



ICARUS Project
TREN/SUB/01-2008



ICARUS Project

Inter - Cultural Approaches for Road Users Safety

Research report

Results

LATVIA

CAR DRIVERS (QUESTIONNAIRE SECTION 1)

Sample description

A total of 172 people answered the Section 1 of the questionnaire. Males were 108 (62.1% of the total sample) and females were 64 (36.8% of the total sample). Their mean age was 18.4 years (standard error .08), ranging between 17 and 20 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. Slightly more than half of the respondents from Latvia own a car, with a slight, not significant prevalence of female drivers. It should be noted that about half of the respondents omitted to answer to the items concerning their driving habits. Thus, what follows concerns only those who have answered, and should be taken cautiously. Respondents refer to use a car on a fairly regular basis (about half of them of them drive almost 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, young drivers from Latvia 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	59 (54.63%)	49 (45.37%)
Females	38 (60.32%)	25 (39.68%)
Total	97 (56.73%)	74 (43.27%)

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		1 (2.08%)	8 (16.67%)	8 (16.67%)	6 (12.5%)	23 (47.92%)	2 (4.17%)
Females		0	5 (20.%)	8 (32.%)	3 (12.%)	7 (28.%)	2 (8.%)
Total		1 (1.37%)	13 (17.81%)	16 (21.92%)	9 (12.33%)	30 (41.1%)	4 (5.48%)

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		2 (4.17%)	3 (6.25%)	17 (35.42%)	9 (18.75%)	17 (35.42%)
Females		1 (4.%)	6 (24.%)*	6 (24.%)	7 (28.%)	5 (20.%)
Total		3 (4.11%)	9 (12.33%)	23 (31.51%)	16 (21.92%)	22 (30.14%)

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		11 (22.92%)	12 (25.%)	14 (29.17%)	11 (22.92%)
Females		6 (24.%)	9 (36.%)	5 (20.%)	5 (20.%)
Total		17 (23.29%)	21 (28.77%)	19 (26.03%)	16 (21.92%)

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		14 (29.17%)	16 (33.33%)	6 (12.5%)	12 (25.%)
Females		9 (36.%)	11 (44.%)	2 (8.%)	3 (12.%)
Total		23 (31.51%)	27 (36.99%)	8 (10.96%)	15 (20.55%)

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?		
	Yes	No
Males	27 (56.25%)	21 (43.75%)*
Females	24 (96.0%)*	1 (4.0%)
Total	51 (69.86%)	22 (30.14%)

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	9 (8.33%)	1 (1.59%)	10 (5.85%)
Running a red light	6 (5.56%)	0	6 (3.49%)
Running a stop sign	6 (5.56%)	0	6 (3.51%)
Speeding	13 (12.04%)*	1 (1.56%)	14 (8.14%)
Drunk driving	7 (6.48%)	0	7 (4.07%)
Lack of seatbels use	4 (3.7%)	0	4 (2.33%)

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	29 (60.42%)	6 (12.5%)	4 (8.33%)	1 (2.08%)	1 (2.08%)	7 (14.58%)
Females	20 (80.0%)	5 (20.0%)	0	0	0	0
Total	49 (67.12%)	11 (15.07%)	4 (5.48%)	1 (1.37%)	1 (1.37%)	7 (9.59%)

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	7 (6.48%)	0	7 (4.07%)
You could hardly keep your head on straight	6 (5.61%)	0	6 (3.51%)
You had muscle cramps	5 (4.63%)	0	5 (2.91%)
You could hardly keep your eyes open	6 (5.56%)	1 (1.56%)	7 (4.07%)
You got stomach cramps	5 (4.67%)	0	5 (2.92%)
You could not focus on the road	4 (3.74%)	1 (1.56%)	5 (2.92%)
Someone who was with you made you notice it	6 (5.56%)	1 (1.56%)	7 (4.07%)

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, 0.81, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(153)=1219.07, p<.000$, 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 four-factor solution that accounted for the 49.045% 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 "Usefulness of violations", accounting for by the 12.7% of the common variance) refers to a tendency to justify violation toward traffic rules. Items such as *"To keep traffic smooth-flowing you should ignore many of the road traffic rules"* load on this factor.

The second factor (labelled "Negative attitude towards drugs", accounting for by the 19.4% of the common variance) and the fourth factor (labelled "Negative attitude towards alcohol", accounting for by the 3.5% of the common variance) both 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 these factors. It is interesting to note the items related to driving under the effects of alcohol and drugs refer to different factors. However, these factors are also strongly correlated (Table A.3).

The third factor (labelled "Tolerance to violations", accounting for by the 13.2% of the common variance) refers to a permissive attitude toward violations of the traffic code. Items such as *"It is ok to go by car with a fast driver if it is the only way to go back home at night"* load on this factor. This factor is positively correlated to the first one (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	4.758	26.435	26.435	1.914
2	3.402	18.903	45.337	2.742
3	1.244	6.913	52.250	3.842
4	1.035	5.752	58.002	2.578
5	.941	5.228	63.230	
6	.926	5.142	68.372	
7	.850	4.724	73.096	
8	.769	4.272	77.368	
9	.663	3.682	81.049	
10	.611	3.397	84.447	

11	.583	3.241	87.688
12	.512	2.842	90.530
13	.413	2.295	92.825
14	.352	1.953	94.779
15	.314	1.743	96.522
16	.300	1.669	98.191
17	.223	1.241	99.432
18	.102	.568	100.000

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

	Factors			
	Usefulness of violations	Negative attitude toward drugs	Tolerance toward violations	Negative attitude toward alcohol
A_1	0.345			
A_2	0.950			
A_3				.305
A_4			0.380	
A_5			0.457	
A_6			0.481	
A_7			0.568	
A_8			0.464	
A_9			0.661	
A_10			0.592	
A_11				0.354
A_12			0.796	
A_13			0.717	
A_14				0.494
A_15				0.720
A_16				0.569
A_17		0.842		
A_18		0.864		

Table A.3. Factor Correlation Matrix

Factor	1	2	3	4
1	1.000	.109	.325	-.112
2	.109	1.000	.009	.398
3	.325	.009	1.000	-.189
4	-.112	.398	-.189	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, 0.82, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(435)=2027.89, p<.000$, 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 three-factor solution that accounted for the 43.5% 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 “Attention related LOC”, accounting for by the 25.9% 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 second factor (labeled “External Locus of Control”, accounting for by the 9.91% 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 third factor (labeled “Internal Locus of Control”, accounting for by the 7.6% 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 three factors are not correlated (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	8.132	27.107	27.107	5.986
2	3.345	11.150	38.257	4.766
3	2.625	8.749	47.006	4.544
4	1.362	4.542	51.548	
5	1.276	4.255	55.803	
6	1.119	3.729	59.532	
7	1.035	3.451	62.982	
8	.934	3.113	66.096	
9	.881	2.937	69.033	
10	.847	2.822	71.855	
11	.776	2.588	74.443	
12	.729	2.430	76.873	
13	.679	2.262	79.135	

14	.625	2.083	81.218
15	.607	2.023	83.241
16	.587	1.958	85.199
17	.530	1.766	86.966
18	.484	1.615	88.580
19	.440	1.466	90.046
20	.396	1.319	91.365
21	.364	1.212	92.578
22	.342	1.141	93.719
23	.332	1.107	94.826
24	.309	1.031	95.857
25	.268	.892	96.749
26	.252	.840	97.589
27	.215	.716	98.305
28	.185	.617	98.922
29	.177	.589	99.511
30	.147	.489	100.000

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

	Factor		
	Attention-related LOC	External LOC	Internal LOC
B_1		0.529	
B_2		0.467	
B_3			0.385
B_4		0.437	
B_5		0.446	
B_6			0.444
B_7	0.505		
B_8	0.596		
B_9			0.664
B_10			0.681
B_11		0.522	
B_12		0.367	
B_13		0.709	
B_14		0.665	
B_15		0.810	
B_16	0.525		
B_17			0.555
B_18	0.599		

B_19	0.696		
B_20		0.625	
B_21	0.639		
B_22	0.721		
B_23	0.431		
B_24	0.553		
B_25		0.532	
B_26	0.720		
B_27	0.587		
B_28			0.650
B_29	0.672		
B_30			0.530

Table B.3. Factor correlation matrix

Factor	1	2	3
1	1.000	.247	.240
2	.247	1.000	.177
3	.240	.177	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, 0.8, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(91)=659.804$, $p<.000$, 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 42.88% 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 "Obstacle-related rage", accounting for by the 29.96% 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 second factor (labelled "Violation-related rage", accounting for by the 8.29% 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 third factor (labelled "Fine-related rage, reversed", accounting for by the 4.63% of the common variance) refers to refers the rage reactions due insults from other drivers. Items such as "*You passed by a speed camera*" load on this factor.

The three factors are however notably 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	4.668	33.340	33.340	3.627
2	1.547	11.050	44.390	2.427
3	1.070	7.642	52.032	2.196
4	.995	7.108	59.140	
5	.904	6.456	65.596	
6	.858	6.130	71.726	
7	.698	4.985	76.711	
8	.696	4.969	81.680	
9	.607	4.335	86.014	
10	.520	3.714	89.728	
11	.423	3.019	92.748	
12	.410	2.931	95.679	
13	.332	2.369	98.048	
14	.273	1.952	100.000	

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

	Factor		
	Obstacle-related rage	Violation-related rage	Fine-related rage (reversed)
D_1	0.735		
D_2	0.457		
D_3		0.794	
D_4	0.376		
D_5			-0.772
D_6		0.625	
D_7	0.331		
D_8	0.524		
D_9	0.308		
D_10	0.526		
D_11		0.398	
D_12			-0.612
D_13		0.410	
D_14	0.719		

Table D3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	.428	-.414
2	.428	1.000	-.136
3	-.414	-.136	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, 0.696, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(666)=2095.119$, $p<.000$, 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 four-factor solution that accounted for the 37.14% 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 "Anxiety", accounting for by the 16.07% of the common variance) refers to Anxiety. Items such as "*I easily panic*" load on this factor.

The second factor (labelled "Stability", accounting for by the 8.54% 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 third factor (labelled "Altruism", accounting for by the 6.39% of the common variance) refers Altruism. Items such as "*I think I'm generous with who is in trouble*" load on this factor.

The fourth factor (labelled "Sensation seeking", accounting for by the 6.13% of the common variance) refers to the Sensation-seeking personality trait. Items such as "*I often wish exciting things*" load on this factor.

The four factors were not correlated (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	6.288	16.996	16.996	5.537
2	3.471	9.381	26.377	3.081
3	2.749	7.429	33.806	3.041
4	2.614	7.064	40.871	2.847
5	1.573	4.250	45.121	
6	1.553	4.198	49.319	
7	1.427	3.857	53.176	
8	1.249	3.375	56.551	
9	1.202	3.248	59.799	
10	1.112	3.006	62.805	
11	1.063	2.872	65.677	
12	.981	2.651	68.328	
13	.957	2.586	70.914	
14	.891	2.408	73.322	
15	.869	2.348	75.669	
16	.749	2.024	77.693	

17	.713	1.927	79.620
18	.701	1.895	81.515
19	.647	1.750	83.265
20	.619	1.672	84.937
21	.574	1.551	86.487
22	.554	1.497	87.984
23	.495	1.338	89.323
24	.454	1.226	90.549
25	.418	1.129	91.678
26	.399	1.077	92.755
27	.364	.983	93.738
28	.324	.877	94.615
29	.307	.829	95.444
30	.290	.784	96.228
31	.268	.724	96.952
32	.243	.656	97.608
33	.214	.579	98.186
34	.191	.517	98.703
35	.177	.479	99.182
36	.164	.443	99.625
37	.139	.375	100.000

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

	Factor			
	Anxiety	Stability	Altruism	Sensation Seeking
F_1		0.458		
F_2	0.571			
F_3	0.496			
F_4				0.686
F_5	0.740			
F_6		0.549		
F_7			0.449	
F_8				-0.314
F_9		0.545		
F_10				0.605
F_11	0.556			
F_12				0.651
F_13	0.791			

F_14		0.750		
F_15			0.741	
F_16			0.388	
F_17			0.360	
F_18	0.636			
F_19	0.470			
F_20				0.579
F_21	0.456		0.524	
F_22		0.738		
F_23	0.449			
F_24				0.492
F_25		0.534		
F_26	0.505			
F_27	0.409			
F_28	0.299			
F_29	0.419			
F_30	0.710			
F_31			0.459	
F_32			0.320	
F_33			0.553	
F_34				0.269
F_35			0.432	
F_36	0.496			
F_37	0.419			

Table F.3. Factor Correlation Matrix

Factor	1	2	3	4
1	1.000	.082	.163	.134
2	.082	1.000	.046	.076
3	.163	.046	1.000	.071
4	.134	.076	.071	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, 0.951, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(561)=4988.71$, $p<.000$, 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 66.58% 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 58.48% of the common variance) refers to errors due to lapses and slips. Items such as "*While approaching a crossroads, moved into the wrong lane*" load on this factor.

The second factor (labelled "Speeding", accounting for by the 5.368% of the common variance) refers to complying with the traffic code. Items such as "*Exceeded speed limits on the motorway*" load on this factor.

The third factor (labelled "Violations", accounting for by the 2.73% of the common variance) refers to violations of the traffic code. Items such as "*Driven a long distance without wearing the seatbelts*" negatively load on this factor. This factor correlates negatively with both the previous factors (Table I.3).

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	20.116	59.164	59.164	18.474
2	1.956	5.754	64.918	7.136
3	1.128	3.317	68.235	17.542
4	1.032	3.034	71.269	
5	.861	2.532	73.801	
6	.790	2.323	76.123	
7	.677	1.992	78.115	
8	.633	1.861	79.976	
9	.595	1.751	81.727	
10	.553	1.627	83.354	
11	.482	1.418	84.771	
12	.450	1.324	86.096	
13	.432	1.271	87.367	
14	.418	1.231	88.598	
15	.416	1.223	89.821	
16	.345	1.014	90.835	

17	.326	.957	91.793
18	.316	.929	92.722
19	.289	.849	93.571
20	.258	.760	94.331
21	.231	.678	95.009
22	.210	.617	95.626
23	.189	.557	96.183
24	.176	.518	96.701
25	.162	.476	97.176
26	.142	.417	97.594
27	.136	.399	97.993
28	.131	.385	98.378
29	.122	.357	98.736
30	.106	.312	99.048
31	.099	.290	99.338
32	.090	.264	99.602
33	.073	.214	99.817
34	.062	.183	100.000

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

	Factor		
	Slips/Lapses	Speeding	Violations
I_1			-0.614
I_2			-0.714
I_3			-0.745
I_4		0.898	
I_5		0.670	
I_6			-0.699
I_7			-0.702
I_8		0.479	
I_9			-0.431
I_10			-0.439
I_11		0.456	
I_12			-0.623
I_13			-0.456
I_14			-0.822
I_15		0.404	
I_16			-0.545
I_17			-0.904

I_18	0.573		
I_19	0.687		
I_20	0.822		
I_21	0.574		
I_22	0.624		
I_23	0.624		
I_24	0.580		
I_25	0.771		
I_26	0.515		
I_27	0.507		
I_28	0.789		
I_29	0.755		
I_30	0.855		
I_31	1.016		
I_32	0.857		
I_33	0.944		
I_34	0.795		

Table I.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	.413	-.821
2	.413	1.000	-.443
3	-.821	-.443	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=0.08, $F_{46,154}=8.18$, $p<.0001$). A further factorial analysis of variance on the subscales scores yielded a significant difference among the three groups ($F_{2,99}=24.49$, $p<.001$) and a significant interaction between group and subscale ($F_{44,2178}= 11.47$, $p<.001$), 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, 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 impulsivity, and have more direct experiences of driving under the effect of alcohol.
2. **INATTENTIVE DRIVERS.** People in this group are characterized by attention related factors. Indeed, they show low scores on attention-related locus of control, high scores on anxiety and, most importantly, high scores on the slips/lapses scale. This suggests that they refer to be especially likely to commit errors related to attention/action while driving. These respondents are however also likely to speed up. Similarly to the safe drivers, however, they show low scores on moral disengagement. They also seem to be aware of the negative effects of alcohol upon driving.
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 internal 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.

The three groups do not differ in terms of age or gender, though a prevalence of males can be observed among the risky and inattentive 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 selected 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 the perceived support for their reckless driving from their friends (Figure 3) or parents (Figure 4).

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

	SAFE drivers			RISKY drivers			INATTENTIVE drivers		
	Mean	Std.Err.	N	Mean	Std.Err.	N	Mean	Std.Err.	N
Usefulness of violations	-0.14	0.13	60.00	-0.06	0.31	10.00	0.24	0.17	32.00
Negative attitude toward drugs	0.34	0.09	60.00	-0.86	0.21	10.00	0.04	0.12	32.00
Tolerance to violations	-0.28	0.11	60.00	1.05	0.27	10.00	0.07	0.15	32.00
Negative attitude toward alcohol	0.21	0.09	60.00	-0.65	0.23	10.00	-0.06	0.13	32.00
Attention-related LOC	0.37	0.10	60.00	0.43	0.25	10.00	-0.42	0.14	32.00
External Locus of Control	-0.23	0.12	60.00	0.68	0.30	10.00	-0.04	0.17	32.00
Internal Locus of Control	-0.03	0.12	60.00	0.83	0.28	10.00	-0.06	0.16	32.00
Obstacle-related rage	-0.22	0.10	60.00	1.17	0.25	10.00	-0.03	0.14	32.00
Violation-related rage	0.06	0.10	60.00	0.71	0.25	10.00	-0.39	0.14	32.00
Fine-related rage (rev)	0.46	0.09	60.00	-1.01	0.23	10.00	-0.16	0.13	32.00
Anxiety	-0.37	0.12	60.00	0.94	0.30	10.00	0.18	0.17	32.00
Stability	0.17	0.12	60.00	0.89	0.28	10.00	-0.38	0.16	32.00
Altruism	0.33	0.11	60.00	0.26	0.27	10.00	-0.20	0.15	32.00
Sensation Seedking	-0.04	0.12	60.00	0.57	0.29	10.00	-0.14	0.16	32.00
Slips/Lapses	-0.70	0.09	60.00	1.06	0.22	10.00	0.55	0.12	32.00
Speeding	-0.35	0.11	60.00	1.13	0.27	10.00	0.05	0.15	32.00
Violations	0.68	0.08	60.00	-1.26	0.19	10.00	-0.32	0.11	32.00
Alcohol cognitive negative effects	0.40	0.12	60.00	0.05	0.29	10.00	-0.76	0.16	32.00
Alcohol positive effects	-0.47	0.11	60.00	1.06	0.26	10.00	0.01	0.15	32.00
Alcohol psychological negative effects	0.36	0.11	60.00	0.37	0.27	10.00	-0.51	0.15	32.00
Experience with alcohol related issues	-0.53	0.09	60.00	1.30	0.21	10.00	0.13	0.12	32.00
Prevention behaviours	-0.12	0.11	60.00	1.19	0.26	10.00	-0.23	0.15	32.00
Moral disengagement	-0.27	0.12	60.00	0.99	0.30	10.00	-0.08	0.17	32.00

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

	SAFE drivers	RISKY drivers	Significance
	N=60	N=10	
Usefulness of violations	-0.14	-0.06	ns
Negative attitude toward drugs	0.34	-0.86	p<.001
Tolerance to violations	-0.28	1.05	p<.001
Negative attitude toward alcohol	0.21	-0.65	ns
Attention-related LOC	0.37	0.43	ns
External Locus of Control	-0.23	0.68	ns
Internal Locus of Control	-0.03	0.83	ns
Obstacle-related rage	-0.22	1.17	p<.001
Violation-related rage	0.06	0.71	ns
Fine-related rage (rev)	0.46	-1.01	p<.001
Anxiety	-0.37	0.94	p<.001
Stability	0.17	0.89	ns
Altruism	0.33	0.26	ns
Sensation Seeking	-0.04	0.57	ns
Slips/Lapses	-0.70	1.06	p<.001
Speeding	-0.35	1.13	p<.001
Violations	0.68	-1.26	p<.001
Alcohol cognitive negative effects	0.40	0.05	ns
Alcohol positive effects	-0.47	1.06	p<.001
Alcohol psychological negative effects	0.36	0.37	ns
Experience with alcohol related issues	-0.53	1.30	p<.001
Prevention behaviours	-0.12	1.19	p<.001
Moral disengagement	-0.27	0.99	ns

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

	SAFE drivers	INATTENTIVE drivers	Significance
	N=60	N=32	
Usefulness of violations	-0.14	0.24	ns
Negative attitude toward drugs	0.34	0.04	ns
Tolerance to violations	-0.28	0.07	ns
Negative attitude toward alcohol	0.21	-0.06	ns
Attention-related LOC	0.37	-0.42	p<.001
External Locus of Control	-0.23	-0.04	ns
Internal Locus of Control	-0.03	-0.06	ns
Obstacle-related rage	-0.22	-0.03	ns
Violation-related rage	0.06	-0.39	ns
Fine-related rage (rev)	0.46	-0.16	p<.001
Anxiety	-0.37	0.18	ns
Stability	0.17	-0.38	ns

Altruism	0.33	-0.20	ns
Sensation Seedking	-0.04	-0.14	ns
Slips/Lapses	-0.70	0.55	p<.001
Speeding	-0.35	0.05	ns
Violations	0.68	-0.32	p<.001
Alcohol cognitive negative effects	0.40	-0.76	p<.001
Alcohol positive effects	-0.47	0.01	ns
Alcohol psychological negative effects	0.36	-0.51	p<.001
Experience with alcohol related issues	-0.53	0.13	p<.001
Prevention behaviours	-0.12	-0.23	ns
Moral disengagement	-0.27	-0.08	ns

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

	RISKY drivers	INATTENTIVE drivers	Significance
	N=10	N=32	
Usefulness of violations	-0.06	0.24	ns
Negative attitude toward drugs	-0.86	0.04	ns
Tolerance to violations	1.05	0.07	ns
Negative attitude toward alcohol	-0.65	-0.06	ns
Attention-related LOC	0.43	-0.42	ns
External Locus of Control	0.68	-0.04	ns
Internal Locus of Control	0.83	-0.06	ns
Obstacle-related rage	1.17	-0.03	p<.001
Violation-related rage	0.71	-0.39	ns
Fine-related rage (rev)	-1.01	-0.16	ns
Anxiety	0.94	0.18	ns
Stability	0.89	-0.38	p<.001
Altruism	0.26	-0.20	ns
Sensation Seedking	0.57	-0.14	ns
Slips/Lapses	1.06	0.55	ns
Speeding	1.13	0.05	p<.001
Violations	-1.26	-0.32	ns
Alcohol cognitive negative effects	0.05	-0.76	ns
Alcohol positive effects	1.06	0.01	ns
Alcohol psychological negative effects	0.37	-0.51	ns
Experience with alcohol related issues	1.30	0.13	ns
Prevention behaviours	1.19	-0.23	p<.001
Moral disengagement	0.99	-0.08	ns

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

		Mean age	Standard error	N
Males	Safe drivers	18.23	0.20	31
	Risky drivers	18.89	0.37	9
	Inattentive drivers	18.15	0.25	20
Females	Safe drivers	18.83	0.21	29
	Risky drivers	17.00	1.12	1
	Inattentive drivers	18.73	0.34	11

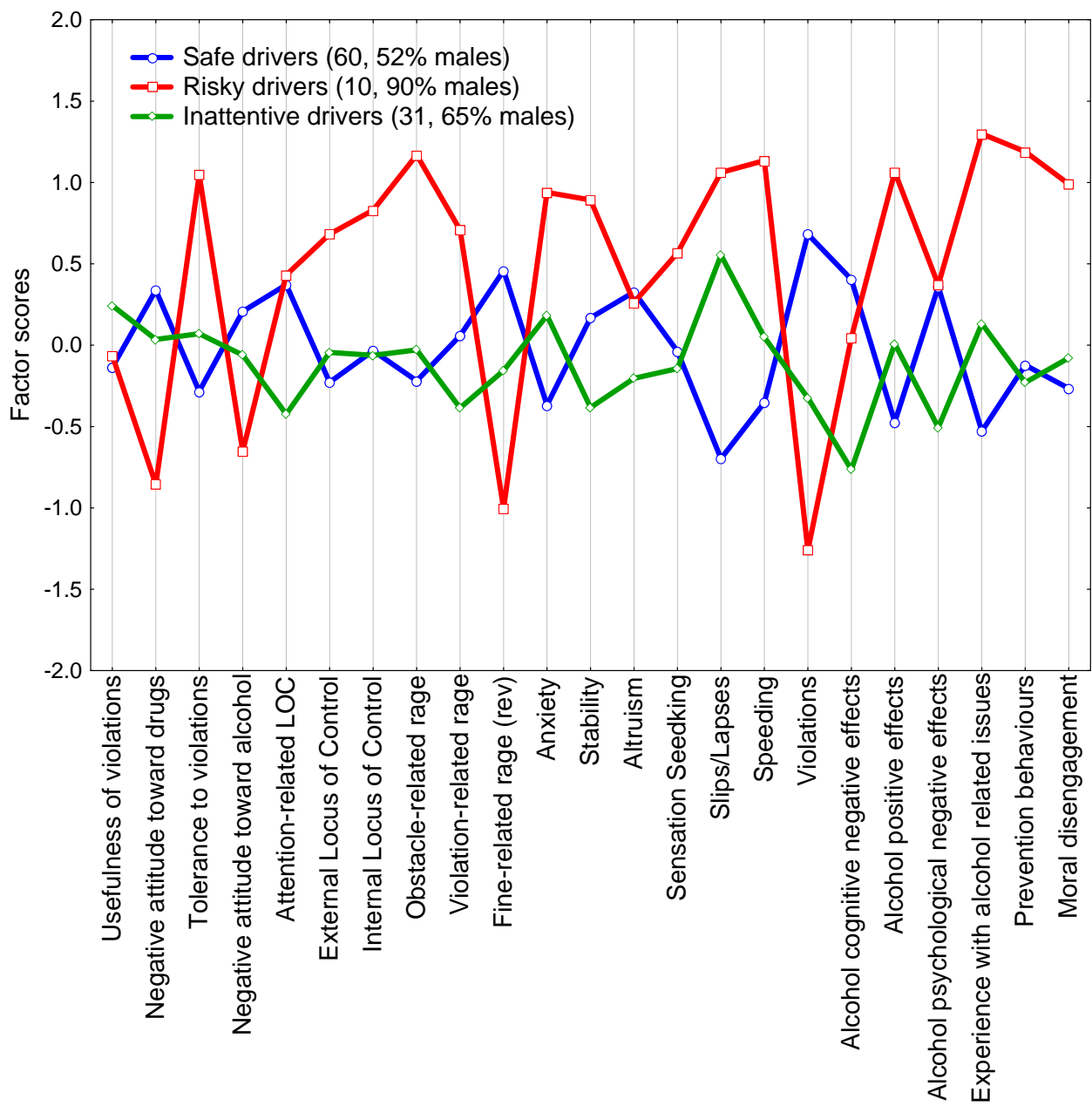
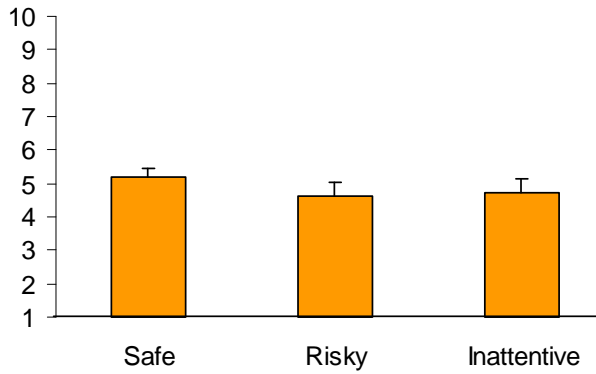


Figure 1. Average scores for each group on the subscales of the questionnaire.

C.1 How would you assess your risk of having a road accident as against the people of your age (10=very high)?



C.2 How much are you worried about this possibility (10=very worried)?

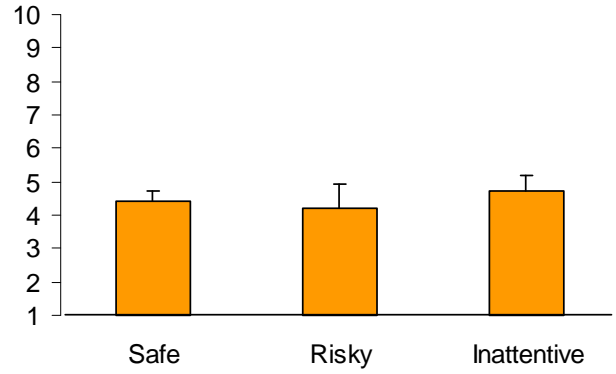
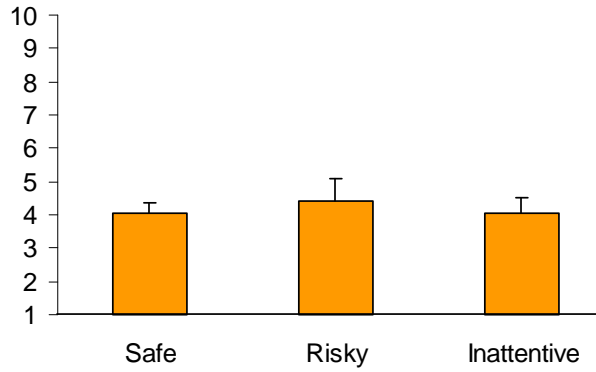


Figure 2. Average scores for each group on items concerning risk perception.

C.3 How much your friends would approve your reckless driving (10=totally approve)?



C.4 How much your friends would encourage your reckless driving (10=totally approve)?

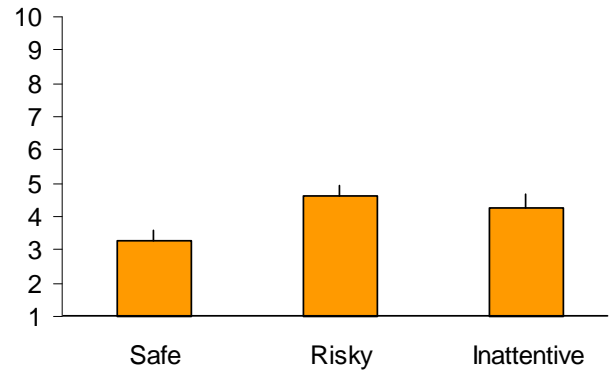
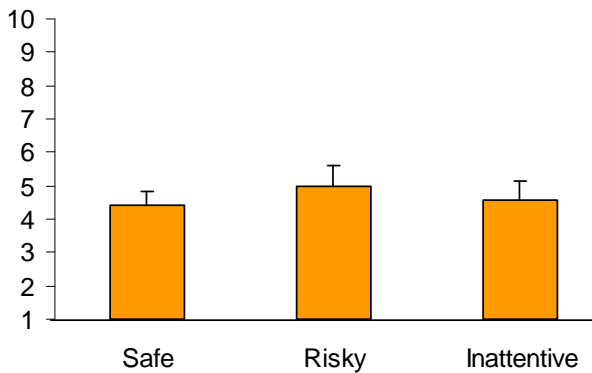


Figure 3. Average scores for each group on items concerning friends' attitude.

C.5 How angry would your parents get for your reckless driving (10=not at all)?



C.6 Would your parents punish you for your reckless driving (10=not at all)?

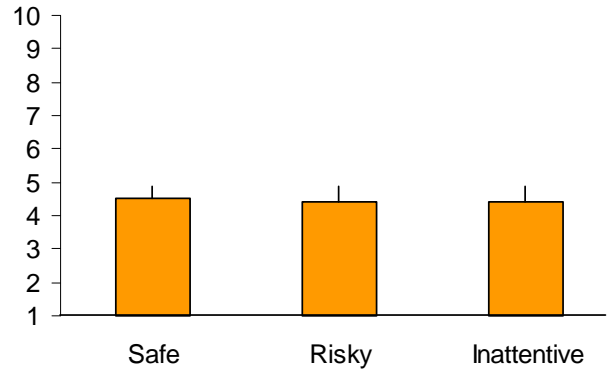


Figure 4. Average scores for each group on items concerning parents' attitude.

NON DRIVERS (QUESTIONNAIRE SECTION 3)

Sample description

A total of 779 people answered the Section 3 of the questionnaire. Males were 334 (42.87% of the total sample) and females were 445 (57.12% of the total sample). Their mean age was 17.55 years (standard deviation 1.29), ranging between 14 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).

Specific dimensions of the questionnaire

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, 0.834, and factorability of the correlation matrix, Bartlett's test of sphericity $\chi^2(153)=4043.46$, $p<.000$, 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 39.72% 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 17.23% 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 16.25% 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. The third factor (labelled "Speeding" (reversed), accounting for by the 13.63% of the common variance) refers to an fast driving. Items such as "*High-speed driving is possible if road conditions are good and there is nobody around*" negatively load on this factor. This factor correlates negatively to the first factor (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	4.126	22.920	22.920	3.103
2	3.221	17.893	40.812	2.925
3	1.251	6.950	47.762	2.455

4	1.086	6.031	53.793
5	.958	5.325	59.118
6	.919	5.104	64.222
7	.851	4.725	68.947
8	.779	4.329	73.277
9	.676	3.755	77.031
10	.634	3.522	80.553
11	.630	3.499	84.052
12	.582	3.234	87.286
13	.501	2.782	90.068
14	.474	2.635	92.703
15	.422	2.345	95.048
16	.385	2.140	97.188
17	.331	1.840	99.028
18	.175	.972	100.000

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

	Factors		
	Negative attitude toward drugs and alcohol	Tolerance toward violations of traffic rules	Speeding (rev)
M_1		0.506	
M_2		0.376	
M_3		0.420	
M_4		0.648	
M_5		0.507	
M_6		0.321	
M_7		0.500	
M_8		0.579	
M_9			-0.463
M_10			-0.361
M_11			
M_12			-0.851
M_13			-0.632
M_14	0.486		
M_15	0.714		
M_16	0.775		
M_17	0.911		
M_18	0.875		

Table M.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	-.065	.052
2	-.065	1.000	-.490
3	.052	-.490	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, 0.87, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(435)=5873.42, p<.000$, 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 28.08% 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 “External Locus of Control”, accounting for by the 16.61% 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 “Internal Locus of Control”, accounting for by the 15.07% 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 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	6.385	21.284	21.284	4.986
2	3.057	10.189	31.473	4.523
3	1.790	5.967	37.440	
4	1.564	5.213	42.653	
5	1.277	4.256	46.909	
6	1.159	3.864	50.774	
7	1.050	3.500	54.274	
8	.994	3.312	57.586	
9	.889	2.963	60.550	
10	.872	2.906	63.455	
11	.829	2.763	66.218	
12	.791	2.638	68.856	
13	.735	2.451	71.308	
14	.677	2.257	73.565	
15	.665	2.215	75.780	
16	.650	2.165	77.945	
17	.628	2.094	80.039	

18	.601	2.004	82.043
19	.575	1.916	83.959
20	.562	1.874	85.833
21	.542	1.807	87.640
22	.527	1.758	89.398
23	.515	1.717	91.115
24	.476	1.586	92.701
25	.420	1.400	94.101
26	.388	1.294	95.394
27	.366	1.220	96.614
28	.352	1.174	97.789
29	.338	1.127	98.916
30	.325	1.084	100.000

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

	Factor	
	External LOC	Internal LOC
N_1	0.271	
N_2	0.310	
N_3		-0.258
N_4	0.371	
N_5		-0.338
N_6	0.271	
N_7		-0.603
N_8		-0.657
N_9		-0.619
N_10		-0.587
N_11	0.475	
N_12	0.427	
N_13	0.677	
N_14	0.693	
N_15	0.606	
N_16		-0.453
N_17		-0.741
N_18	0.287	-0.360
N_19	0.411	
N_20		
N_21	0.321	
N_22	0.644	
N_23	0.678	

N_24		-0.281
N_25	0.383	
N_26	0.631	
N_27	0.456	
N_28		-0.644
N_29		-0.250
N_30		-0.510

Table N.3. Factor correlation matrix

Factor	1	2
1	1.000	-.337
2	-.337	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, 0.905, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(91)=3016.935$, $p<.000$, 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 41.97% 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 28.41% 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 15.04% 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 third factor (labelled “No Violation-related rage” (reversed), accounting for by the 25.91% of the common variance) refers to the rage reactions due to obstacles preventing drivers to drive the way they want. Items such as “*Somebody reverses just in front of you without looking back.*” negatively load on this factor.

The factors are however 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	5.191	37.079	37.079	3.977
2	1.316	9.400	46.479	2.106
3	.970	6.930	53.410	3.628
4	.832	5.941	59.350	
5	.766	5.473	64.824	
6	.714	5.099	69.922	
7	.654	4.673	74.595	
8	.641	4.580	79.176	
9	.581	4.149	83.325	
10	.559	3.995	87.320	
11	.483	3.450	90.769	
12	.451	3.225	93.994	
13	.437	3.125	97.119	
14	.403	2.881	100.000	

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

	Factor		
	Violation-related rage	Controls-related rage	No Violation-related rage (rev)
P_1			-0.564
P_2	0.500		
P_3			-0.662
P_4		0.302	-0.429
P_5		0.713	
P_6	0.533		
P_7	0.299		-0.378
P_8	0.499		
P_9			-0.651
P_10		0.309	
P_11	0.411		
P_12	0.305	0.579	
P_13	0.677		
P_14	0.571		

Table P.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	.384	-.676
2	.384	1.000	-.320
3	-.676	-.320	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 four-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 "Sensation seeking", accounting for by the 13.03% of the common variance) refers to the Sensation-seeking personality trait. Items such as "*I often wish exciting things*" load on this factor.

The second factor (labelled "Altruism", accounting for by the 8.6% 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 third factor (labelled "Calmness", accounting for by the 9.47% 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 11.32% of the common variance) refers to Anxiety. Items such as "*I easily panic*" 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	7.045	19.040	19.040	4.824
2	3.452	9.331	28.371	3.182
3	2.388	6.454	34.824	3.504
4	1.778	4.806	39.631	4.189
5	1.249	3.375	43.006	
6	1.114	3.011	46.017	
7	1.061	2.867	48.885	
8	1.039	2.808	51.693	
9	.960	2.594	54.287	
10	.947	2.558	56.845	
11	.868	2.346	59.192	
12	.849	2.296	61.487	
13	.833	2.251	63.739	
14	.806	2.178	65.916	
15	.763	2.061	67.978	

16	.756	2.044	70.022
17	.734	1.984	72.006
18	.710	1.920	73.926
19	.672	1.816	75.742
20	.650	1.757	77.499
21	.633	1.711	79.210
22	.620	1.675	80.885
23	.594	1.605	82.490
24	.587	1.587	84.077
25	.565	1.528	85.605
26	.547	1.480	87.084
27	.533	1.440	88.524
28	.513	1.387	89.911
29	.489	1.321	91.232
30	.480	1.296	92.528
31	.467	1.263	93.792
32	.446	1.206	94.998
33	.414	1.119	96.117
34	.397	1.074	97.191
35	.378	1.021	98.212
36	.348	.941	99.153
37	.313	.847	100.000

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

	Factor			
	Sensation seeking	Altruism	Calmness	Anxiety
R_1			0.563	
R_2				0.514
R_3		-0.414		
R_4	0.660			
R_5				0.604
R_6			0.543	
R_7		0.531		
R_8	0.420			
R_9			0.567	
R_10	0.369			
R_11		-0.467		

R_12	0.619			
R_13				0.687
R_14			0.389	
R_15		0.579		
R_16				0.382
R_17			0.539	
R_18				0.491
R_19				0.490
R_20	0.461			
R_21		0.318		0.504
R_22			0.449	
R_23		0.312		
R_24	0.462			
R_25			0.412	
R_26				0.487
R_27	0.453			
R_28	0.414			
R_29	0.446			
R_30				0.667
R_31		0.516		
R_32	0.315			
R_33		0.524		
R_34	0.359			
R_35		0.262		
R_36		0.282		
R_37	0.511			

Table R.3. Factor Correlation Matrix

Factor	1	2	3	4
1	1.000	.270	.287	.323
2	.270	1.000	.122	-.014
3	.287	.122	1.000	.214
4	.323	-.014	.214	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, 0.866, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(231)=5710.82, p<.000$, 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 four-factor solution that accounted for the 47.06% 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 20.44% 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 14.84% 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 14.05% 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 fourth factor (labelled “No Risky driving” (reversed), accounting for by the 11.31% of the common variance) refers to risky driving behaviour. Items such as *“You drive long distances without wearing the seatbelts”* negatively load on this factor.

The first, 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	5.439	24.725	24.725	4.499
2	3.924	17.834	42.559	3.265
3	1.651	7.505	50.064	3.093
4	1.164	5.291	55.355	2.490
5	.922	4.192	59.547	
6	.897	4.075	63.622	
7	.783	3.560	67.183	
8	.719	3.269	70.451	
9	.654	2.975	73.426	
10	.624	2.836	76.262	
11	.595	2.706	78.967	
12	.569	2.587	81.555	
13	.548	2.490	84.045	

14	.504	2.292	86.337
15	.483	2.193	88.530
16	.436	1.982	90.512
17	.418	1.901	92.413
18	.400	1.819	94.232
19	.368	1.671	95.903
20	.351	1.594	97.497
21	.285	1.296	98.793
22	.266	1.207	100.000

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

	Factor			
	risky driving	Caution	Slowing (reversed)	No-Risky Driving (reversed)
S_1			-0.588	
S_2			-0.607	
S_3			-0.651	
S_4			-0.656	
S_5			-0.635	
S_6	0.691			
S_7	0.544			
S_8	0.645			
S_9	0.693			
S_10	0.345			-0.351
S_11				-0.714
S_12				-0.655
S_13		0.557		
S_14		0.683		
S_15		0.680		
S_16		0.675		
S_17	0.592			
S_18	0.791			
S_19		0.631		
S_20		0.607		
S_21		0.615		
S_22	0.742			

Table S.3. Factor Correlation Matrix

Factor	1	2	3	4
1	1.000	-.128	-.310	-.417
2	-.128	1.000	-.293	-.088
3	-.310	-.293	1.000	.308
4	-.417	-.088	.308	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, 0.91, and factorability of the correlation matrix, Bartlett’s test of sphericity $\chi^2(190)=5855.76, p<.000$, 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 46.5% 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 26.83% 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 14.92% 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” (reversed), accounting for by the 15.27% of the common variance) refers to the supposed underestimation of negative effects of alcohol assumption on driving behaviour. Items such as “*Alcohol reduces sensory capacity*” negatively load on this factor. Both first and second factor correlates to the first factor , while the third factor negatively correlates to the second 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	5.820	29.101	29.101	5.367
2	3.844	19.219	48.321	2.985
3	1.049	5.244	53.564	3.054
4	1.005	5.027	58.591	
5	.881	4.405	62.997	
6	.803	4.015	67.012	
7	.720	3.600	70.612	
8	.658	3.291	73.903	
9	.628	3.138	77.041	
10	.586	2.929	79.969	
11	.561	2.805	82.775	
12	.526	2.632	85.407	
13	.499	2.496	87.903	
14	.439	2.195	90.098	
15	.404	2.018	92.116	

16	.374	1.872	93.988
17	.343	1.717	95.705
18	.331	1.654	97.359
19	.290	1.448	98.808
20	.238	1.192	100.000

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

	Factor		
	Positive effects	Negative effects	Underestimation of negative effects (rev)
T_1	0.680		
T_2			-0.772
T_3			-0.919
T_4	0.691		
T_5	0.734		
T_6	0.516		
T_7			-0.399
T_8		0.520	
T_9		0.357	
T_10	0.775		
T_11		0.435	
T_12	0.851		
T_13		0.770	
T_14		0.571	
T_15		0.330	-0.334
T_16		0.339	
T_17	0.814		
T_18	0.740		
T_19	0.282	0.268	
T_20	0.737		

Table T.3. Factor Correlation Matrix

Factor	1	2	3
1	1.000	.220	.225
2	.220	1.000	-.530
3	.225	-.530	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=0.15, $F_{32,1034}=49.91$, $p<.0001$). A further factorial analysis of variance on the subscales scores yielded a significant difference among the three groups ($F_{2,532}=153.26$, $p<.001$) and a significant interaction between group and subscale ($F_{30,79801}= 44.03$, $p<.001$), 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. **ALCOHOL TOLERANT DRIVERS.** People in this group have a very similar profile as those in the safe drivers group, with the exception that they are far less aware of the negative effects of driving after having drunk alcohol.
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.

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 safe drivers group feel to be encouraged by their friends less than respondents in the other two groups (Figure 3). Respondents in the three groups do not differ in term of perceived parents' behaviour (Figure 4).

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

	RISKY drivers			SAFE drivers			ALCOHOL TOLERANT drivers		
	Mean	Std.Err.	N	Mean	Std.Err.	N	Mean	Std.Err.	N
Negative attitude toward alcohol/drugs	0.05	0.07	134	0.38	0.05	271	-0.74	0.07	130
Tolerance toward violations	0.67	0.07	134	-0.38	0.05	271	-0.14	0.07	130
Speeding (rev)	-0.65	0.07	134	0.35	0.05	271	0.20	0.07	130
External LOC	0.49	0.07	134	0.09	0.05	271	-0.62	0.07	130
Internal LOC	-0.62	0.07	134	0.32	0.05	271	-0.06	0.07	130
Obstacle-related rage	0.49	0.07	134	0.01	0.05	271	-0.50	0.07	130
Fine-related rage	0.50	0.06	134	-0.39	0.04	271	0.10	0.06	130
Violation-related rage (rev)	-0.42	0.07	134	-0.11	0.05	271	0.50	0.07	130
Sensation Seeking	0.56	0.07	134	-0.02	0.05	271	-0.55	0.07	130
Altruism	0.11	0.07	134	0.33	0.05	271	-0.68	0.07	130
Stability	0.47	0.07	134	-0.31	0.05	271	-0.01	0.07	130
Anxiety	0.60	0.07	134	-0.39	0.05	271	0.01	0.07	130
Alcohol positive effects	0.66	0.06	134	-0.63	0.04	271	0.27	0.06	130
Alcohol negative effects	0.42	0.07	134	0.17	0.05	271	-0.67	0.07	130
Underestimation of alcohol effects (rev)	-0.06	0.06	134	-0.52	0.04	271	0.89	0.06	130
Moral disengagement	0.72	0.07	134	-0.39	0.05	271	-0.14	0.07	130

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

	RISKY drivers	SAFE drivers	Significance
	N=134	N=271	
Negative attitude toward alcohol/drugs	0.05	0.38	p<.001
Tolerance toward violations	0.67	-0.38	p<.001
Speeding (rev)	-0.65	0.35	p<.001
External LOC	0.49	0.09	p<.001
Internal LOC	-0.62	0.32	p<.001
Obstacle-related rage	0.49	0.01	p<.001
Fine-related rage	0.50	-0.39	p<.001
Violation-related rage (rev)	-0.42	-0.11	p<.001
Sensation Seeking	0.56	-0.02	p<.001
Altruism	0.11	0.33	ns
Stability	0.47	-0.31	p<.001
Anxiety	0.60	-0.39	p<.001
Alcohol positive effects	0.66	-0.63	p<.001
Alcohol negative effects	0.42	0.17	ns
Underestimation of alcohol effects (rev)	-0.06	-0.52	p<.001
Moral disengagement	0.72	-0.39	p<.001

Table 3. Comparison between Alcohol tolerant and Risky drivers on each subscale.

	RISKY drivers	ALCOHOL TOLERANT drivers	Significance
	N=134	N=130	
Negative attitude toward alcohol/drugs	0.05	-0.74	p<.001
Tolerance toward violations	0.67	-0.14	p<.001
Speeding (rev)	-0.65	0.20	p<.001
External LOC	0.49	-0.62	p<.001
Internal LOC	-0.62	-0.06	p<.001
Obstacle-related rage	0.49	-0.50	p<.001
Fine-related rage	0.50	0.10	p<.001
Violation-related rage (rev)	-0.42	0.50	p<.001
Sensation Seeking	0.56	-0.55	p<.001
Altruism	0.11	-0.68	p<.001
Stability	0.47	-0.01	p<.001
Anxiety	0.60	0.01	p<.001
Alcohol positive effects	0.66	0.27	p<.001
Alcohol negative effects	0.42	-0.67	p<.001
Underestimation of alcohol effects (rev)	-0.06	0.89	p<.001
Moral disengagement	0.72	-0.14	p<.001

Table 4. Comparison between Safe and Alcohol tolerant drivers on each subscale.

	SAFE drivers	ALCOHOL TOLERANT drivers	Significance
	N=271	N=130	
Negative attitude toward alcohol/drugs	0.38	-0.74	p<.001
Tolerance toward violations	-0.38	-0.14	ns
Speeding (rev)	0.35	0.20	ns
External LOC	0.09	-0.62	p<.001
Internal LOC	0.32	-0.06	p<.001
Obstacle-related rage	0.01	-0.50	p<.001
Fine-related rage	-0.39	0.10	p<.001
Violation-related rage (rev)	-0.11	0.50	p<.001
Sensation Seeking	-0.02	-0.55	p<.001
Altruism	0.33	-0.68	p<.001
Stability	-0.31	-0.01	p<.001
Anxiety	-0.39	0.01	p<.001
Alcohol positive effects	-0.63	0.27	p<.001
Alcohol negative effects	0.17	-0.67	p<.001
Underestimation of alcohol effects (rev)	-0.52	0.89	p<.001
Moral disengagement	-0.39	-0.14	ns

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

		Mean age	Standard error	N
Males	Risky drivers	17.24	0.16	66
	Safe drivers	18.06	0.15	72
	Alcohol tolerant drivers	17.47	0.16	60
Females	Risky drivers	17.71	0.15	68
	Safe drivers	17.71	0.09	195
	Alcohol tolerant drivers	17.32	0.16	66

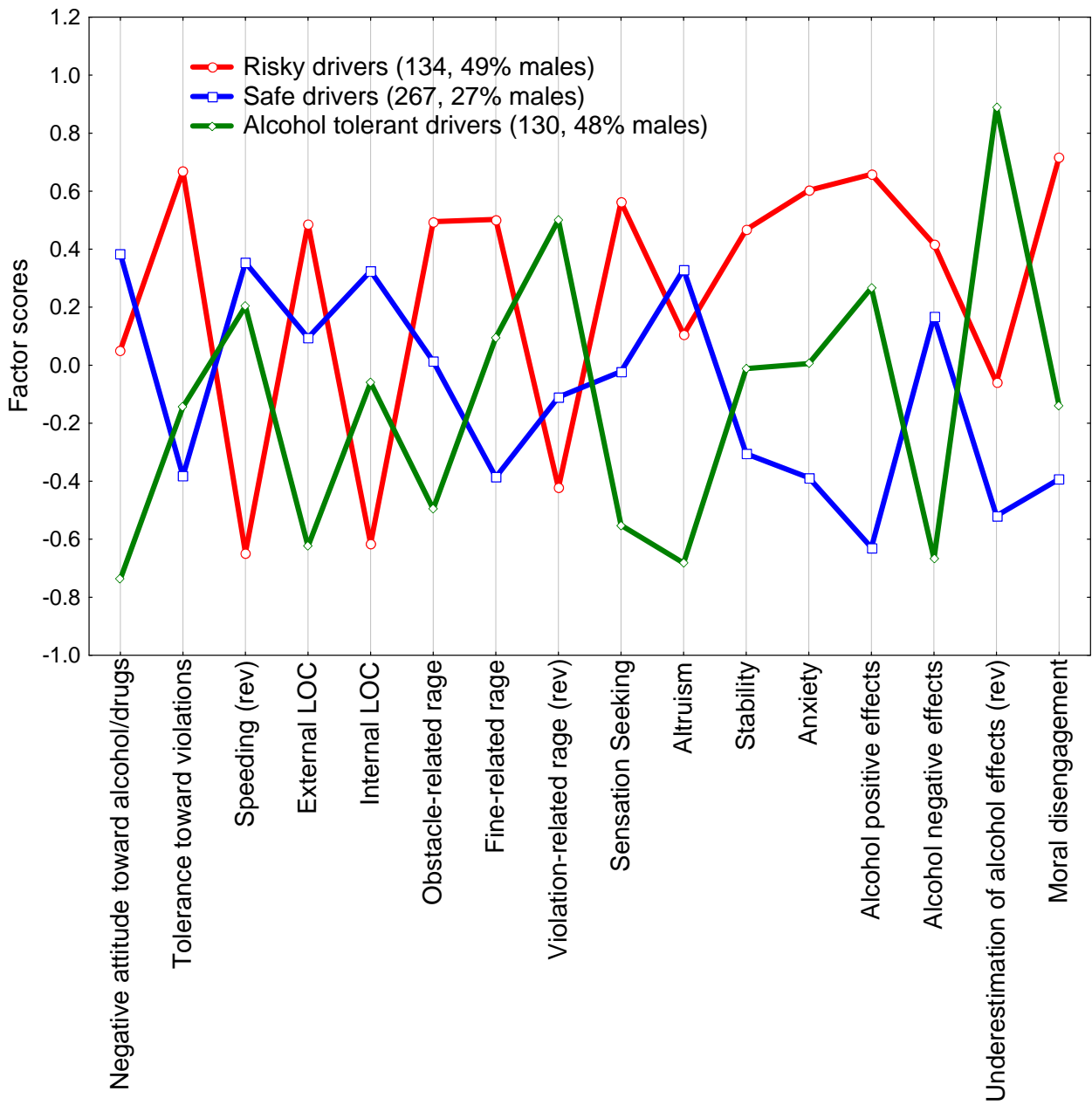


Figure 1. Average scores for each group on the subscales of the questionnaire.

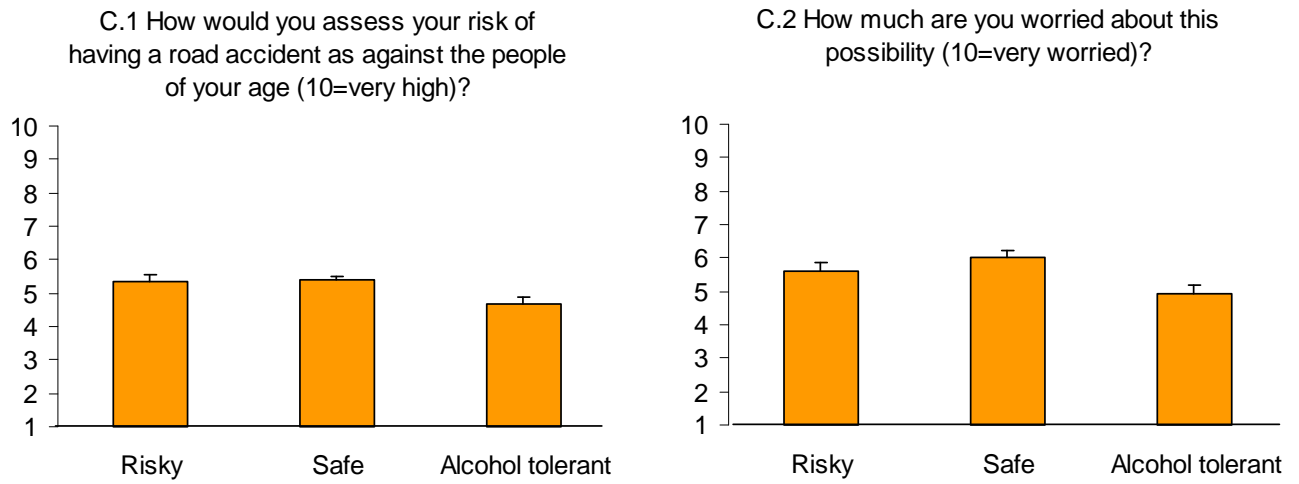


Figure 2. Average scores for each group on items concerning risk perception.

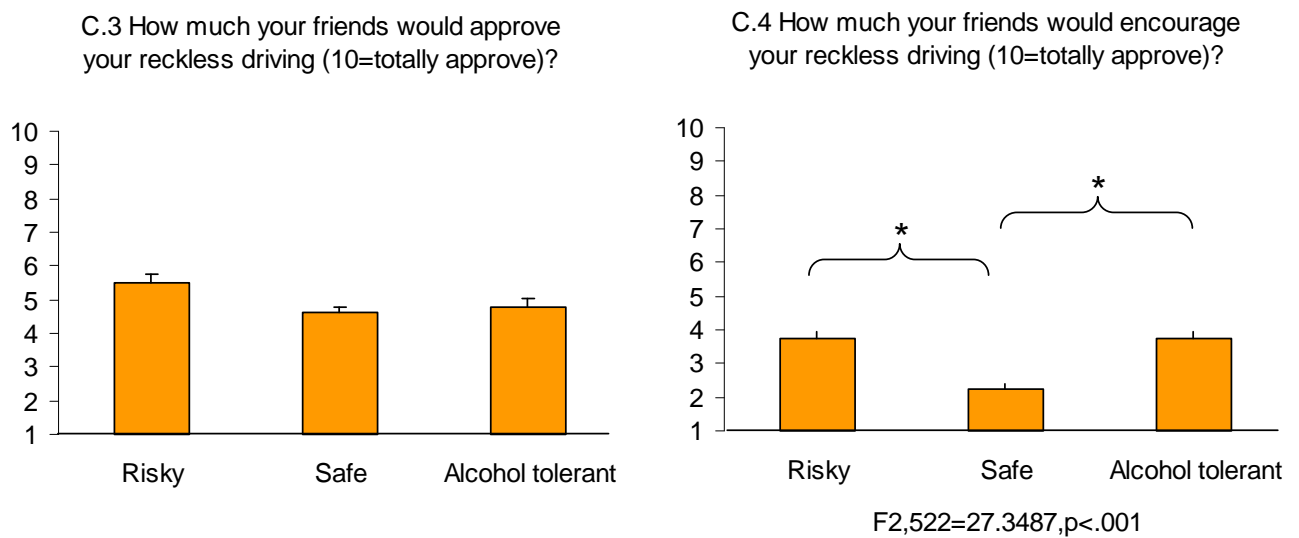


Figure 3. Average scores for each group on items concerning friends' attitude.

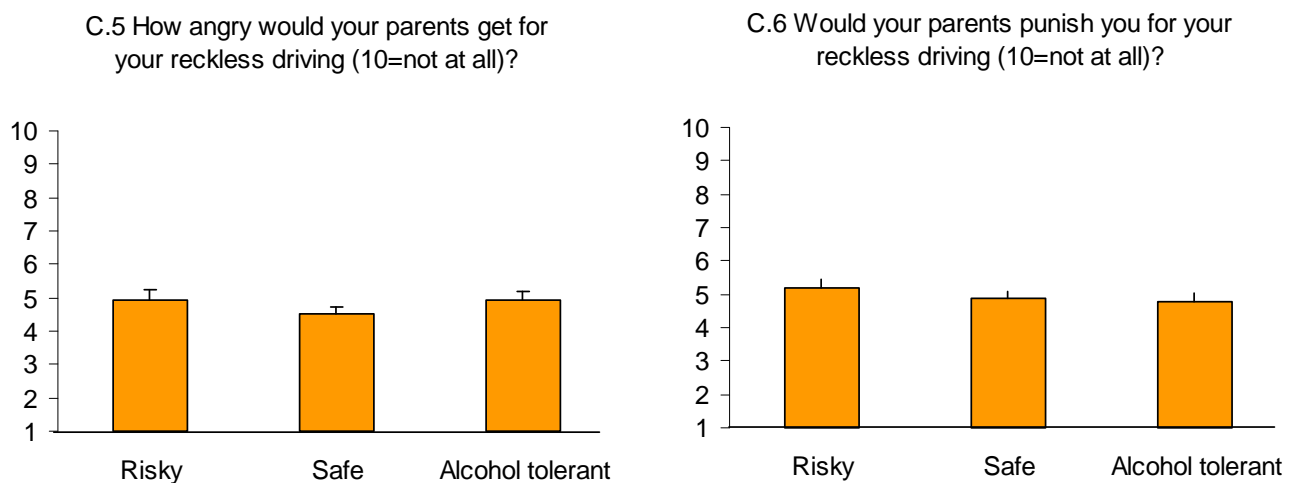


Figure 4. Average scores for each group on items concerning parents' attitude.