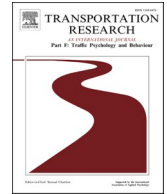




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# The young male driving problem: Relationship between Safe Driving Climate among Friends, Peer Pressure and Driving Styles

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### ABSTRACT

Young people are almost twice as likely to die in traffic crashes than are middle aged people (ages 40 to 60). It remains crucial to assess what factors catalyse young people's non-adaptive driving behaviours. In this study, we adapted the SDCaF (Safe Driving Climate among Friends) and RPI (Resistance to Peer Influence) scales to the driving context in Spain, and measured their relationship with the Driving Styles (DS) of young Spanish drivers (using the Spanish version of the Multidimensional Driving Styles Inventory, MDSI). A sample of young Spanish drivers ( $n = 459$ ; age 18–25) completed an online questionnaire comprised of the Spanish versions of the SDCaF, RPI and MDSI scales, sociodemographic variables, driving habits and history. Evidence of the factorial structure of the Spanish version of the SDCaF scale coincides with those of the original version: the tetra-factorial model of the SDCaF scale obtained adequate values for the adjustment indices of the 4 factors; 2 are maladaptive (Peer pressure and Cost of driving with others) and 2 adaptive (Communication on traffic issues and Commitment to safe driving). The estimated reliability of the SDCaF scale reached acceptable values above ( $\alpha$  ordinal greater than 0.80) except for the Communication factor ( $\alpha = 0.76$ ). Furthermore, evidence of the structure of the Spanish version of the RPI scale coincides with that of the original version, unifactorial model. The estimated reliability of the RPI scale reached acceptable values ( $\alpha$  ordinal = 0.81). Most of the SDCaF's relationships with RPI and MDSI measures were as theoretically expected. The MDSI's maladaptive DS (Reckless, Aggressive and Distracted) correlated positively with the SDCaF's factors of Peer Pressure and Cost for driving with friends. The opposite occurred for the MDSI's adaptive DS (Careful and Stress Reduction). SDCaF Pressure and Cost factors correlated negatively with Resistance to Peer Pressure, whereas SDCaF Communication and Commitment factors correlated positively. We found clear differences by sex: Scores were higher on the Pressure factor when the driver was a man, when the passengers were men and when driving to a party. On the other hand, the scores were higher in the Communication and Commitment factors when the driver was a woman, the passengers were women and when driving somewhere other than a party. In conclusion, we obtained quality translated instruments and provided support for their connection with maladaptive driving to evaluate the reckless driving of young people.

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## 1. Introduction

“...it seems like people accept you more if you're, like, a dangerous driver or something. If there is a line of cars going down the road and the other lane is clear and you pass eight cars at once, everybody likes that. [...] If my friends are with me in the car, or if there are a lot of people in the line, I would do it, but if I'm by myself and I didn't know anybody then I wouldn't do it. That's no fun”. Anonymous teenager, as reported in *The Culture of Adolescent Risk-Taking*. Lightfoot (1997); p.10, as cited in Albert et al., (2013, p. 114).

Young people (18–24 years of age) make up 8 % of Europe's population, but account for 14 % of its road fatalities. In 2021 in Spain, young people between the ages of 20 and 24 accounted for 19 % of deaths (INE, 2022). Young people are almost twice as likely to be killed in a traffic crash than middle aged people (Duddu et al., 2019). Eighty percent of young people who die on the road are men. Young men between the ages of 18 and 24 have a mortality rate that is two to three times higher than young women. Even after adjusting for men's higher probability of driving exposure, the mortality rate for men remains higher than for women (ITF (International Traffic Safety Data and Analysis Group), 2018).

This problem is complex and many attempts to address it have been made in the areas of research, education and training, testing requirements for driver's licenses, and driving restrictions in the early years (e.g., Bingham et al. 2016; Cassarino & Murphy, 2018; Delhomme et al., 2012; Farrand & McKenna, 2001; Fleiter et al., 2010; Gheorghiu et al., 2015). With the European Commission considering allowing drivers as young as 17 years of age to drive vehicles and trucks (European Commission, 2023), it is essential to analyse young people's propensity for risky behaviours and provide them with driving skills training and enforce driving restrictions. The problem is not that young men travel farther distances, but rather the circumstances and conditions under which they drive. According to Spain's General Directorate of Traffic (DGT, 2021), young people are at higher risk of losing their lives on weekends and at night-time than the rest of the population. Fifty-two percent of deaths among young people between 18 and 24 years of age occur at night compared to 31 % for the rest of the population. On weekends, the rate of deaths for young people is 49 % compared to 32 % for the rest of the population.

Guggenheim & Taubman – Ben-Ari (2018) developed the Safe Driving Climate among Friends (SDCaF) scale, which was then adapted to the driving context in China (Yang et al., 2021). In addition, the Resistance to Peer Influence Scale (RPI) (Steinberg & Monahan, 2007) was created by a group of developmental psychologists to measure the degree to which people, especially high school students and college undergraduates, handle peer pressure. Instruments adapted to specific countries to measure how social relationships with friends influence the driving styles of young people and how peers influence the behaviour of young drivers are needed. This study aimed to adapt these instruments to the Spanish context.

### 1.1. Adaptation of the Resistance to Peer Influence (RPI) & Safe Driving Climate among Friends (SDCaF) scales

Although different mechanisms can explain the influence of peers on young people's driving and risk taking (Albert, Chein, & Steinberg, 2013; Allen & Brown, 2008; Grace, Sumit, & Chakraborty, 2020; Scott-Parker, Watson, King, & Hyde, 2014; Guggenheim et al., 2020), we selected the RPI scale (Steinberg & Monahan, 2007) to evaluate susceptibility to peer pressure because it does so only in general terms, disentangled from young people's involvement in antisocial activity. For example, this scale does not emphasize the perceived pressure from friends to engage in specific risky behaviours such as alcohol or tobacco consumption. In fact, peer pressure could also influence one to behave in socially desirable ways (e.g., to do well at school or avoid drug use).

The RPI's original validation study involved 3,600 men and women (10–30 years of age) in the United States. The scale assessed differences in susceptibility to the influence of friends among pre-adolescents (10–14 years old), adolescents (14–18 years old) and young adults (18–30 years old). The scale consists of 10 pairs of neutral sentences. For example, item 1 reads: “Some people go along with their friends just to keep their friends happy” (description on the left), BUT “Other people refuse to go along with what their friends want to do, even though they know it will make their friends unhappy” (description on the right). Participants must choose which of the two comparably desirable options best describes themselves (the format used in Self Perception Profile, Harter, 1998).

The authors posit that providing neutral sentences may avoid strong social desirability bias. That is, participants, unable to determine which option is the more socially acceptable, will respond more honestly. The results found that resistance to pressure increases in a linear fashion among adolescents, but not among preadolescent and young adults. Therefore, based on the results, resistance to peer pressure increases linearly between 14 and 18 years of age. This age range is the most significant for the development of the peer pressure resistance.

In addition, the RPI scale had yet to be adapted to the language and cultural context of Spain, and to the traffic regulations and driving habits of the country.

The SDCaF scale measures friendships between young drivers and how these connect with driving behaviours. The instrument consists of four dimensions (19 items): (a) Friends' pressure (a person's perception of the pressure from friends to drive recklessly); (b) Social costs of driving with friends (i.e., discomfort or fear of driving with friends); (c) Communication with friends about driving; and (d) Shared commitment to safe driving. The SDCaF validation study (Guggenheim & Taubman – Ben-Ari, 2018) involved 706 young Israelis between the ages of 17 and 24. This study also analysed sociodemographic variables and found differences by sex in the Friends' pressure dimension (where men scored higher than women) and in Shared commitment to safe driving (where men scored lower). In addition, it was observed that as driving experience increased, young people reported lower Friends' pressure and lower Social cost of driving with friends. The other two dimensions did not correlate significantly with experience. The same validation study obtained evidence of relationships between SDCaF measures and other theoretically-related constructs such as RPI (Steinberg & Monahan, 2007), the Self-Disclosure Index (SDI; Miller et al., 1983) and the Personal Commitment to Safe Driving Scale (Taubman –

Ben-Ari & Katz-Ben-Ami, 2012). RPI scores correlated significantly with the SDCaF's four dimensions as predicted: the lower the RPI score, the higher the score on Friends' pressure and Social costs of driving with friends; and the higher the RPI score, the higher the score on the Communication with friends about driving and Shared commitment to safe driving dimensions.

Guggenheim & Taubman – Ben-Ari, 2018 note that this instrument can detect susceptibility to reckless driving among young people and promote the design of training programs targeted to this segment of the population. Guggenheim et al. (2020) supports this idea, finding that the dimensions of Friends' pressure and Social costs correlate positively with the intention of young people to engage in reckless driving behaviours, whereas the dimension of Shared commitment to safe driving correlates negatively with these intentions.

The SDCaF scale has been used to compare young drivers from different countries (Israel, Australia and China). However, an adaptation to the language of Spain and the country's traffic rules and driving habits had yet to be undertaken. This instrument will be useful in the design of specific assessments and training programs for the segment of risky young drivers in Spain, and allow for cross-cultural comparisons that will help us understand and address this problem.

For example, Skvirsky et al. (2017) and Taubman – Ben-Ari et al. (2018) used the SDCaF scale to compare young Israelis with young Australians and found that Israelis feel less pressure from Friends, attribute less Social costs of driving with friends and score higher in Communication with friends than Australians. With regard to the Shared commitment dimension, Skvirsky et al. found that young people from both countries attained similar levels, whereas Taubman – Ben-Ari et al. found that Israelis scored higher in this dimension than Australians. Skvirsky et al. (2017) also examined the associations between SDCaF scores and those on the Multidimensional Driving Style Inventory (MDSI, Taubman – Ben-Ari et al., 2004), an instrument that measures different adaptive and maladaptive driving styles. They found that, in general, maladaptive driving styles (Reckless, Anxious, Dissociative, Aggressive) are related to

**Table 1**  
Sociodemographic and driving variables in the sample.

	Mean (years)	SD (years)
Age	21.73	1.98
Years since getting driver's license	3.07	2.04
	<b>Category</b>	<b>N (%)</b>
Sex	Men	176 (38.3)
	Women	278 (60.6)
	Doesn't wish to answer	5 (1.1)
Educational Level	Secondary studies	261 (56.9)
	University studies	198 (43.1)
	Driving frequency	Once a month or less
Km driven per week	Several times a month	132 (28.8)
	Once a week	52 (11.3)
	Several times a week	170 (37)
	Everyday	62 (13.5)
	25 km or less	184 (40.1)
Property-only crashes (no injury to individuals)	Between 26 and 50 km	108 (23.5)
	Between 51 and 100 km	98 (21.4)
	Between 101 and 200 km	45 (9.8)
	More than 200 km	24 (5.2)
since getting driver's license	0	343 (74.7)
	1	101 (22)
	2	12 (2.6)
Crashes where someone was injured	3 or more	3 (0.7)
	0	447 (97.4)
	1	8 (1.7)
since getting driver's license	2	3 (0.7)
	3 or more	1 (0.2)
	0	187 (40.7)
Near-misses since getting driver's license	1	161 (35.1)
	2	62 (13.5)
	3 or more	49 (10.7)
Traffic tickets since getting driver's license	0	401 (87.4)
	1	44 (9.6)
	2	8 (1.7)
	3 or more	6 (1.3)
Driving more with men or more with women	More with men than women	121 (26.4)
	More with women than men	184 (40.1)
	As much with men as women	154 (33.6)
B (cars) driver's license held	No	0 (0)
	Yes	459 (100)
B (cars) + AM driver's license held (Mopeds)	No	428 (93.2)
	Yes	31 (6.8)
B (cars) + A1 driver's license held	No	437 (95.2)
	Yes	22 (4.8)
B (cars) + A2 driver's license held	No	442 (96.3)
	Yes	17 (3.7)

higher Friends' Pressure and Social costs of driving with friends, whereas adaptive driving styles (Careful and Distress reduction) are related to lower Friends' pressure.

The SDCaF scale has also been adapted to the Chinese language and driving context (Yang et al., 2021). These authors found a four-dimensional factorial structure similar to that of the original scale. In addition, evidence of validity of the relationships between SDCaF measures and those provided by the Risky Driving Behaviour Scale (RDBS; Uilleberg & Rundmo, 2003) was obtained. They found that reckless driving behaviours and the number of traffic tickets correlate positively with Peer pressure and Social costs, and negatively with the Shared commitment to safe driving dimension. Likewise, the number of traffic tickets correlated negatively with the Communication with friends about driving dimension. A subsequent study using the Chinese version of the SDCaF scale (Yang et al., 2022) found that the negative dimensions of the instrument (Friends' pressure and Social costs) were associated positively with aggressive driving behaviours and negatively with prosocial behaviours while driving, and that the opposite was true for the positive dimensions (Communication and Shared commitment to safe driving).

## 1.2. Research aims

Instruments are needed to detect susceptibility to reckless driving among young drivers in Spain and to promote the design of training programs targeted to this segment of the population. Therefore, this study aimed to adapt two measures and use them to examine how driving climate among friends and peer pressure are related to the driving styles of young drivers in Spain.

The objectives of the study were: (1) to translate both the Safe Driving Climate among Friends (SDCaF) and Resistance to Peer Influence (RPI) scales into the Spanish language and adapt them to Spain's driving context; (2) to provide evidence of validity and reliability for the adapted versions of these scales; and (3) to investigate associations between SDCaF, RPI, and MDSI measures, on the one hand, and driver sex, crash involvement, and driving habits, on the other.

## 2. Method

### 2.1. Participants

A web questionnaire was completed by a sample of 459 young Spanish drivers between the ages of 18 and 25 ( $M = 21.73$  years,  $SD = 1.98$ ), of which 60.6 % were women and 38.3 % were men (1.1 % did not wish to answer the question regarding sex). All of them held a "Class B" license. In terms of driving experience, 24.2 % had been driving for less than a year, 36.2 % had been driving for between one and three years, and 39.7 % had been driving for more than three years. All participants usually drove with friends, partners or colleagues/classmates. Most had completed high school (55.3 %) or university studies (34.9 %). Table 1 presents descriptive statistics for the sociodemographic and driving variables.

### 2.2. Instruments

A web questionnaire was developed with Unipark software (QuestBack, 2019). It included the SDCaF, RPI and MDSI scales, and a questionnaire with sociodemographic questions as well as questions on driving habits.

#### 2.2.1. Safe Driving Climate among Friends

The adaptation of the SDCaF scale (Guggenheim & Taubman – Ben-Ari, 2018) to the language and driving habits of Spain began with the translation into Spanish following a translation by committee design (Nasser, 2005). The team consisted of two psychologists, Spanish experts and a native English translator.

The first psychologist, with a focus on Road Safety, translated the questionnaire's 19 items, its instructions and response category labels from English into Spanish, taking into account the habits and traffic rules of Spain (see Appendix A). Afterwards, the native English translator (the reviewer) reviewed the initial translation and proposed changes. Lastly, the second psychologist, an expert in methodology, reviewed the entire translation process and discussed the proposed changes with the reviewer and the translator to arrive at the final Spanish version of the SDCaF scale.

The Spanish version of the SDCaF scale consists of 19 Likert-type items with five response categories: 1-Completely disagree; 2-Quite disagree; 3-Agree and disagree to the same extent; 4-Pretty much agree; 5-Completely agree.

#### 2.2.2. Resistance to Peer Influence

To obtain measures with which to relate SDCaF scores, the RPI scale (Steinberg & Monahan, 2007) was adapted to the language and driving habits of Spain, also following a translation by committee design. The translation team was formed by the same professionals who performed the Spanish translation of the SDCaF scale and the same procedure was followed.

The Spain-adapted version of the RPI scale consists of 10 items. Each item presents two descriptions of people, usually opposites, and the participant must decide which of these two types of persons he/she usually is in most cases. For example, item 3 reads: "For some people it is quite easy for their friends to make them change their mind" (description on the left), BUT "for other people it is quite difficult for their friends to get them to change their minds" (description on the right).

Once participants select the description on the left or right, they must indicate whether they consider the description to be "partially true" or "totally true" in their case. The original scale included four samples, where the Cronbach's  $\alpha$  value ranged from  $\alpha = 0.70$  to  $\alpha = 0.76$ . In the current sample, the ordinal Cronbach's  $\alpha$  was calculated (Zumbo et al., 2007), obtaining a value of  $\alpha = 0.81$ .

### 2.2.3. Multidimensional Driving Styles Inventory

The version of the MDSI (Taubman – Ben-Ari et al., 2004) adapted to Spanish by Padilla et al. (2020) was used to assess driving styles. The inventory consists of 34 Likert-type items with six response options (1-Not at all; 2-Very little; 3-A little; 4-Neutral; 5-Quite a lot; 6-A lot).

The Spanish adaptation of the MDSI responds to a six-dimensional structure of Driving Styles (DS), with the following internal consistency values using Cronbach's  $\alpha$ :  $\alpha = 0.81$  for Reckless DS;  $\alpha = 0.69$  for Angry DS;  $\alpha = 0.70$  for Anxious DS;  $\alpha = 0.68$  Dissociative DS;  $\alpha = 0.69$  for Careful DS; and  $\alpha = 0.65$  for Distress Reduction DS. In the current sample, internal consistency was analysed by calculating ordinal Cronbach's  $\alpha$ , obtaining the following values:  $\alpha = 0.88$  for Reckless DS;  $\alpha = 0.77$  for Angry DS;  $\alpha = 0.85$  for Anxious DS;  $\alpha = 0.72$  for Dissociative DS;  $\alpha = 0.73$  for Careful DS; and  $\alpha = 0.65$  for Distress Reduction DS.

### 2.2.4. Sociodemographic, driving habits and history questionnaire

The web questionnaire included various sociodemographic questions (sex, age and educational level), and questions related to driving: years holding a driver's license; driver's license type (B (cars), AM (Mopeds), A1 (Motorcycles 125 cc), A2 (Any motorcycle)); who their passengers usually were (parents, mainly women, both women and men, mainly men); where they drive to (e.g., whether to a party or elsewhere); driving frequency (once a month or less, once a week, several times a week, every day); kilometres driven per week (25 or less, between 26 and 50, between 51 and 100, between 101 and 200, more than 200); involvement in crashes (property-only crashes, crashes where someone was injured) or near misses; and traffic tickets.

## 2.3. Pilot study

A pilot study of the web questionnaire was conducted prior to its administration to the final sample. To this end, the link to participate in the study was distributed by email to University of Granada (Spain) staff and students. A total of 28 respondents: (a) examined possible effects of the order of presentation of the scales; (b) estimated approximate response times; and (c) ascertained whether the overall content of the scale was comprehensible. The participants answered the web questionnaire with the SDCaF and RPI scales presented in different order, and half of them were asked to review their answers if they gave the same answer to all the items that appeared on the same page of the online questionnaire. The remaining half were presented with open-ended questions (web probes) about how they had interpreted terms such as "driving safely", "talking openly", or "friends".

This web questionnaire also included a final section with questions designed to obtain useful information to validate the SDCaF measurements and to evaluate the quality of the participants' responses.

Participants were first asked how much effort it took to answer the web questionnaire. Participants that expressed a high level of effort were asked to clarify which part of the study had cost them the most. Second, they were asked an open-ended question as to whether the questionnaire was missing something to better understand the driving behaviour of young people when they are with their friends.

After conducting a thematic analysis of emerging categories for these questions, it was determined that: (1) the RPI scale was the most difficult to answer because of its complicated response format; and (2) questions about alcohol and drug use before and while driving should be added to better assess the driving of young people when they are with their friends.

The results of the pilot study showed that the order of presentation of the scales had hardly any impact on response time. Therefore, it was decided that the SDCaF scale would be presented first followed by the RPI scale, in order to avoid possible influences of RPI on SDCaF responses.

Response times for the RPI and the thematic analysis of the emerging categories of the response quality assessment questions indicated that this questionnaire was more difficult to answer, probably because of its more complex response format. The analysis of the acquiescent responses indicated that some participants had given the same answer to all items on a page; when 11 participants were presented the questions for a second time, they reaffirmed their answers, indicating that this acquiescence was not likely due to a lack of interest. Only 3 times did participants leave the items blank the second time the questions were presented to them.

The questions from the web probing indicated that all participants had interpreted the items as expected.

## 2.4. Procedure

After the study was approved by the Research Ethics Commission of the University of Granada, Human Research Committee (n° 920/CEIH/2019), the link to participate in the study was distributed by email to the community of the University of Granada (Spain) for 3 months. The invitation was aimed at young drivers between the ages of 18 and 25, and stated that participants who completed the web questionnaire would be entered into a drawing for a folding electric scooter (estimated value of 200 Euros). In the end, the winner preferred to receive 200 Euros.

By clicking on the link, participants were directed to the web questionnaire developed with the Unipark software (QuestBack, 2019). After providing informed consent, participants were asked to complete a series of questionnaires: SDCaF, RPI, MDSI and sociodemographic questions as well as questions on driving habits and history.

On average, it took participants 22 min to complete the questionnaires (SD = 60.84). To ensure data quality, participants were sent reminders if they left any questions unanswered, providing them with the opportunity to go back and answer them. In addition, in the case of the SDCaF scale, participants who provided the same answer to all the items were sent a message that prompted them to modify their answers if they wished.

2.5. Analysis

2.5.1. Data refinement process

A total of 11 out of 470 participants were removed from the final sample based on the following criteria. First, the data was filtered in order to identify outliers and participants with aberrant response patterns, including: (a) scores above very high percentiles (or below very low percentiles) in SDCaF factors; (b) scores below very low percentiles in the completion times for the web questionnaire and SDCaF scale (to the point that it would be unrealistic to assume that the participant had adequately read and understood the content of the web questionnaire); (c) whether reminders had been sent when a question was not answered (indicating a lack of care or seriousness when responding); (d) whether a message had been sent because the same response was given to all questions (indicating an aberrant response pattern); and (e) if the participant reported effort in responding to the web questionnaire (e.g., high informed effort combined with rapid response time would be indicative of an aberrant response pattern).

2.5.2. Analysis of psychometric properties

Next, an analysis of the items and reliability of both the SDCaF scale and MDSI was performed. To provide evidence of validity based on the internal structure of the SDCaF scale, a Confirmatory Factor Analysis (CFA) was carried out testing the four-factor model (Guggenheim & Taubman – Ben-Ari, 2018).

As the assumption of multivariate normality in the data was not fulfilled, and the measures were ordinal in nature, the Weighted Least Square Mean and Variance adjusted (WLSMV) estimator was used. In the same way, evidence of validity of the internal structure of the RPI scale was provided by AFC based on the unifactorial model of Steinberg and Monahan (2007), using the WLSMV estimator for identical reasons.

To provide evidence of validity based on the relationship with other variables, various analyses were performed. First, Pearson correlations were obtained between the dimensions of the SDCaF scale and the dimensions of MDSI. Secondly, Pearson correlations between the dimensions of the SDCaF and RPI scales were obtained. Thirdly, the relationship between the dimensions of the SDCaF scale and the following categorical sociodemographic variables was analysed using MANOVAs: 1) Sex; 2) years of driving experience; 3) driving with parents; 4) increased frequency of driving with men or women; 5) driving to a party; 6) educational level; and (7) possession of a driver’s license AM, A1 or A2 in addition to the B license. Fourth, Pearson and Spearman correlations were used to relate the dimensions of the SDCaF scale with the following sociodemographic variables of quantitative and ordinal nature: 1) frequency of driving with friends or with a partner; 2) frequency of driving as of the time of the survey; 3) kilometres driven by car; 4) property-only crashes (no injury to individuals), crashes where someone was injured; 7) traffic tickets; and 8) years since obtaining a driver’s license.

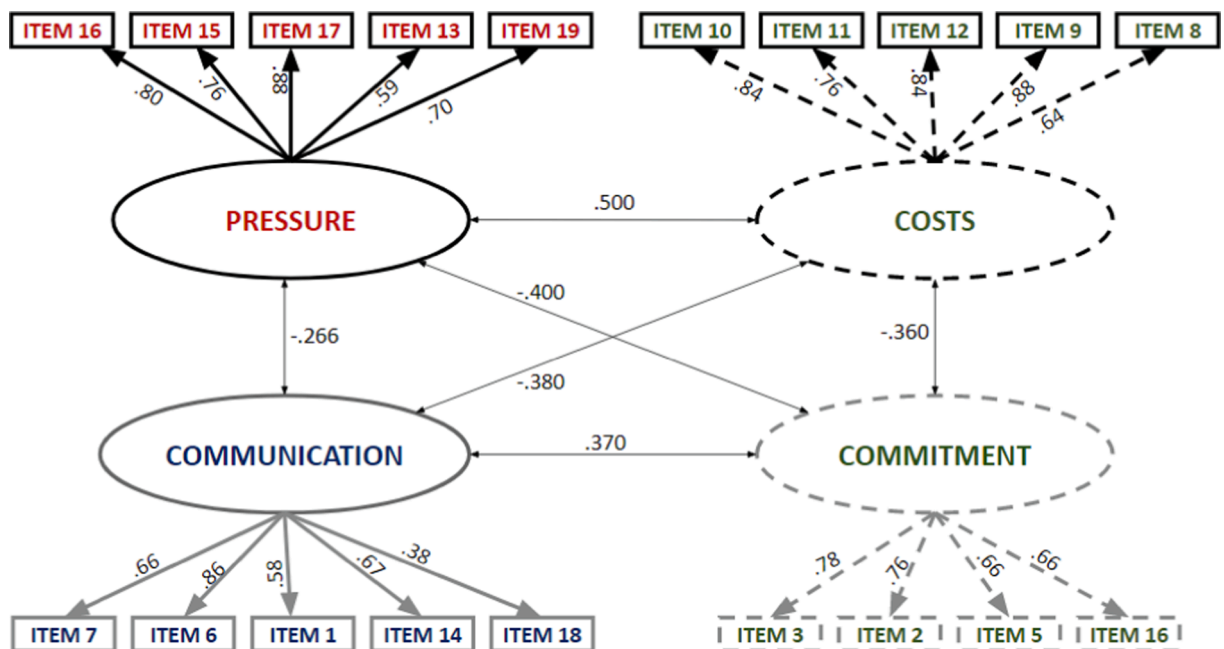


Fig. 1. SDCaF scale factor structure.

### 3. Results

#### 3.1. Factorial structure of the Safe Driving Climate among Friends scale: CFA

The original four-factor structure model of the SDCaF, including the factors of Friends’ pressure (Pressure), Social cost of driving with friends (Costs), Communication with friends about driving (Communication) and Shared commitment to safe driving (Commitment), was tested by a Confirmatory Factor Analysis (CFA) (See Fig. 1).

Results of robust goodness of fit indices showed that the model had an acceptable fit, with CFI and TLI values higher than 0.90, SRMR value lower than 0.080 and RMSEA value lower than 0.080:  $\chi^2(146) = 421.42(146)$ ,  $p\text{-value} < 0.01$ ; IFC = 0.943; TLI = 0.933; SRMR = 0.071; RMSEA = 0.064 (90 % CI: 0.057–0.071). Standardized factor loadings of the model and item descriptions are shown in Table 2; latent correlations among factors are shown in Table 3.

The reliability of the scale factors was analysed using ordinal alpha (Zumbo et al., 2007), given the aforementioned ordinal nature of the data. All SDCaF factors had acceptable internal consistency, with ordinal alpha values above 0.80 except for the Communication factor (see Table 2).

#### 3.2. Factorial structure of the Resistance to Peer Influence scale: CFA

The original one-factor structure model of the RPI (Steinberg & Monahan, 2007) was tested by CFA. Weighted Least Square Mean and Variance adjusted (WLSMV) was used as the estimator method, given the ordinal nature of the data. Results of robust goodness of fit indices showed that the model had an acceptable fit:  $\chi^2(35) = 130.91$ ,  $p\text{-value} < 0.01$ ; CFI = 0.931 TLI = 0.912.; SRMR = 0.071; RMSEA = 0.077 (90 % CI: 0.063–0.092). Standardized factor loadings of the model and item descriptions are shown in Table 4.

#### 3.3. Relationship between SDCaF factors and RPI measure

Significant correlations were found between SDCaF factors and the RPI measure:  $r(457) = -0.472$ ,  $p < .001$  for Pressure,  $r(457) = -0.321$ ,  $p < .001$  for Costs,  $r(457) = 0.248$ ,  $p < .001$  for Communication and  $r(457) = 0.172$ ,  $p < .001$  for Commitment. Interestingly, these results are consistent with the findings of Guggenheim & Taubman – Ben-Ari, 2018, obtaining significant, similar in intensity and equally directed correlations between SDCaF factors and the RPI measure:  $r = -0.45$ ,  $p < .001$  for Pressure,  $r = -0.31$ ,  $p < .001$  for Costs,  $r = 0.37$ ,  $p < .001$  for Communication and  $r = 0.15$ ,  $p < .05$  for Commitment.

#### 3.4. Relationship between SDCaF and MDSI factors

The Pressure factor had positive correlations with the Reckless, Anxious, Angry and Dissociative maladaptive driving styles, a

**Table 2**  
SDCaF scale factor loadings, mean, SD and reliability.

Factor	Items	<i>A</i>	<i>M</i>	<i>SD</i>	Ordinal $\alpha$
Friends’ Pressure	16. Sometimes I did dangerous or stupid things, such as run a red light or ignore a stop sign, because my friends pushed me to do it.	0.80	1.34	0.73	0.84
	15. My friends can push me to do almost anything while driving.	0.76	1.36	0.68	
	17. I do stupid things while driving when my friends encourage me to do so.	0.88	1.28	0.59	
	13. While I am driving, if my friends ask me to do something, it would be hard for me to refuse.	0.59	1.72	0.88	
	19. My friends often pressure me to increase the driving speed, something I would not do on my own initiative.	0.70	1.57	0.88	
Social Costs of driving with friends (Discomfort)	10. When I am driving with friends, I feel uncomfortable.	0.84	1.60	0.90	0.89
	11. When I am driving with my friends, I feel scared.	0.76	1.55	0.78	
	12. When I am driving with my friends, I feel it is exhausting.	0.84	1.57	0.84	
	9. Driving with friends is something I cannot stand to do.	0.88	1.43	0.76	
Communication with friends about positive driving	8. When I am driving with friends, I feel that there are those who look down on me.	0.64	1.84	1.09	0.76
	7. I share experiences with my friends about dangerous situations I’ve been in on the road.	0.66	4.46	0.76	
	6. I can talk freely with my friends about different driving situations.	0.86	4.49	0.69	
	1. Among my friends, we talk openly about errors while driving or “near crashes” so we can learn from it.	0.58	3.88	1.05	
	14. My friends and I talk freely about how each of us drives.	0.67	4.06	0.91	
Shared Commitment to safe driving	18. When I drive with my friends, they tell me if they anticipate hazards on the road before me.	0.38	3.99	0.94	0.80
	3. My friends set an example by obeying traffic laws.	0.78	3.56	0.94	
	2. My friends drive safely even when they’re in a hurry.	0.76	3.46	0.94	
	5. There is general agreement between me and my friends for all of us to drive safely.	0.66	3.86	1.14	
	4. I feel that my friends are proud of me when I drive with caution.	0.66	4.06	0.86	

**Table 3**  
Correlations between SDCaF scale latent factors.

	Pressure	Costs	Communication	Commitment
<b>Pressure</b>				
<b>Costs</b>	0.500**			
<b>Communication</b>	-0.266**	-0.380**		
<b>Commitment</b>	-0.400**	-0.360**	0.370**	

*p* < .001

**Table 4**  
SDCaF scale factor loadings, mean and standard deviation.

Items	<i>λ</i>	<i>M</i>	<i>SD</i>
1. Some people go along with their friends just to keep their friends happy BUT Other people refuse to go along with their friends, even though they know it will make their friends unhappy	0.574	3.39	0.755
2. Some people think it's more important to be an individual than to fit in with the crowd BUT Other people think it is more important to fit in with the crowd than to stand out as an individual	0.596	3.55	0.781
3. For some people, it's pretty easy for their friends to get them to change their mind BUT For other people, it's pretty hard for their friends to get them to change their mind.	0.542	3.04	0.807
4. Some people would do something that they knew was wrong just to stay on their friends' good side BUT Other people would not do something they knew was wrong just to stay on their friends' good side.	0.742	3.55	0.747
5. Some people hide their true opinion from their friends if they think their friends will make fun of them because of it BUT Other people will say their true opinion in front of their friends, even if they know their friends will make fun of them because of it.	0.560	3.25	0.832
6. Some people will not break the law just because their friends say that they would BUT Other people would break the law if their friends said that they would break it.	0.621	3.66	0.698
7. Some people take more risks when they are with their friends than they do when they are alone BUT Other people act the same way when they are alone as they do when they are with their friends.	0.440	3.04	0.981
8. Some people change the way they act so much when they are with their friends that they wonder who they "really are" BUT Other people act just as risky when they are alone as when they are with their friends.	0.680	3.44	0.764
9. Some people say things they don't really believe because they think it will make their friends respect them more BUT Other people would not say things they didn't really believe just to get their friends to respect them more.	0.121	2.77	0.699
10. Some people think it's better to be an individual even if people will be angry at you for going against the crowd BUT Other people think it's better to go along with the crowd than to make people angry at you.	0.692	3.49	0.713

negative correlation with the Careful adaptive driving style, and a neutral correlation with Distress Reduction.

The Costs factor had a positive correlation with the Anxious, Angry and Dissociative maladaptive driving styles, a negative correlation with the Careful (adaptive driving style) and Distress Reduction driving styles, and a non-significant correlation with the Reckless driving style.

Communication only had two significant correlations: one positive correlation with the Careful adaptative driving style and one negative correlation with the Dissociative maladaptive driving style.

Commitment had negative correlations with the Reckless, Anxious, Angry and Dissociative maladaptive driving styles, a positive correlation with the Careful adaptative driving style and a neutral correlation with Distress Reduction (See Table 5).

### 3.5. Relationship between the RPI measure and the MDSI factors

The RPI measure had significant negative correlations with the Reckless driving style ( $r[459] = -0.239, p < .01$ ), the Anxious driving style ( $r[459] = -0.223, p < .01$ ), the Angry driving style ( $r[459] = -0.198, p < .01$ ) and the Dissociative driving style ( $r[459] = -0.359, p < .01$ ), a significant positive correlation with the Careful driving style ( $r[459] = 0.324, p < .01$ ), and an insignificant correlation with the Distress Reduction driving style ( $r[459] = -0.025, p > .05$ ).

**Table 5**  
Pearson correlations between SDCaF factors and MDSI factors.

		SDCaF factors			
		Pressure	Costs	Communication	Commitment
<b>MDSI (Driving Styles) factors</b>	<b>Reckless DS</b>	0.425**	0.073	-0.031	-0.204**
	<b>Anxious</b>	0.273**	0.460**	-0.059	-0.180**
	<b>Careful</b>	-0.332**	-0.153**	0.293**	0.357**
	<b>Angry</b>	0.259**	0.106*	-0.055	-0.218**
	<b>Dissociative</b>	0.376**	0.301**	-0.124**	-0.196**
	<b>Distress Reduction</b>	0.081	-0.119*	0.049	0.071

\**p* < .05; \*\**p* < .01



### 3.6. Relationship between SDCaF and sociodemographic factors and driving habits

#### 3.6.1. Safe Driving Climate among Friends and sex

A one-way MANOVA was run to explore differences by sex in SDCaF factors. The results indicated significant differences between men and women (Pillai's Trace value = 0.052,  $F[4, 449] = 6.17, p < .001, \eta^2 = 0.052$ ).

Analysing individual ANOVAs for each factor, the Pressure factor was higher for men than for women ( $M_{men}[SD_{men}] = 1.57[0.60], M_{women}[SD_{women}] = 1.37[0.44], F[1, 452] = 17.57, p < .001, \eta^2 = 0.037$ ), the Communication factor was higher for women than for men ( $M_{men}[SD_{men}] = 4.10 [0.56], M_{women}[SD_{women}] = 4.22 [0.57], F[1, 452] = 4.69, p < .05, \eta^2 = 0.010$ ) and the Commitment factor was also higher for women than for men ( $M_{men}[SD_{men}] = 3.62[0.74], M_{women}[SD_{women}] = 3.80[0.72], F[1, 452] = 6.61, p < .05, \eta^2 = 0.014$ ). No significant difference was found for the Costs factor (see Fig. 2).

#### 3.6.2. Safe Driving Climate among Friends factors and driving experience

A one-way MANOVA was run to explore differences in SDCaF factors by years of driving experience (less than one year, one to three years, and more than three years). The results indicated no significant differences in years-of-driving categories (Pillai's Trace value = 0.032,  $F[8, 908] = 1.82, p = .070, \eta^2 = 0.016$ ).

#### 3.6.3. Safe Driving Climate among Friends factors and accompanied driving

A one-way MANOVA was run to explore differences in SDCaF factors between those who drive with parents on a regular basis and those who don't. The results indicated significant differences between these groups (Pillai's Trace value = 0.021,  $F[4, 454] = 2.46, p = .045, \eta^2 = 0.021$ ). However, when analysing individual tests for each factor, no significant differences were found for any of them.

A one-way MANOVA was run to explore differences in SDCaF factors between those who drive more with men, those who drive more with women and those who drive as much with men as with women. The results indicated significant differences between these groups (Pillai's Trace value = 0.055,  $F[8, 908] = 3.24, p < .01, \eta^2 = 0.028$ ). When analysing individual tests for each factor, significant differences were found for the Pressure ( $F[2, 456] = 7.42, p < .001, \eta^2 = 0.032$ ) and Commitment ( $F[2, 456] = 5.70, p < .01, \eta^2 = 0.024$ ) factors. Tukey multiple comparisons for the Pressure factor show that the "driving more with men than women" group ( $M [SD] = 1.60[0.65]$ ) had a higher mean than the "driving more with women than men" group ( $M [SD] = 1.38[0.46]$ ) (*Mean difference* = 0.23,  $SE = 0.06, p < .001$ ), and that the "driving more with men than with women" group had a higher mean than the "driving as much with men as with women" group ( $M [SD] = 1.43 [0.45]$ ) (*Mean difference* = 0.18,  $SE = 0.06, p = .012$ ). Tukey multiple comparisons for the Commitment factor show that the "driving more with men than with women" group ( $M [SD] = 3.56[0.78]$ ) had a lower mean than the "driving more with women than men" group ( $M [SD] = 3.84[0.69]$ ) (*Mean difference* = -0.29,  $SE = 0.08, p < .01$ ) (see Fig. 3).

#### 3.6.4. Safe Driving Climate among Friends factors and educational level

A one-way MANOVA was run to explore differences in SDCaF factors by educational level (Medium level, High level). The results indicated no significant differences between these groups (Pillai's Trace value = 0.014,  $F[4, 454] = 1.59, p = .176, \eta^2 = 0.014$ ).

#### 3.6.5. Safe Driving Climate among Friends factors and purpose of driving

A one-way MANOVA was run to explore differences in SDCaF factors between those who drive to parties at night and those who don't. The results indicated significant differences between these groups (Pillai's Trace value = 0.033,  $F[4, 454] = 3.93, p < .01, \eta^2 = 0.033$ ) (See Fig. 4).

When analysing individual tests for each factor, the Pressure factor had a higher mean for participants that drive to parties ( $M[SD] = 1.58[0.58]$ ) than for those that don't drive to parties ( $M[SD] = 1.41[0.49]$ ) ( $F[1, 457] = 10.30, p < .01, \eta^2 = 0.022$ ).

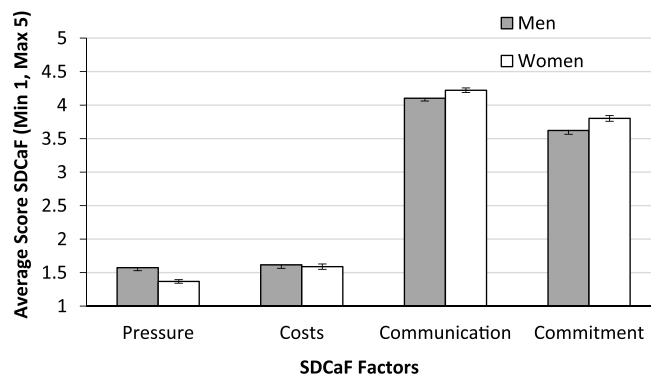


Fig. 2. SDCaF factors (Pressure, Costs, Communication and Commitment) by sex.

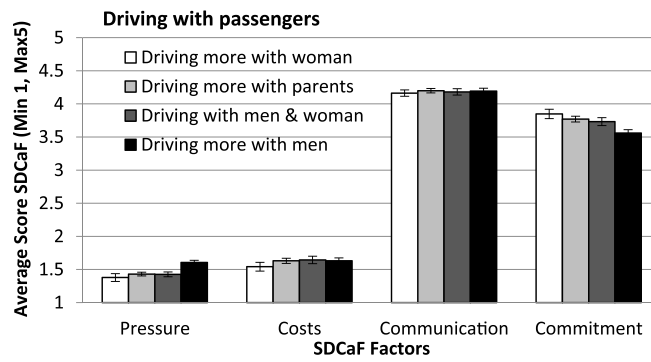


Fig. 3. Driving with passengers and SDCaF factors (Pressure, Costs, Communication and Commitment).

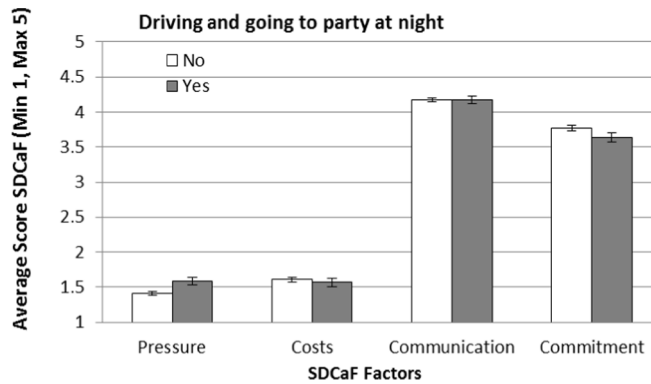


Fig. 4. Driving to a party and SDCaF factors (Pressure, Costs, Communication and Commitment).

### 3.6.6. Safe Driving Climate among Friends factors and driver’s license

3.6.6.1. SDCaF factors for B (cars) against B + AM (to drive mopeds) driver’s licenses. A one-way MANOVA was run to explore differences in SDCaF factors for the group of drivers in exclusive possession of a B license and the group of drivers in possession of B and AM licenses. The results indicated significant differences between these two groups (Pillai’s Trace value = 0.029,  $F[4, 450] = 3.35, p < .05, \eta^2 = 0.029$ ) (See Fig. 5).

When analysing individual tests for each factor, the Communication factor had a greater mean for drivers in possession of B and AM licenses ( $M[SD] = 4.39[0.44]$ ) than for drivers in exclusive possession of a B license ( $M[SD] = 4.16[0.57]$ ) ( $F[1, 453] = 4.29, p < .05, \eta^2 = 0.009$ ).

3.6.6.2. SDCaF factors for B (cars) against B + A1 (to drive motorcycles 125 cc) driver’s licenses. A one-way MANOVA was run to explore differences in SDCaF factors for the group of drivers in exclusive possession of a B license and the group of drivers in possession

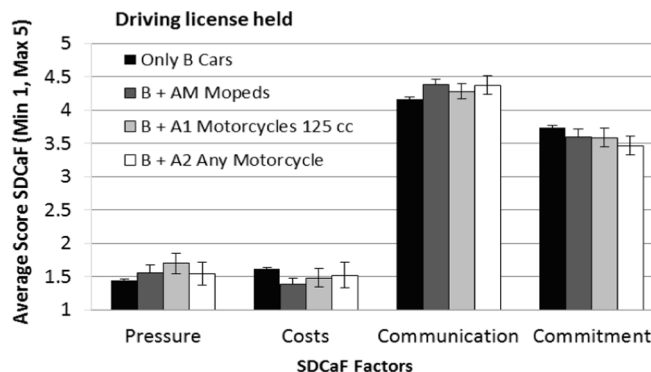


Fig. 5. Driver’s license held and SDCaF factors (Pressure, Costs, Communication and Commitment).

of B and A1 licenses. The results indicated significant differences between these two groups (Pillai's Trace value = 0.022,  $F[4, 450] = 2.56$ ,  $p < .05$ ,  $\eta^2 = 0.022$ ) (See Fig. 5).

When analysing individual tests for each factor, the Pressure factor had a greater mean for drivers in possession of B and A1 licenses ( $M[SD] = 1.7[0.74]$ ) than for drivers in exclusive possession of a B license ( $M[SD] = 1.44[0.51]$ ) ( $F[1, 453] = 5.25$ ,  $p < .05$ ,  $\eta^2 = 0.011$ ).

**3.6.6.3. SDCaF factors for B (cars) against B + A2 (to drive any Motorcycle) driver's licenses.** A one-way MANOVA was run to explore differences in SDCaF factors for the group of drivers in exclusive possession of a B license and the group of drivers in possession of B and A2 licenses. The results indicated no significant differences between these two groups (Pillai's Trace value = 0.014,  $F[4, 450] = 1.61$ ,  $p = .171$ ,  $\eta^2 = 0.014$ ) (See Fig. 5).

### 3.6.7. Safe Driving Climate among Friends factors and driving habits

Correlations between quantitative and ordinal sociodemographic variables and SDCaF factors are shown in Table 6. The Pressure factor had positive and significant correlations with property-only crashes, near-misses and years since getting a driver's license. The Costs factor had significant negative correlations with driving frequency with friends or partner, driving frequency as of the moment of the survey and number of km driven. Communication only had a significant negative correlation with the number of traffic tickets. Finally, the Commitment factor had significant negative correlations with the number of near-misses and traffic tickets.

## 4. Discussion

The aim of this study was to measure how driving climate and peer pressure relate to the driving styles of young people in Spain. Although the problem of young drivers is not new to Spain, we still had to obtain instruments adapted to the language, culture and context of the country in order to detect susceptibility to reckless driving among its young people. These instruments will help design assessment and training programs for risky young drivers in Spain and also make possible the analysis of cross-cultural comparisons to enable us to better understand and address this issue. For this purpose, we translated and adapted the SDCaF and RPI scales into the Spanish language and adapted them to the driving norms and regulations of Spain. We also examined their associations with the MDSI.

The results of a CFA of the factorial structures of these scales showed that the Spanish adaptation replicated the original factorial structures of both the SDCaF (Guggenheim & Taubman – Ben-Ari, 2018) and RPI (Steinberg & Monahan, 2007), obtaining acceptable values for goodness of fit indices. The estimated reliability of SDCaF factors and the RPI total score reached acceptable values. Support for the validity of these instruments was obtained by analysing the relationships between these different measures, as well as with sociodemographic variables and variables on driving habits and history.

More specifically, the relationship between the two instruments, SDCaF and RPI, was theoretically expected and coherent with that found in the SDCaF's original study (Guggenheim & Taubman – Ben-Ari, 2018). SDCaF Pressure and Cost factors correlated negatively with RPI peer pressure resistance, whereas SDCaF Communication and Commitment factors correlated positively. Moreover, the MDSI's maladaptive driving styles (Reckless, Aggressive, Distracted) correlated positively with the SDCaF's factors of Peer Pressure and Cost for driving with others, and negatively with the Communication and Commitment factors. The relationships were exactly the opposite for the MDSI's adaptive driving styles (Prudent and Stress Reduction). In addition, negative correlations were found between the RPI's measure of peer pressure resistance and the MDSI's maladaptive factors (Reckless, Anxious and Angry). The opposite was found between RPI measures and the MDSI's adaptive driving style (Careful).

Significant relationships were also found between SDCaF factors and several sociodemographic variables. Clear differences were found in terms of sex: young men scored higher on the Pressure factor, while young women reported higher scores on Communication and Commitment. Higher scores were obtained in the Pressure factor when driving with male passengers, whereas higher scores were obtained in the Commitment factor when driving with women. These results on the effect of social pressure coincide with the findings of studies conducted with driving simulators (Bingham et al., 2016; Simons-Morton et al., 2019). In the Chinese adaptation of the questionnaire (Yang et al., 2021), identical results were found regarding differences by sex for the Pressure factor (higher mean for men than for women) and for the Commitment factor (higher mean for women than for men), but not for the Communication factor (there was no significant difference in Yang et al., while in the current study a higher mean was found for women than for men). In another related traffic context, Pawlowski, Atwal and Dubar (2008) analysed the risky behaviour of men and women when crossing a busy street. They found that men not only engaged in riskier behaviours but were also more likely to cross the street more riskily in the presence of women; women, however, did not do so in the presence of men. According to the authors, men may view taking risks when crossing the street as a means of "showing off", a way to attract attention, which can then lead to flirtation (male mating display). However, our data indicates that when young male drivers have a woman as a passenger they become somewhat more cautious drivers (higher score in the Commitment factor).

In addition, higher scores were found in the Pressure factor when the purpose of the trip was to go to a party. Driving male passengers on weekend nights elevates the risk of a crash for young drivers. Clarke et al. (2006) analysed the importance of "Time of day" in the crash rate of a representative sample of young Britons. They concluded that the high crash rate was not due to visibility issues, but rather to how young people use the roads at night. Many of the crashes involving young drivers were associated with risky decision-making as part of "recreational driving".

It is relevant to highlight the differences between SDCaF scores by driver's license type. Specifically, those with B (cars) + A1 (motorcycles without sidecar up to 125 cc) licenses had a higher average score in the Pressure factor than those with just a type B (car)

Table 6

Correlations between SDCaF factors and quantitative/ordinal sociodemographic variables.

	SDCaF Factors			
	Pressure	Costs	Communication	Commitment
Driving frequency	−0.032	−0.227**	−0.040	0.030
Km driven	0.056	−0.127**	−0.002	−0.026
Property-only crashes (no injury to individuals)	0.106*	−0.008	−0.010	−0.036
Crashes where someone was injured	0.086	−0.004	−0.087	−0.038
Near-misses	0.112*	0.061	0.062	−0.111*
Traffic tickets	0.131**	−0.023	−0.097*	−0.137**
Years since getting driver's license <sup>1</sup>	0.059	−0.040	−0.063	−0.100*

\* $p < .05$ ; \*\* $p < .01$ ; <sup>1</sup>All correlations but this one (Pearson) are Spearman's correlations because of ordinal nature of the data

license. Drivers who also ride medium-weight motorcycles appear to engage in riskier behaviours in the presence of peers than do those who only drive cars. Even worse, it appears increased motorcycle engine displacement may be associated with higher peer pressure and higher rider fatality rates (Teoh & Campbell, 2010). In contrast, according to Rankin et al. (2021), high-risk car drivers may engage in more risky driving behaviours than motorcycle riders. It was also found that younger motorcyclists with few years of riding experience and owners of small-engine motorcycles reported higher attentional driving error scores on ARDES-M (Attention-Related Driving Errors) and reported greater participation in distracting activities while driving or IDA (Involvement in Distracting Activities) (Ledesma et al., 2023). In line with this finding, peer pressure includes passive and active distractions, with the consequent interruption of driving (Allen & Brown, 2008).

Other differences were also found between SDCaF scores by type of driver's license. Those with B (cars) + AM (mopeds up to 50 cc) licenses had higher average scores in the Communication factor than those with only B licenses. Importantly, moped riders may be the youngest drivers in our sample. The following statistics show the overall proportion of Spanish drivers who have B (cars) and other licenses. In 2022, a total of 914,835 drivers held a B license, and a total of 183,353 held a motorcycle license, with the following breakdown: 11,001 (<75 cc), 89,645 (75–125 cc), 2,127 (126–250 cc), 31,916 (251–500 cc), 20,592 (501–750 cc), 28,072 (greater than 750 cc) (DGT, 2022). To establish the likely magnitude of the issue, a study conducted by MMT (Mutua Madrileña del Taxi, 2020) found that the engine power of the motorcycle increases with the rider's age, but drops again for the older age groups. This may suggest that Spanish riders, and particularly the youngest riders, need to gradually adapt to these vehicles. As they do so, they gradually increase the engine power of the motorcycle. In terms of a percentage breakdown, riders of Mopeds of 75 cc consist of: 32 % young riders (<40 years old); 57 % middle-aged riders (40 to 60 years old) and 10 % older riders (greater than 60 years old). Riders of motorcycles of 75–135 cc consist of: 37 % young riders; 56 % middle-aged riders; and 6 % older riders. Riders of motorcycles of more than 125 cc consist of: 41 % young riders; 53 % middle-aged riders and 5 % older riders (MMT Mutua Madrileña del Taxi, 2020).

Similarly, SDCaF factors correlated significantly and differentially with different crash variables. Specifically, the figures on crashes resulting only in property damage and near misses correlated positively with the Pressure factor. The number of near misses also correlated negatively with the Commitment factor. The number of traffic tickets correlated positively with the Pressure factor and negatively with the Communication and Commitment factors. In the Chinese adaptation of the questionnaire (Yang et al., 2021), correlations analogous to that of the current study were also found with the number of traffic tickets: positive with Pressure and negative with Communication and Commitment. In contrast, Yang et al. found positive correlations with Costs, while the current study did not find this correlation to be significant.

#### 4.1. Limitations and further research

Further research is needed to understand and disentangle the effects of peer pressure, communication, type and number of licenses held (and/or vehicle power) and driver characteristics from the effects of age or Driving experience.

## 5. Conclusion

Two instruments, SDCaF and RPI, were adapted to the language and driving habits of Spain. These instruments show good psychometric properties and evidence of validity. They can detect susceptibility to reckless driving among young Spanish drivers and can serve to promote the design of targeted training programs for this segment of the population. Driving male passengers on weekends is still a risk factor for crashes for young people because the pressure that these peers exert encourages reckless, aggressive and distracted driving.

#### CRedit authorship contribution statement

**Jose-Luis Padilla:** Conceptualization, Investigation, Supervision. **Nuria Sánchez:** Conceptualization, Investigation, Writing – review & editing. **Pablo Doncel:** Data curation, Methodology, Writing – review & editing. **M. Carmen Navarro-González:** Methodology. **Orit Taubman-Ben-Ari:** Conceptualization, Supervision. **Candida Castro:** Conceptualization, Investigation, Writing – review & editing, Supervision, Funding acquisition.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Data availability

Data will be made available on request.

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### Appendix A. Safe driving climate among friends scale (SDCaf)

Different people have various views concerning driving with friends, and may have diverse opinions in regard to it, even if they are very good friends. We would like to learn about your personal attitudes and feelings concerning this issue. There are no right or wrong answers, only your personal view is important to us. Please, mark the degree that best matches your agreement or disagreement with each of the sentences below (if any sentence describes a situation that you haven’t experienced before as a driver, imagine what would have happened in such a situation and mark your answer accordingly).

*Las personas pueden tener distintos puntos de vista y diferentes opiniones sobre conducir con amigos, incluso aunque se trate de muy buenos amigos. Nos gustaría saber más acerca de sus actitudes personales y sus sentimientos sobre ese asunto. Por ello, en este cuestionario no hay respuestas correctas ni incorrectas. Lo que queremos averiguar es tu punto de vista personal. Por favor, marca tu grado de acuerdo o desacuerdo con cada una de las afirmaciones que ves más abajo. Si la frase describe una situación que tú nunca has vivido como conductor, imagina qué hubiera sucedido en esa situación e indica tu respuesta según tu grado de acuerdo.*

	1-Completely disagree ( <i>Completamente en desacuerdo</i> )	2-Quite disagree ( <i>Bastante en desacuerdo</i> )	3-Agree and disagree to the same extent ( <i>En la misma medida de acuerdo o desacuerdo</i> )	4-Pretty much agree ( <i>Muy de acuerdo</i> )	5-Completely agree ( <i>Completamente de acuerdo</i> )
1	Among my friends, we talk openly about errors while driving or “near crashes” so we can learn from it. <i>Con mis amigos/as, hablamos abiertamente de los errores o los casi-crashes que cometemos conduciendo, para poder aprender de ellos.</i>				1 2 3 4 5
2	My friends drive safely even when they’re in a hurry. <i>Mis amigos/as conducen de forma segura incluso cuando tienen prisa.</i>				1 2 3 4 5
3	My friends set an example by obeying traffic laws. <i>Mis amigos/as dan ejemplo obedeciendo las leyes del tráfico.</i>				1 2 3 4 5
4	I feel that my friends are proud of me when I drive with caution. <i>Siento que mis amigos/as están orgullosos/as de mí cuando conduzco con precaución.</i>				1 2 3 4 5
5	There is general agreement between me and my friends for all of us to drive safely. <i>Existe un acuerdo general entre mis amigos/as y yo en que todos/as debemos conducir de forma segura.</i>				1 2 3 4 5
6	I can talk freely with my friends about different driving situations. <i>Puedo hablar abiertamente con mis amigos/as acerca de distintas situaciones de conducción.</i>				1 2 3 4 5
7	I share experiences with my friends about dangerous situations I’ve been in on the road. <i>Comparto experiencias con mis amigos/as acerca de las situaciones peligrosas que he vivido en la carretera.</i>				1 2 3 4 5
8	When I am driving with friends, I feel that there are those who look down on me. <i>Cuando estoy conduciendo con amigos/as, siento que hay algunos/as que me menosprecian.</i>				1 2 3 4 5
9	Driving with friends is something I can not stand to do. <i>No puedo soportar conducir con amigos/as.</i>				1 2 3 4 5
10	When I am driving with friends, I feel it makes me uncomfortable. <i>Cuando estoy conduciendo con amigos/as, me siento incómodo/a.</i>				1 2 3 4 5
11	When I am driving with my friends, I feel it scares me. <i>Cuando estoy conduciendo con mis amigos/as, siento miedo.</i>				1 2 3 4 5
12	When I am driving with my friends, I feel like it is exhausting. <i>Es agotador conducir con mis amigos/as.</i>				1 2 3 4 5
13	While I am driving, if my friends ask me to do something, it would be hard for me to refuse. <i>Cuando estoy conduciendo, si mis amigos/as me piden que haga algo, sería difícil negarme.</i>				1 2 3 4 5
14	My friends and I talk freely about how each of us drives. <i>Mis amigos/as y yo hablamos abiertamente acerca de cómo conducimos cada uno/a de nosotros/as.</i>				1 2 3 4 5

(continued on next page)

(continued)

<b>1-Completely disagree (Completamente en desacuerdo)</b>	
<b>2-Quite disagree (Bastante en desacuerdo)</b>	
<b>3-Agree and disagree to the same extent (En la misma medida de acuerdo o desacuerdo)</b>	
<b>4-Pretty much agree (Muy de acuerdo)</b>	
<b>5-Completely agree (Completamente de acuerdo)</b>	
15	My friends can push me to do almost anything while driving. <i>Mis amigos/as pueden incitarme a hacer casi cualquier cosa mientras conduzco.</i>
16	Sometimes I did dangerous or stupid things, such as to run the red light or to ignore the stop sign, because my friends pushed me to this. <i>Algunas veces hice cosas peligrosas o estúpidas, como saltarme un semáforo en rojo o hacer caso omiso de una señal de stop, porque mis amigos/as me incitaron a hacerlo.</i>
17	I do stupid things while driving, when my friends encourage me to do so. <i>Hago estupideces mientras conduzco, cuando mis amigos/as me animan a hacerlo.</i>
18	When I drive with my friends they will tell me if they anticipate hazards on the road before me. <i>Cuando conduzco con mis amigos/as me avisan si anticipan antes que yo los peligros en la carretera.</i>
19	My friends often pressure me to increase the driving speed, something I would not have done at my own initiative. <i>Mis amigos/as a menudo me presionan para que aumente la velocidad, algo que yo no haría por propia iniciativa.</i>

**Appendix B. Resistance to peer influence scale (RPI)**

For each question, decide which sort of person you are most like — the one described on the right or the one described on the left. Then decide if that is “sort of true” or “really true” for you, and mark that choice. For each line mark only ONE of the four choices.

En cada frase, decide a qué tipo de persona te pareces más: la que se describe a la izquierda o la que se describe a la derecha. Después decide si esta es “parcialmente verdadera” o “totalmente verdadera” para ti, y marca tu respuesta. En cada línea marca sólo una de las cuatro alternativas.

Really true for me. Realmente verdadera para mí = 1	Sort of true for me. Parcialmente verdadera para mí = 2			Sort of true for me. Parcialmente verdadera para mí = 3	Really true for me. Realmente verdadera para mí = 4	
1	2	Some people go along with their friends just to keep their friends happy. <i>Algunas personas hacen lo que sus amigos quieren hacer, solo para que sus amigos se sientan bien.</i>	BUT/ PERO	Other people refuse to go along with their friends want to do, even though they know it will make their friends unhappy. <i>Otras personas rechazan hacer lo que sus amigos quieren, aunque esto haga que se sientan mal.</i>	3	4
1	2	Some people think it's more important to be an individual than to fit in with the crowd. <i>Algunas personas piensan que es más importante ser uno mismo que dejarse llevar por los demás.</i>	BUT/ PERO	Other people think it is more important to fit in with the crowd than to stand out as an individual. <i>Otras personas piensan que es más importante encajar con los demás que destacar siendo uno mismo.</i>	3	4
1	2	For some people, it's pretty easy for their friends to get them to change their mind. <i>Para algunas personas es bastante fácil que sus amigos les hagan cambiar de opinión.</i>	BUT/ PERO	For other people, it's pretty hard for their friends to get them to change their mind. <i>Para otras personas, es bastante difícil que sus amigos consigan que cambien de opinión.</i>	3	4
1	2	Some people would do something that they knew was wrong just to stay on their friends' good side. <i>Algunas personas harían algo que saben que está mal simplemente por quedar bien con sus amigos.</i>	BUT/ PERO	Other people would not do something they knew was wrong just to stay on their friends' good side. <i>Otras personas no harían algo que piensan que está mal simplemente por quedar bien con sus amigos.</i>	3	4
1	2	Some people hide their true opinion from their friends if they think their friends will make fun of them because of it. <i>Algunas personas se callan su verdadera opinión si piensan que sus amigos se reirán de ellos.</i>	BUT/ PERO	Other people will say their true opinion in front of their friends, even if they know their friends will make fun of them because of it. <i>Otras personas dicen abiertamente su verdadera opinión, aunque sepan que sus amigos se reirán de ellos.</i>	3	4

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(continued)

Really true for me. Realmente verdadera para mí = 1	Sort of true for me. Parcialmente verdadera para mí = 2				Sort of true for me. Parcialmente verdadera para mí = 3	Really true for me. Realmente verdadera para mí = 4
1	2	Some people will not break the law just because their friends say that they would. <i>Algunas personas no se saltarán la ley solo porque sus amigos les digan que ellos lo harían.</i>	BUT/ PERO	Other people would break the law if their friends said that they would break it. <i>Otras personas se saltarían la ley si sus amigos les dijeran que ellos sí se la saltarían.</i>	3	4
1	2	Some people take more risks when they are with their friends than they do when they are alone. <i>Algunas personas asumen más riesgos cuando están con sus amigos que cuando están solos.</i>	BUT/ PERO	Other people act the same way when they are alone as they do when they are with their friends. <i>Otras personas se comportan de la misma forma cuando están solas que cuando están con sus amigos.</i>	3	4
1	2	Some people change the way they act so much when they are with their friends that they wonder who they “really are”. <i>Algunas personas cambian tanto su forma de comportarse cuando están con sus amigos que se preguntan “quiénes son realmente”.</i>	BUT/ PERO	Other people act just as risky when they are alone as when they are with their friends. <i>Otras personas se arriesgan lo mismo cuando están solas que cuando están con sus amigos.</i>	3	4
1	2	Some people say things they don't really believe because they think it will make their friends respect them more. <i>Algunas personas dicen cosas que no creen realmente porque piensan que esto hará que sus amigos les respeten más.</i>	BUT/ PERO	Other people would not say things they didn't really believe just to get their friends to respect them more. <i>Otras personas se callarían lo que piensan solo para que sus amigos les respeten más.</i>	3	4
1	2	Some people think it's better to be an individual even if people will be angry at you for going against the crowd. <i>Algunas personas piensan que es mejor ser uno mismo, aunque los demás se enfaden por ir en contra de ellos.</i>	BUT/ PERO	Other people think it's better to go along with the crowd than to make people angry at you. <i>Otras personas piensan que es mejor dejarse llevar por la mayoría que hacer que los demás se enfaden.</i>	3	4

Scoring instructions: Score each item from 1 to 4 (reading left to right on the instrument). Reverse-score items 2, 6, and 10. Sum the scores for valid responses and divide by the number of valid items. It is recommended that at least 7 items have valid responses. Instrucciones de corrección: Puntuar cada ítem de 1 a 4 (leyendo de izquierda a derecha en el instrumento). Los ítems 2, 6 y 10 son inversos. Sumar las puntuaciones de las respuestas válidas y dividir por el número de ítems válidos. Es recomendable que al menos 7 ítems tengan respuestas válidas.

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