effect of alcohol. Items such as “*You drove less than two hours after having drunk alcohol*” load on this factor.

The second factor (labelled “Preventing behaviours”, accounting for by the 17.28% of the common variance) refers to the behaviours aimed at preventing someone from driving under the effects of alcohol. Items such as “*You were the designated driver*” load on this factor.

Table K.1. Eigenvalues and variance accounted for by each factor (Scale K)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	3.464	38.483	38.483	3.089
2	1.987	22.079	60.562	1.556
3	.864	9.598	70.160	
4	.711	7.896	78.056	
5	.515	5.717	83.773	
6	.458	5.084	88.857	
7	.422	4.686	93.543	
8	.346	3.840	97.383	
9	.236	2.617	100.000	

Table K.2. Factor loadings (Scale K).

	Factor	
	Permissive attitude	Preventing behaviours
K_1	0.679	
K_2	0.846	
K_3		0.606
K_4	0.584	

K_5	0.776	
K_6		0.793
K_7		0.685
K_8	0.714	
K_9	0.668	

Table K.3. Factor Correlation Matrix

Factor	1	2
1	1.000	.085
2	.085	1.000

Scale L, Effects of alcohol.

Data from the Scale L of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.821, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(190)=1274.195$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 47.38% of the total variance. Table L.1 shows the eigenvalues and the variance accounted for by each factor. Table L.2 shows the item loadings after Oblimin rotation.

The first factor (labelled “Positive cognitive effects”, accounting for by the 23.08% of the common variance) refers to the supposed positive effects of alcohol assumption on cognitive abilities. Items such as “*Alcohol increases concentration capacity*” load on this factor.

The second factor (labelled “Negative effects”, accounting for by the 14.53% of the common variance) refers to the supposed negative effects of alcohol assumption. Items such as “*Alcohol decreases the level of attention*” load on this factor.

The third factor (labelled “Negative psychological effects” (reversed), accounting for by the 13.36% of the common variance) refers to psychological positive effects of alcohol assumption. Items such as “*Alcohol reduces the effects of tiredness.*” load on this factor. This factor negatively correlates to the first factor (Table L.3).

Table L.1. Eigenvalues and variance accounted for by each factor (Scale L)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	5.440	27.202	27.202	4.616
2	3.016	15.080	42.282	2.907
3	2.184	10.922	53.204	2.673
4	1.342	6.708	59.912	
5	.929	4.644	64.557	
6	.764	3.820	68.376	
7	.714	3.570	71.947	
8	.709	3.543	75.489	
9	.676	3.380	78.869	
10	.621	3.104	81.973	
11	.531	2.656	84.629	
12	.484	2.419	87.048	
13	.440	2.199	89.247	
14	.396	1.981	91.228	
15	.375	1.874	93.102	

16	.334	1.672	94.774
17	.311	1.557	96.331
18	.291	1.453	97.784
19	.253	1.263	99.047
20	.191	.953	100.000

Table L.2. Factor loadings (Scale L).

	Factor		
	Positive cognitive effects	Negative effects	Negative psychological effects
L_1	0.415		
L_2		0.748	
L_3		0.596	
L_4			-0.653
L_5			-0.676
L_6			-0.643
L_7		0.715	
L_8			-0.532
L_9	0.472		
L_10	0.767		
L_11			0.616
L_12	0.740		
L_13		0.546	
L_14		0.739	
L_15		0.383	
L_16	0.510		
L_17	0.647		
L_18	0.769		
L_19	0.705		
L_20	0.660		

Table L.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	.146	.146
2	.146	1.000	1.000
3	1.000	.146	.146

Cluster analysis

Factor scores on the identified subscales for scales A, B, D, F, I, K, and L were computed through regression analysis, and then submitted to cluster analysis in order to identify groups of respondents. Also the scores on the scale H (Moral disengagement) were included into the analysis. A hierarchical method of cluster analysis was used to identify the number of clusters, then a k-means method was used to identify the groups of respondents.

Results showed three separate groups of respondents. A multivariate analysis of variance yielded a significant difference among the three groups (Wilks' Lambda=0.03, $F_{34,238}=30.49$, $p<.0001$). A further factorial analysis of variance on the subscales scores yielded a significant difference among the three groups ($F_{2,135}=20.32$, $p<.001$) and a significant interaction between group and subscale ($F_{32,2160}= 21.35$, $p<.001$), meaning that each group of respondents shows a specific profile.

4. **RISKY DRIVERS.** One group can be identified as composed of risky drivers. They have a permissive attitude toward driving under the effect of alcohol and recreational drugs, and are not aware of the negative effects of alcohol upon driving. They also refer not to have a correct behaviour during driving, and indeed they are quite tolerant toward violations of the traffic code and speeding. Furthermore, risky drivers have high scores on driving related rage, especially due to obstacles, and high scores on moral disengagement. Compared to safe drivers, risky drivers have higher scores on sensation seeking and aggressive driving, and have more direct experiences of driving under the effect of alcohol.
5. **ANXIOUS DRIVERS.** People in this group are especially characterized by high scores on anxiety, compared to safe drivers. They have a clear internal Locus of Control, and consider alcohol as having positive effects also on driving behaviour. They are tolerant toward traffic code violations, as violations are useful to keep traffic flowing smoothly. They also seem not to be aware of the negative effects of alcohol upon driving. Interestingly, they refer to commit a higher number of violations of the traffic code compared to the other two groups of respondents.
6. **SAFE DRIVERS.** Safe drivers are instead characterized by being not tolerant toward driving under the effects of alcohol and drugs, toward violations of traffic rules and speeding. Safe drivers have a rather high score on attention-related Locus of Control, and show intermediate levels of anxiety. They are also aware of the alcohol negative effects upon driving, and do not feel rage during driving. People in the safe drivers group show low scores on moral disengagement.

Interestingly, the three groups do not differ in terms of age or gender. However, it should be noted that the large majority of the sample is composed of male respondents.

The average score per subscale (and standard error) for each group is shown in Table 1. Tables 2, 3, and 4 report the results of the post-hoc comparisons among the three groups. Table 5 shows the respondents' mean age as a function of gender and group. Figure 1 shows the profiles of the three groups of drivers on subscales. The three groups do not differ in terms of their perception of risk of being involved in an accident and of how much they worry about this possibility (Figure 2). Also, respondents in the three groups do not differ in term of the perceived friends' support of their reckless driving behaviour (Figure 3). Finally, respondents in the three groups do not differ in the perceived parents' reaction if they would adopt a risky driving behaviour (Figure 4).

Table 1. Average scores and standard errors for each group on the subscales of the questionnaire.

	ANXIOUS drivers			SAFE drivers			RISKY drivers		
	Mean	Std.Err.	N	Mean	Std.Err.	N	Mean	Std.Err.	N
Negative attitude toward alcohol/drugs (rev)	0.08	0.09	68	-0.69	0.12	43	0.94	0.15	27
Tolerance to violations	0.13	0.11	68	-0.23	0.14	43	-0.19	0.18	27

Usefulness of violations	0.36	0.10	68	-0.38	0.12	43	-0.34	0.16	27
Internal Locus of Control	0.20	0.11	68	0.16	0.13	43	-0.90	0.17	27
Violation-related rage	0.03	0.10	68	0.32	0.13	43	-0.69	0.16	27
Obstacle-related rage	0.34	0.09	68	-0.03	0.11	43	-0.86	0.14	27
Stability	-0.23	0.12	68	0.29	0.15	43	-0.03	0.19	27
Altruism	0.18	0.09	68	0.43	0.11	43	-1.23	0.14	27
Anxiety	0.69	0.09	68	-0.79	0.11	43	-0.32	0.14	27
Violations	0.37	0.10	68	-0.68	0.13	43	0.02	0.16	27
Slowing	-0.34	0.10	68	0.78	0.12	43	-0.63	0.16	27
Alcohol positive cognitive effects	0.30	0.11	68	-0.29	0.13	43	-0.46	0.17	27
Alcohol negative effects	-0.52	0.09	68	0.72	0.12	43	-0.02	0.15	27
Alcohol positive psychological effects (rev)	-0.07	0.07	68	0.88	0.09	43	-1.14	0.12	27
Experience with alcohol related issues	0.24	0.10	68	-0.69	0.13	43	0.20	0.16	27
Prevention behavior	0.10	0.11	68	-0.01	0.14	43	-0.36	0.17	27
moral disengagement (rev)	-0.11	0.11	68	0.14	0.14	43	0.43	0.18	27

Table 2. Comparison between Anxious and Safe drivers on each subscale.

	ANXIOUS drivers N=68	SAFE drivers N=43	Significance
Negative attitude toward alcohol/drugs (rev)	0.08	-0.69	p<.001
Tolerance to violations	0.13	-0.23	ns
Usefulness of violations	0.36	-0.38	p<.001
Internal Locus of Control	0.20	0.16	ns
Violation-related rage	0.03	0.32	ns
Obstacle-related rage	0.34	-0.03	ns
Stability	-0.23	0.29	ns
Altruism	0.18	0.43	ns
Anxiety	0.69	-0.79	p<.001
Violations	0.37	-0.68	p<.001
Slowing	-0.34	0.78	p<.001
Alcohol positive cognitive effects	0.30	-0.29	ns
Alcohol negative effects	-0.52	0.72	p<.001
Alcohol positive psychological effects (rev)	-0.07	0.88	p<.001
Experience with alcohol related issues	0.24	-0.69	p<.001
Prevention behavior	0.10	-0.01	ns
Moral disengagement (rev)	-0.11	0.14	ns

Table 3. Comparison between Anxious and Risky drivers on each subscale.

	ANXIOUS drivers N=68	RISKY drivers N=27	Significance
Negative attitude toward alcohol/drugs (rev)	0.08	0.94	p<.001
Tolerance to violations	0.13	-0.19	ns
Usefulness of violations	0.36	-0.34	p<.001
Internal Locus of Control	0.20	-0.90	p<.001
Violation-related rage	0.03	-0.69	p<.001

Obstacle-related rage	0.34	-0.86	p<.001
Stability	-0.23	-0.03	ns
Altruism	0.18	-1.23	p<.001
Anxiety	0.69	-0.32	p<.001
Violations	0.37	0.02	ns
Slowing	-0.34	-0.63	ns
Alcohol positive cognitive effects	0.30	-0.46	ns
Alcohol negative effects	-0.52	-0.02	ns
Alcohol positive psychological effects (rev)	-0.07	-1.14	p<.001
Experience with alcohol related issues	0.24	0.20	ns
Prevention behavior	0.10	-0.36	ns
Moral disengagement (rev)	-0.11	0.43	ns

Table 4. Comparison between Safe and Risky drivers on each subscale.

	SAFE drivers N=43	RISKY drivers N=27	Significance
Negative attitude toward alcohol/drugs (rev)	-0.69	0.94	p<.001
Tolerance to violations	-0.23	-0.19	ns
Usefulness of violations	-0.38	-0.34	ns
Internal Locus of Control	0.16	-0.90	p<.001
Violation-related rage	0.32	-0.69	p<.001
Obstacle-related rage	-0.03	-0.86	p<.001
Stability	0.29	-0.03	ns
Altruism	0.43	-1.23	p<.001
Anxiety	-0.79	-0.32	ns
Violations	-0.68	0.02	p<.001
Slowing	0.78	-0.63	p<.001
Alcohol positive cognitive effects	-0.29	-0.46	ns
Alcohol negative effects	0.72	-0.02	p<.001
Alcohol positive psychological effects (rev)	0.88	-1.14	p<.001
Experience with alcohol related issues	-0.69	0.20	p<.001
Prevention behavior	-0.01	-0.36	ns
Moral disengagement (rev)	0.14	0.43	ns

Table 5. Mean age (years) and standard errors as a function of gender and group.

		Mean age	Standard error	N
Males	Anxious drivers	18.28	0.11	65
	Safe drivers	18.21	0.15	38
	Risky drivers	18.53	0.23	15
Females	Anxious drivers	19.00	0.90	1
	Safe drivers	18.60	0.40	5
	Risky drivers	19.56	0.30	9

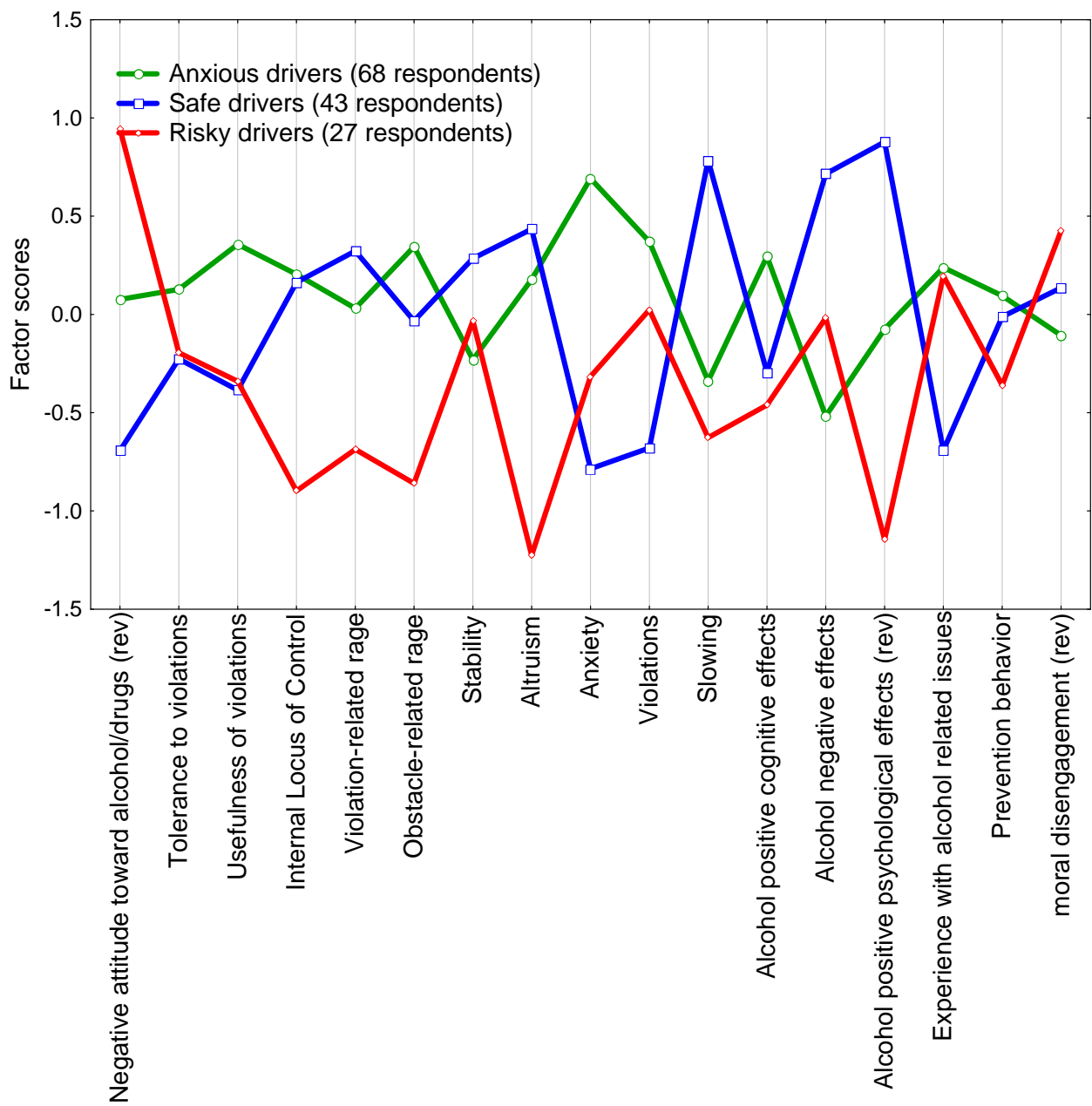


Figure 1. Average scores for each group on subscales of the questionnaire.

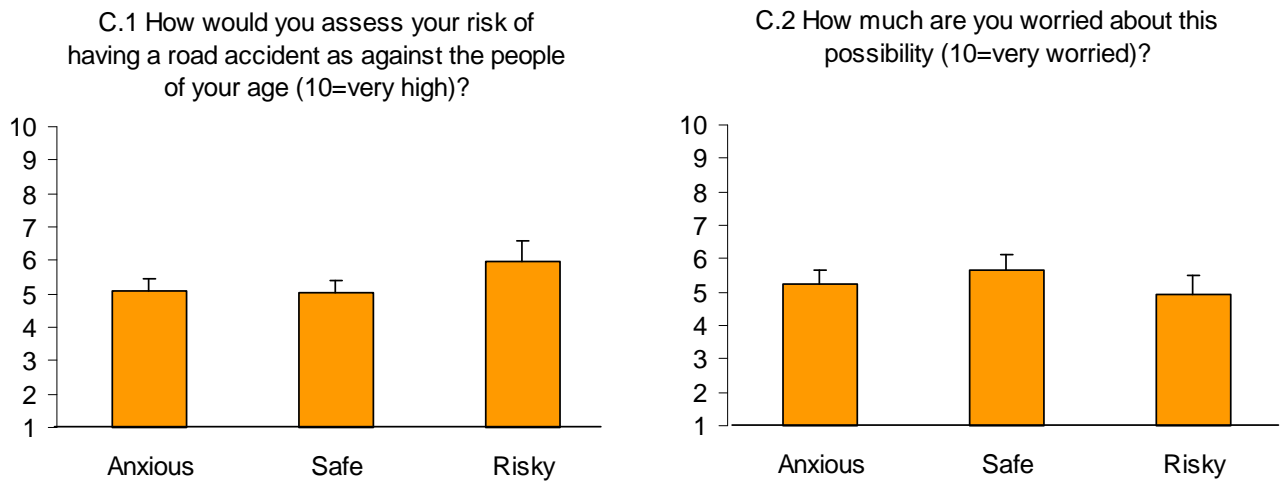


Figure 2. Average scores for each group on items concerning risk perception.

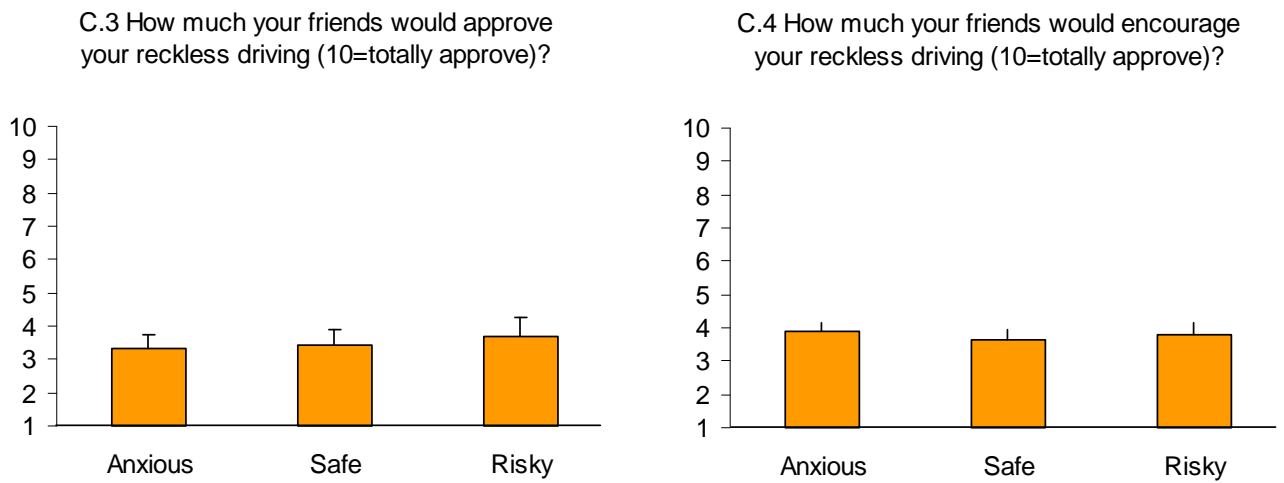


Figure 3. Average scores for each group on items concerning friends' attitude.

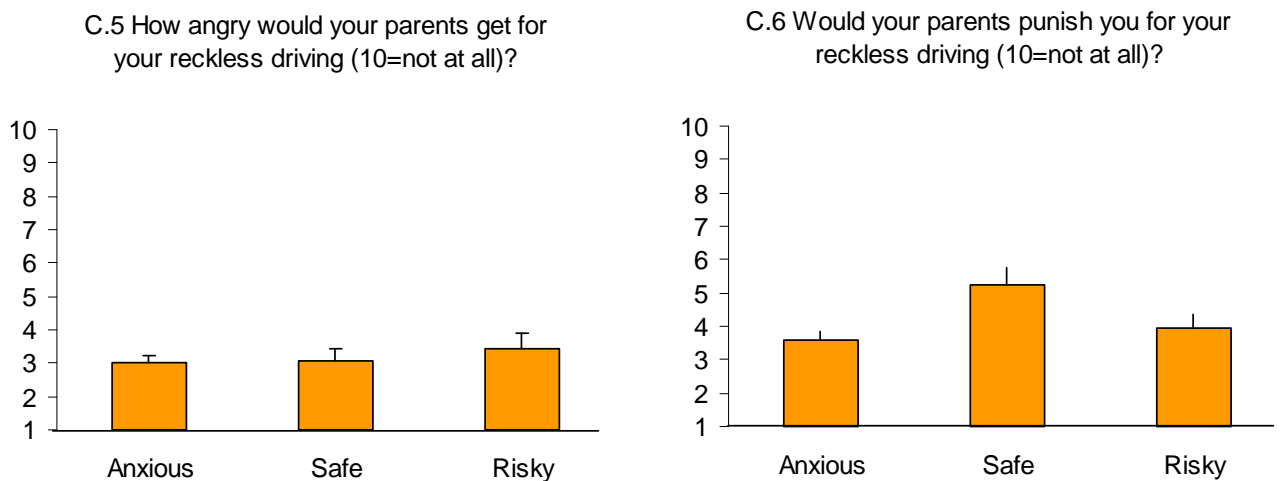


Figure 4. Average scores for each group on items concerning parents' attitude.

NON DRIVERS (QUESTIONNAIRE SECTION 3)

Sample description

A total of 1540 people answered the Section 3 of the questionnaire. Males were 1288 (83.64% of the total sample) and females were 252 (16.36% of the total sample). Their mean age was 18.4 years (standard deviation .81), ranging between 15 and 27 years. Age was no significantly different between males and females. Not all the respondents answered all the items of the questionnaire, thus each analysis was run on the largest sample available for that analysis (missing values were not estimated).

Specific dimensions of the questionnaire scales

Scale M, Attitude toward road safety issues.

Data from the Scale M of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.844, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(153)=7201.09, p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 32.69% of the total variance. Table M.1 shows the eigenvalues and the variance accounted for by each factor. Table M.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Negative attitude towards drugs and alcohol", accounting for by the 18.16% of the common variance) refer to the attitude toward driving under the effects of substances. Items such as "*I would never drive after drinking alcoholic drinks*" and "*I would never drive under the influence of narcotic drugs*" load on this factor.

The second factor (labelled "Tolerance toward violations", accounting for by the 17.28% of the common variance) refers to an attitude toward violations of traffic rules. Items such as "*To keep traffic smooth-flowing you should ignore many of the road traffic rules*" load on this factor. Factors are slightly correlated negatively (Table M.3).

Table M.1. Eigenvalues and variance accounted for by each factor (Scale M)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.354	24.187	24.187	3.270
2	2.587	14.370	38.557	3.111
3	1.331	7.393	45.950	
4	1.054	5.858	51.808	
5	.983	5.459	57.267	
6	.957	5.317	62.584	
7	.807	4.484	67.068	

8	.747	4.149	71.218
9	.700	3.888	75.106
10	.675	3.748	78.854
11	.612	3.402	82.256
12	.583	3.239	85.495
13	.544	3.022	88.516
14	.503	2.796	91.312
15	.475	2.640	93.952
16	.447	2.483	96.435
17	.395	2.197	98.632
18	.246	1.368	100.000

Table M.2. Factor loadings (Scale M).

	Factors	
	Negative attitude toward drugs and alcohol	Tolerance toward violations of traffic rules
A_1		0.430
A_2		0.442
A_3	0.340	
A_4		0.514
A_5		0.346
A_6		0.344
A_7		0.669
A_8		0.518
A_9		0.652
A_10		0.560
A_11		
A_12		0.550
A_13		0.394
A_14	0.547	
A_15	0.697	
A_16	0.691	
A_17	0.871	
A_18	0.856	

Table M.3. Factor Correlation Matrix

Factor	1	2
1	1.000	-.286
2	-.286	1.000

Scale N, Locus of Control.

Data from the Scale N of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.831, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(435)=10069.48$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a two-factor solution that accounted for the 22.23% of the total variance. Table N.1 shows the eigenvalues and the variance accounted for by each factor. Table N.2 shows the item loadings after Oblimin rotation.

The first factor (labeled "Internal Locus of Control", accounting for by the 13.45% of the common variance) refers to an internal Locus of Control, as respondents attribute responsibility of road accidents mostly to drivers. Items such as "*A careful driver can prevent any accident*" load on this factor.

The second factor (labeled "External Locus of Control", accounting for by the 10.3% of the common variance) refers to an external Locus of Control, as respondents attribute responsibility of road accidents mostly to external causes, independent of drivers behaviour. Items such as "*Driving without accidents is mainly a question of good luck*" load on this factor. This factor slightly correlates negatively to the first factor (Table N.3).

Table N.1. Eigenvalues and variance accounted for by each factor (Scale N)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	5.031	16.771	16.771	4.038
2	2.843	9.475	26.247	3.091
3	2.179	7.264	33.510	
4	1.760	5.868	39.378	
5	1.268	4.227	43.605	
6	1.143	3.811	47.416	
7	1.092	3.640	51.056	
8	1.019	3.397	54.453	
9	.965	3.215	57.668	
10	.892	2.973	60.641	
11	.844	2.813	63.454	
12	.825	2.750	66.204	
13	.789	2.630	68.834	
14	.754	2.512	71.346	
15	.719	2.396	73.742	
16	.693	2.309	76.051	

17	.679	2.263	78.314
18	.649	2.164	80.478
19	.618	2.060	82.538
20	.593	1.978	84.515
21	.554	1.847	86.363
22	.538	1.793	88.155
23	.514	1.713	89.868
24	.502	1.674	91.542
25	.482	1.606	93.148
26	.459	1.530	94.678
27	.432	1.440	96.118
28	.420	1.399	97.517
29	.397	1.322	98.839
30	.348	1.161	100.000

Table N.2. Factor loadings (Scale N).

	Factor	
	Internal LOC	External LOC
N_1		-0.278
N_2		
N_3	0.419	
N_4		
N_5		-0.276
N_6	0.407	
N_7	0.413	
N_8	0.315	
N_9	0.307	-0.340
N_10	0.451	
N_11		-0.654
N_12		-0.302
N_13		-0.692
N_14		-0.643
N_15		-0.739
N_16	0.521	
N_17		
N_18	0.511	
N_19	0.666	
N_20		-0.447
N_21	0.553	
N_22	0.508	

N_23	0.325	
N_24		
N_25		-0.267
N_26	0.553	
N_27	0.612	
N_28		
N_29	0.488	
N_30		-0.248

Table N.3. Factor correlation matrix

Factor	1	2
1	1.000	-.230
2	-.230	1.000

Scale P, Rage during driving.

Data from the Scale P of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.895, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(91)=6688.482, p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 41.57% of the total variance. Table P.1 shows the eigenvalues and the variance accounted for by each factor. Table P.2 shows the item loadings after Oblimin rotation.

The first factor (labelled “Violation-related rage”, accounting for by the 29.09% of the common variance) refers to the rage reactions due to obstacles preventing drivers to drive the way they want. Items such as “*Somebody in front of you zigzags through the traffic.*” load on this factor.

The second factor (labelled “Controls-related rage”, accounting for by the 17.9% of the common variance) refers to the rage reactions due to obstacles preventing drivers to drive the way they want. Items such as “*A policeman approaches you*” or “*You passed by a speed camera*” load on this factor.

The factors are however slightly correlated (Table P.3).

Table P.1. Eigenvalues and variance accounted for by each factor (Scale P)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.973	35.519	35.519	4.073
2	1.895	13.536	49.055	2.507
3	.996	7.112	56.167	
4	.758	5.416	61.583	
5	.710	5.070	66.653	
6	.674	4.818	71.471	
7	.601	4.295	75.766	
8	.580	4.140	79.907	
9	.555	3.966	83.873	
10	.528	3.768	87.641	
11	.479	3.422	91.063	
12	.440	3.144	94.207	
13	.420	3.000	97.207	
14	.391	2.793	100.000	

Table P.2. Factor loadings (Scale P).

	Factor	
	Violation-related rage	Controls-related rage
P_1	0.721	
P_2	0.410	
P_3	0.752	
P_4	0.634	
P_5		0.674
P_6	0.513	
P_7	0.474	
P_8	0.531	
P_9	0.598	
P_10	0.507	
P_11	0.397	0.343
P_12		0.723
P_13	0.588	
P_14		0.538

Table P.3. Factor Correlation
Matrix

Factor	1	2
1	1.000	.291
2	.291	1.000

Scale R, Personality.

Data from the Scale R of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.843, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(666)=12423.89$, $p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a five-factor solution that accounted for the 32.11% of the total variance. Table R.1 shows the eigenvalues and the variance accounted for by each factor. Table R.2 shows the item loadings after Oblimin rotation.

The first factor (labelled "Altruism", accounting for by the 10.53% of the common variance) refers to Altruism. Items such as "*I try to be kind with all the persons I meet.*" load on this factor.

The second factor (labelled "Impulsivity" (reversed), accounting for by the 6.07% of the common variance) refers to Impulsivity. Items such as "*I am not considered susceptible or irritable.*" negatively load on this factor.

The third factor (labelled "Calmness", accounting for by the 7.06% of the common variance) refers to being calm and reflexive. Items such as "*I tend to be lazy*" load on this factor.

The fourth factor (labelled "Anxiety", accounting for by the 4.95% of the common variance) refers to Anxiety. Items such as "*I easily panic*" load on this factor.

The fifth factor (labelled "Egoism", accounting for by the 8.24% of the common variance) refers to Egoism. Items such as "*Some people think I am egoist and egocentric*" load on this factor.

Correlation between Factors are shown in Table R.3.

Table R.1. Eigenvalues and variance accounted for by each factor (Scale R)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.594	12.417	12.417	3.900
2	4.180	11.297	23.714	2.245
3	3.163	8.549	32.263	2.613
4	1.609	4.350	36.613	1.833
5	1.285	3.472	40.084	3.049
6	1.181	3.192	43.277	
7	1.119	3.025	46.301	
8	1.089	2.944	49.245	
9	1.038	2.806	52.051	
10	1.006	2.718	54.769	
11	.945	2.554	57.324	
12	.873	2.358	59.682	
13	.843	2.277	61.959	
14	.815	2.202	64.161	
15	.788	2.128	66.290	

16	.758	2.048	68.338
17	.749	2.025	70.363
18	.722	1.953	72.315
19	.709	1.917	74.232
20	.671	1.813	76.045
21	.657	1.775	77.820
22	.647	1.749	79.569
23	.628	1.698	81.266
24	.613	1.657	82.924
25	.598	1.617	84.541
26	.587	1.587	86.128
27	.564	1.524	87.652
28	.532	1.437	89.089
29	.506	1.369	90.458
30	.493	1.331	91.789
31	.477	1.290	93.079
32	.475	1.283	94.362
33	.461	1.246	95.608
34	.450	1.216	96.824
35	.408	1.104	97.928
36	.397	1.073	99.001
37	.370	.999	100.000

Table R.2. Factor loadings (Scale R).

	Factor				
	Altruism	Impulsivity (reversed)	Calmness	Anxiety	Egoism
R_1			0.281		-0.256
R_2	0.265				
R_3			0.592		
R_4	0.393				
R_5				0.499	0.461
R_6		-0.544			
R_7	0.515				
R_8	-0.269	-0.281			
R_9			0.285		
R_10		0.380	0.476		
R_11			0.765		
R_12				-0.368	

R_13		0.289	0.265	0.360
R_14	0.260	-0.276		
R_15	0.536			
R_16			0.465	
R_17				
R_18			0.289	
R_19				0.338
R_20	0.357		-0.411	
R_21	0.387			
R_22		-0.574		
R_23	0.489			
R_24			-0.423	
R_25			-0.316	
R_26	0.428			
R_27	0.582			
R_28	0.409			0.259
R_29	0.355			0.421
R_30				0.530
R_31	0.635			
R_32				
R_33	0.607			
R_34		-0.261		0.608
R_35	0.651			
R_36	0.279			
R_37				0.572

Table R.3. Factor Correlation Matrix

Factor	1	2	3	4	5
1	1.000	-.079	.067	-.061	.033
2	-.079	1.000	-.124	.188	.275
3	.067	-.124	1.000	-.155	.325
4	-.061	.188	-.155	1.000	.061
5	.033	.275	.325	.061	1.000

Scale S, Imagined driving behaviour.

Data from the Scale S of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.914, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(231)=12752.68, p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 45.52% of the total variance. Table S.1 shows the eigenvalues and the variance accounted for by each factor. Table S.2 shows the item loadings after Oblimin rotation.

The first factor (labelled “Risky driving”, accounting for by the 23.52% of the common variance) refers to risky driving behaviour. Items such as “*To drive without keeping a safe distance.*” load on this factor.

The second factor (labelled “Caution”, accounting for by the 15.66% of the common variance) refers to the caution when required by the traffic conditions. Items such as “*You slow down to let the car behind you overtake you more easily*” load on this factor.

The third factor (labelled “Slowing” (reversed), accounting for by the 19.33% of the common variance) refers to driving with never exceed the speed limits or even slowing down when required by driving circumstances . Items such as “*You violate traffic rules in order to go faster*” negatively load on this factor.

The second and third factors negatively correlate to the first factor (Table S.3).

Table S.1. Eigenvalues and variance accounted for by each factor (Scale S)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	6.639	30.178	30.178	5.176
2	3.172	14.418	44.596	3.446
3	1.634	7.426	52.022	4.255
4	.974	4.428	56.449	
5	.849	3.857	60.307	
6	.814	3.701	64.008	
7	.728	3.311	67.319	
8	.659	2.993	70.313	
9	.621	2.824	73.136	
10	.604	2.745	75.882	
11	.597	2.712	78.594	
12	.535	2.431	81.024	
13	.506	2.301	83.326	
14	.480	2.184	85.509	
15	.470	2.135	87.644	

16	.452	2.055	89.699
17	.448	2.038	91.737
18	.401	1.823	93.560
19	.389	1.769	95.329
20	.378	1.720	97.048
21	.367	1.669	98.717
22	.282	1.283	100.000

Table S.2. Factor loadings (Scale S).

	Factor		
	Risky driving	Caution	Slowing down (reversed)
S_1			-0.745
S_2			-0.737
S_3			-0.646
S_4			-0.601
S_5			-0.601
S_6	0.636		
S_7	0.748		
S_8	0.726		
S_9	0.728		
S_10	0.445		
S_11			-0.436
S_12	0.402		
S_13		0.560	
S_14		0.722	
S_15		0.713	
S_16		0.605	
S_17	0.359		
S_18	0.616		
S_19		0.679	
S_20		0.670	
S_21		0.544	
S_22	0.608		

Table S.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	-.258	-.495
2	-.258	1.000	.087
3	-.495	.087	1.000

Scale T, Effects of alcohol.

Data from the Scale T of the questionnaire were submitted to exploratory factor analysis (Principal Axis method, Oblimin rotation). The Kaiser-Meyer-Olkin measure of sampling adequacy, 0.89, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2 (190)=10259.7, p<.000$, were both adequate. The criteria used to identify acceptable factors were (a) Scree test, (b) eigenvalues greater than 1, and (c) the percentage of the total variance accounted for by the factor solution. This yielded a three-factor solution that accounted for the 42.49% of the total variance. Table T.1 shows the eigenvalues and the variance accounted for by each factor. Table T.2 shows the item loadings after Oblimin rotation.

The first factor (labelled “Positive effects”, accounting for by the 25.19% of the common variance) refers to the supposed positive effects of alcohol assumption on driving abilities. Items such as “*Alcohol increases concentration capacity*” load on this factor.

The second factor (labelled “Negative effects”, accounting for by the 14.01% of the common variance) refers to negative effects of alcohol assumption on your driving abilities. Items such as “*Alcohol decreases the level of attention*” load on this factor

The third factor (labelled “Underestimation of Negative effects”, accounting for by the 6.95% of the common variance) refers to the supposed underestimation of negative effects of alcohol assumption on driving behaviour. Items such as “*After drinking it is sufficient to drive more prudently in order to avoid unpleasant accidents.*” load on this factor. This factor correlates to the first factor (Table T.3).

Table T.1. Eigenvalues and variance accounted for by each factor (Scale T)

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	5.633	28.164	28.164	5.038
2	3.177	15.887	44.051	2.803
3	1.164	5.819	49.871	1.391
4	1.071	5.353	55.224	
5	.966	4.828	60.052	
6	.777	3.887	63.938	
7	.726	3.628	67.566	
8	.697	3.485	71.051	
9	.672	3.361	74.412	
10	.632	3.159	77.571	
11	.583	2.913	80.483	
12	.563	2.815	83.298	
13	.531	2.655	85.953	
14	.479	2.394	88.347	
15	.431	2.155	90.502	
16	.423	2.114	92.616	

17	.403	2.013	94.629
18	.401	2.005	96.634
19	.353	1.765	98.399
20	.320	1.601	100.000

Table T.2. Factor loadings (Scale T).

	Factor		
	Positive effects	Negative effects	Underestimation of negative effects
T_1	0.557		
T_2		0.494	
T_3		0.657	
T_4	0.768		
T_5	0.717		
T_6	0.731		
T_7		0.604	
T_8	0.665		
T_9		0.427	
T_10	0.789		
T_11		0.557	
T_12	0.725		
T_13		0.607	
T_14		0.590	
T_15		0.666	
T_16	0.285		0.341
T_17	0.529		
T_18	0.561		
T_19	0.300		0.628
T_20	0.552		

Table T.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	-.082	.300
2	-.082	1.000	.044
3	.300	.044	1.000

Cluster analysis

Factor scores on the identified subscales for scales M, N, P, R, and T were computed through regression analysis, and then submitted to cluster analysis in order to identify groups of respondents. Also the scores on the scale Q (Moral disengagement) were included into the analysis. A hierarchical method of cluster analysis was used to identify the number of clusters, then a k-means method was used to identify the groups of respondents.

Results showed three separate groups of respondents. A multivariate analysis of variance yielded a significant difference among the three groups (Wilks' Lambda=0.06, $F_{30,2624}=261.38$, $p<.0001$). A further factorial analysis of variance on the subscales scores yielded a significant difference among the three groups ($F_{2,1326}=74.12$, $p<.001$) and a significant interaction between group and subscale ($F_{28,18564}=246.32$, $p<.001$), meaning that each group of respondents shows a specific profile.

1. **RISKY DRIVERS.** One group can be identified as composed of risky drivers. They have a permissive attitude toward driving under the effect of alcohol and recreational drugs, and are not that much aware of the negative effects of alcohol upon driving. They also refer not to have a correct behaviour during driving. They are also quite tolerant toward violations of the traffic code. Furthermore, risky drivers have high scores on driving related rage, especially due to obstacles, and high scores on moral disengagement.
2. **ANXIOUS DRIVERS.** People in the second group are characterized by being similar, to a certain extent, to the safe drivers, with the most notable exception that they have rather high scores on anxiety subscales and have a clear external LOC.
3. **SAFE DRIVERS.** Safe drivers are instead characterized by being not tolerant toward driving under the effects of alcohol and drugs, toward violations of traffic rules and speeding. Safe drivers have a rather high score on external Locus of Control, and show low levels of anxiety. They are also aware of the alcohol negative effects upon driving, and do not feel rage during driving. People in the safe drivers group show low scores on moral disengagement.

The three groups do not differ in terms of age or gender, though a prevalence of males can be observed among the risky and safe drivers.

The average score per subscale (and standard error) for each group is shown in Table 1. Tables 2, 3, and 4 report the results of the post-hoc comparisons among the three groups. Table 5 shows the respondents' mean age as a function of gender and group. Figure 1 shows the profiles of the three groups of drivers on subscales. The three groups do not differ in terms of their perception of risk of being involved in an accident and of how much they worry about this possibility (Figure 2). However, respondents in the risky group feel to be supported and encouraged by their friends more than respondents in the other two groups (Figure 3). The same respondents consider their parents would not be angry at their driving behaviour and would not punish them more than the other respondents (Figure 4).

Table 1. Average scores and standard errors for each group on the subscales of the questionnaire.

	ANXIOUS drivers			SAFE drivers			RISKY drivers		
	Mean	Std.Err.	N	Mean	Std.Err.	N	Mean	Std.Err.	N
Negative attitude toward alcohol/drugs	0.68	0.08	76	0.51	0.03	652	-0.61	0.03	601
Tolerance to violations	0.27	0.08	76	-0.57	0.03	652	0.59	0.03	601
Internal LOC	0.64	0.10	76	0.32	0.03	652	-0.39	0.03	601
External LOC	1.86	0.09	76	-0.07	0.03	652	-0.13	0.03	601
Violation-related rage	-0.20	0.10	76	0.29	0.04	652	-0.29	0.04	601

Fine-related rage	-1.60	0.09	76	-0.15	0.03	652	0.32	0.03	601
Alcohol positive effects	-1.00	0.08	76	-0.55	0.03	652	0.67	0.03	601
Alcohol negative effects	0.53	0.10	76	0.38	0.03	652	-0.44	0.03	601
Underestimation of alcohol effects	-0.98	0.09	76	-0.08	0.03	652	0.21	0.03	601
Altruism	0.97	0.09	76	0.29	0.03	652	-0.40	0.03	601
Impulsivity (rev)	1.78	0.08	76	-0.24	0.03	652	0.01	0.03	601
Stability	-1.05	0.09	76	-0.19	0.03	652	0.30	0.03	601
Anxiety	2.17	0.07	76	-0.29	0.03	652	0.02	0.03	601
Egocentrism	0.58	0.09	76	-0.41	0.03	652	0.34	0.03	601
Moral disengagement	-0.50	0.10	76	-0.50	0.03	652	0.53	0.04	601

Table 2. Comparison between Anxious and Safe drivers on each subscale.

	ANXIOUS drivers	SAFE drivers	Significance
	N=76	N=652	
Negative attitude toward alcohol/drugs	0.68	0.51	ns
Tolerance to violations	0.27	-0.57	p<.001
Internal LOC	0.64	0.32	ns
External LOC	1.86	-0.07	p<.001
Violation-related rage	-0.20	0.29	p<.001
Fine-related rage	-1.60	-0.15	p<.001
Alcohol positive effects	-1.00	-0.55	p<.001
Alcohol negative effects	0.53	0.38	ns
Underestimation of alcohol effects	-0.98	-0.08	p<.001
Altruism	0.97	0.29	p<.001
Impulsivity (rev)	1.78	-0.24	p<.001
Stability	-1.05	-0.19	p<.001
Anxiety	2.17	-0.29	p<.001
Egocentrism	0.58	-0.41	p<.001
Moral disengagement	-0.50	-0.50	ns

Table 3. Comparison between Anxious and Risky drivers on each subscale.

	ANXIOUS drivers	RISKY drivers	Significance
	N=76	N=601	
Negative attitude toward alcohol/drugs	0.68	-0.61	p<.001
Tolerance to violations	0.27	0.59	p<.001
Internal LOC	0.64	-0.39	p<.001
External LOC	1.86	-0.13	p<.001
Violation-related rage	-0.20	-0.29	ns
Fine-related rage	-1.60	0.32	p<.001
Alcohol positive effects	-1.00	0.67	p<.001
Alcohol negative effects	0.53	-0.44	p<.001

Underestimation of alcohol effects	-0.98	0.21	p<.001
Altruism	0.97	-0.40	p<.001
Impulsivity (rev)	1.78	0.01	p<.001
Stability	-1.05	0.30	p<.001
Anxiety	2.17	0.02	p<.001
Egocentrism	0.58	0.34	ns
Moral disengagement	-0.50	0.53	p<.001

Table 4. Comparison between Safe and Risky drivers on each subscale.

	SAFE drivers N=652	RISKY drivers N=601	Significance
Negative attitude toward alcohol/drugs	0.51	-0.61	p<.001
Tolerance to violations	-0.57	0.59	p<.001
Internal LOC	0.32	-0.39	p<.001
External LOC	-0.07	-0.13	ns
Violation-related rage	0.29	-0.29	p<.001
Fine-related rage	-0.15	0.32	p<.001
Alcohol positive effects	-0.55	0.67	p<.001
Alcohol negative effects	0.38	-0.44	p<.001
Underestimation of alcohol effects	-0.08	0.21	p<.001
Altruism	0.29	-0.40	p<.001
Impulsivity (rev)	-0.24	0.01	p<.001
Stability	-0.19	0.30	p<.001
Anxiety	-0.29	0.02	p<.001
Egocentrism	-0.41	0.34	p<.001
Moral disengagement	-0.50	0.53	p<.001

Table 5. Mean age (years) and standard errors as a function of gender and group.

		Mean age	Standard error	N
Males	Anxious drivers	20.11	0.29	36
	Safe drivers	18.30	0.07	545
	Risky drivers	18.43	0.08	527
Females	Anxious drivers	20.38	0.27	40
	Safe drivers	18.49	0.17	107
	Risky drivers	19.98	0.24	51

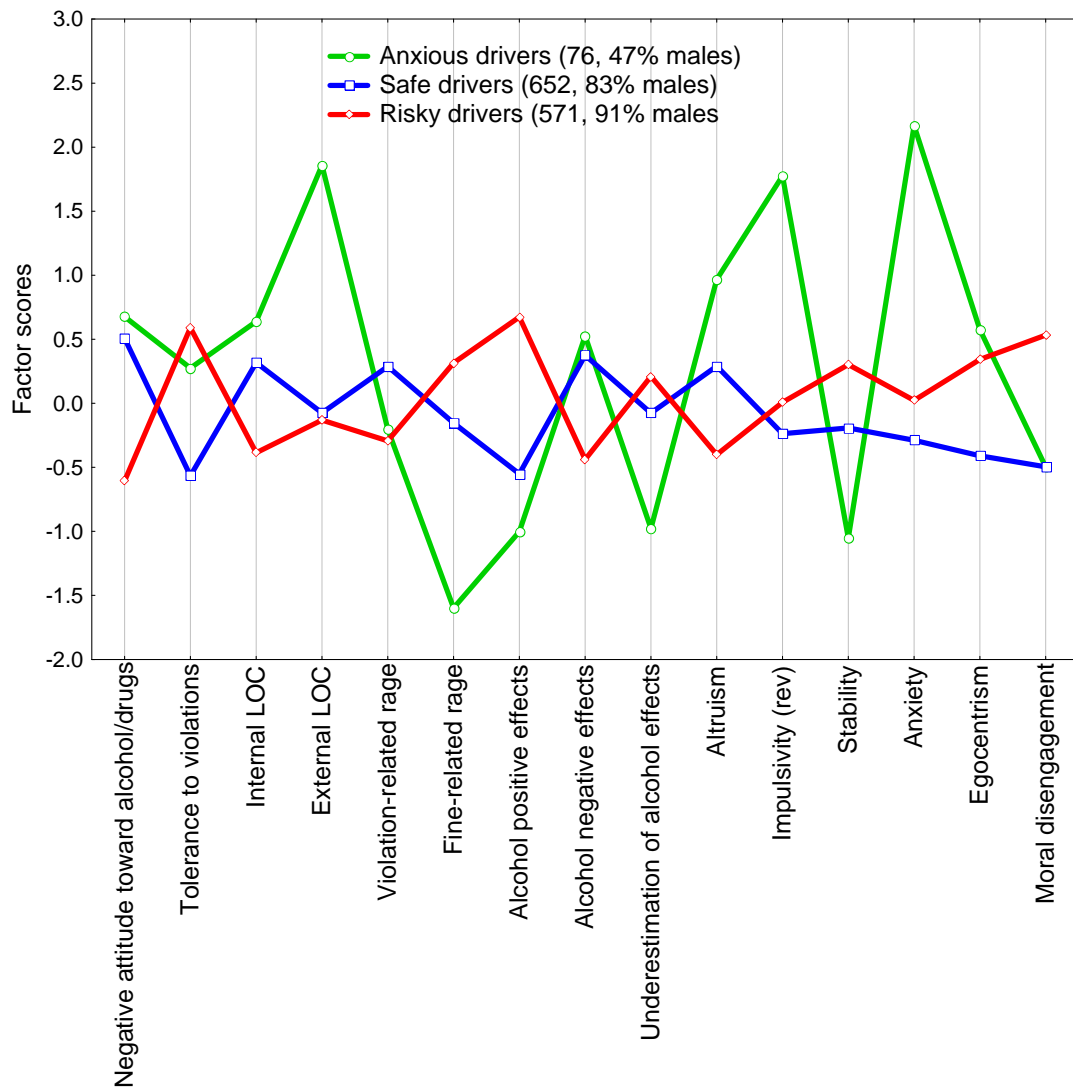


Figure 1. Average scores for each group on the subscales of the questionnaire.

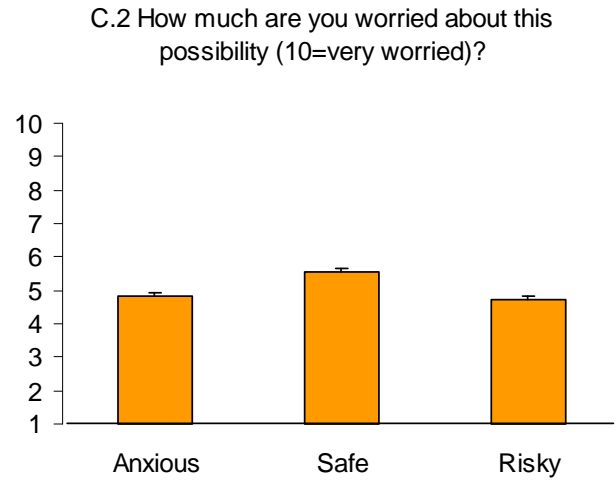
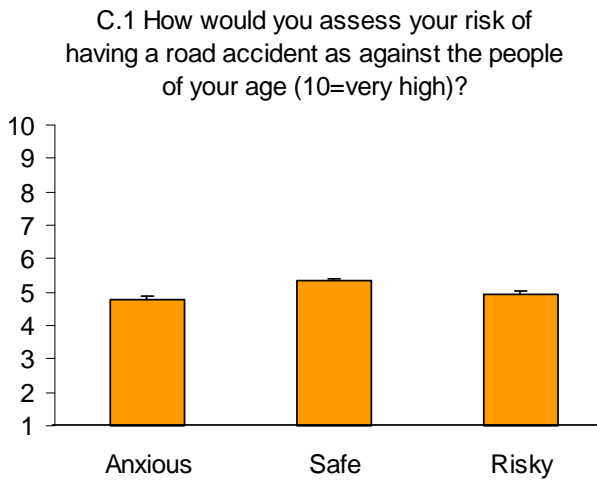


Figure 2. Average scores for each group on items concerning risk perception.

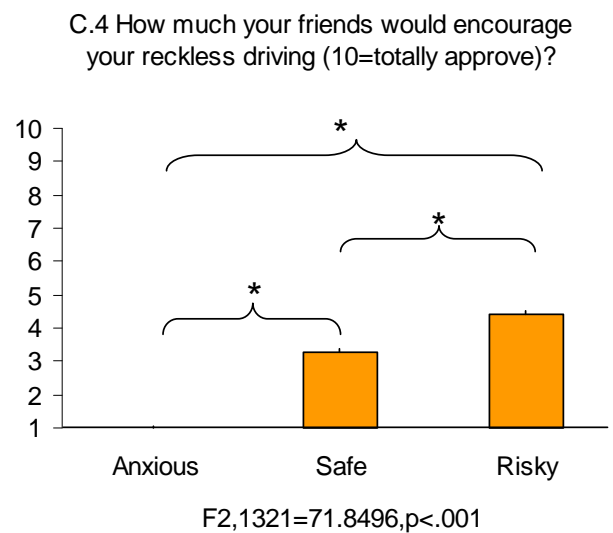
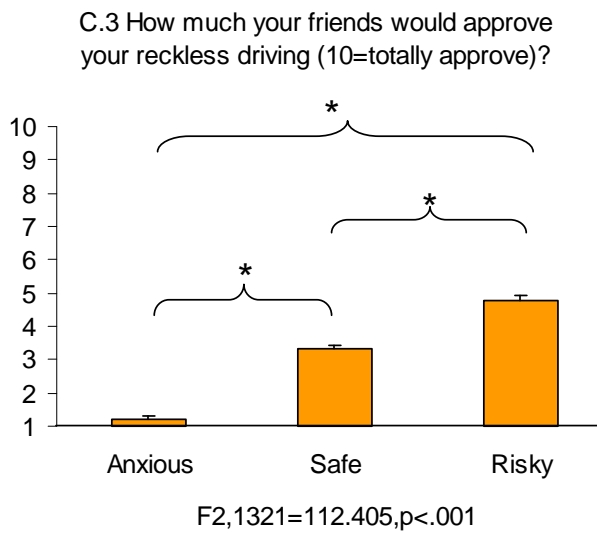


Figure 3. Average scores for each group on items concerning friends' attitude.

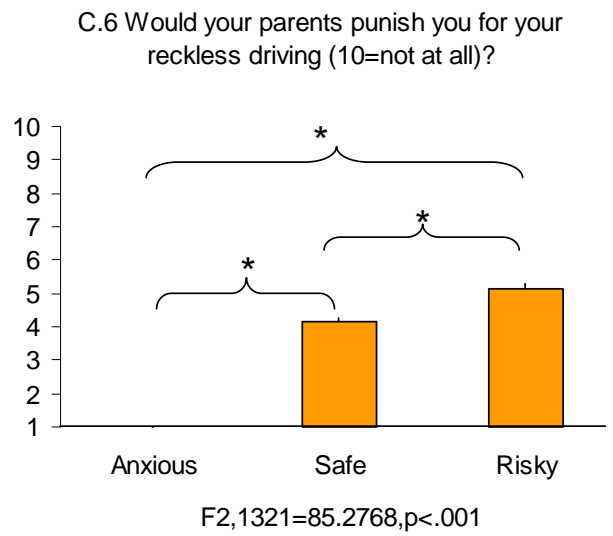
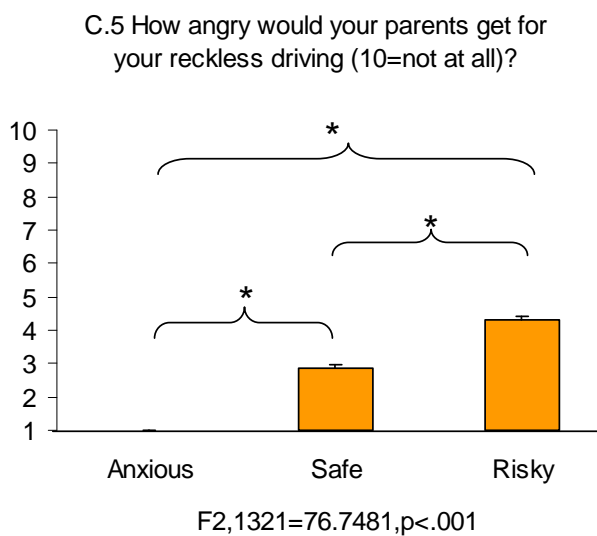


Figure 4. Average scores for each group on items concerning parents' attitude.