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Running head: COMPARATIVE RISK JUDGMENTS AND SPEEDING

Are Drivers' Comparative Risk Judgments about Speeding Realistic?

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ABSTRACT

This study focused on comparative judgments about speeding risks among young drivers, who have a high risk of being involved in a traffic accident. We examined (1) how these drivers assess their risk of sanctions and their risk of causing an automobile crash because of speeding in comparison to the estimated risks of other drivers, and (2) how realistic their comparative risk judgments are. We measured the relationship between the drivers' comparative risk judgments, self-reported speeding, and driving-related sensation-seeking. We hypothesized that (1) they would think they have less risk of sanctions and of causing a car accident than others, and (2) their comparative judgments of speeding risks would be linked to self-reported speeding and driving-related sensation-seeking. The study was based on a computerized questionnaire survey conducted with 3002 young drivers (mean age = 22.3) administered by professional investigators. The results confirmed our hypotheses. In order to improve the effectiveness of prevention measures, road-safety interventions should take into account comparative risk judgments about the targeted risk behavior.

Key words: Comparative optimism; Comparative pessimism; Judgment realism; Self-reported speeding; Driving-related sensation-seeking.

Are Drivers' Comparative Risk Judgments about Speeding Realistic?

1. Introduction

In the field of road safety, numerous studies have found that people exhibit comparative optimism or CO, i.e., they think their driving abilities are better, or their vulnerability to road accidents lower, than those of the average driver (Delhomme, 2000; Finn & Bragg, 1986; Guérin, 1994; Guppy, 1993; Harré, Susan, & O'Neill, 2005; Martha & Delhomme, 2009; Matthews & Moran, 1986; Rutter, Quine, & Albery, 1998; Sundström, 2007). When investigated at the general level, this kind of CO has been found to lower the likelihood of adopting safe behaviors (Delhomme, 1994, 2000, 2001; Delhomme & Meyer, 1999; Klein, 1997; McKenna, Stanier, & Lewis, 1991) and thereby undermines the effectiveness of educational measures.

However, in regards to specific risks, CO is not always exhibited (Armor & Taylor, 1998; Causse, Delhomme, & Kouabenan, 2005a; Meyer & Delhomme, 2000). Most people express similarity judgments (SJ: they see their own risks as similar to those of others) or comparative pessimism (CP: they see their risks as higher than those of others). Moreover, CO about road-traffic risks inherent in a specific behavior is not necessarily associated with the adoption of that risky behavior and can even be related to safe behaviors (Causse, Kouabenan, & Delhomme, 2004; Causse, Delhomme, & Kouabenan, 2005b; Harris & Middleton, 1994; Martha & Delhomme, 2009; Rutter et al., 1998). For instance, the sheer fact of following road-traffic rules can contribute to CO (Causse et al., 2005a, 2005b), while traffic-rule violation behaviors may have a negative impact on the extent to which people are optimistic in comparison to their peers.

The present study examined comparative judgments about road-traffic risks inherent in a specific driving behavior — namely speeding — among young drivers, who have a high risk

of being involved in accidents. We focused on speeding for several reasons. First, speeding is the most frequent traffic violation and is related to increased risk of a crash (Aarts & Schagen, 2006; Delhomme, 2002; Delhomme & Cauzard, 2000; Elliot, Armitage, & Baughan, 2003). Second, speeding represents an accepted risk. It is a way of adapting to traffic systems and of managing interactions with other road users (Delhomme, 2008; Delhomme, Kreel, & Ragot, 2008). Finally, speeding is an ambivalent dimension (Delhomme & Cauzard, 2000) — it can be both an indicator of pleasure, sensation-seeking, and driving ability, and a source of risk (e.g., Rothengatter, 1988). Thus, there is no guarantee that CO will prevail when drivers assess their own speeding-related risks in comparison to others.

Two objectives were set for the present study. The first was to examine how drivers assess their risk of sanctions and of causing an automobile crash because of speeding, as compared to the estimated risks of average same-age drivers. The second was to look at how realistic drivers' comparative risk judgments are. For this, we measured the relationship between comparative judgments of speeding risks and self-reported speeding behavior, which is generally positively related to real speeding behavior (Aberg, Larsen, Glad, & Beilinson, 1997; Haglund & Aberg, 2002) and remains stable over time for a given type of road (Haglund & Aberg, 2000). We also measured the relationship between comparative judgments of speeding risks and driving-related sensation-seeking or DRSS (Taubman, Mikulincer, & Iram, 1996, cited by Yagil, 2001). DRSS is defined as a sensation-seeking trait expressed by "the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experiences" (Zuckerman, 1979, p. 10) in the specific area of driving. Like the sensation-seeking trait, which has been positively related to risky behaviors while driving (Jonah, 1997, who used Zuckerman's Sensation Seeking Scale which is not specific to driving), DRSS has been positively related to risky driving, particularly speeding (Yagil, 2001).

We hypothesized that drivers' comparative judgments of speeding risks would be related to their behaviors concerning that risk, i.e., speeding. More specifically, CO was hypothesized to be realistic, since it should be related to a lower propensity to report the intention to speed, speeding behaviors in the past, and DRSS. On the other hand, drivers with high self-reported speeding and DRSS scores should express CP. These links should be observed for drivers of both sexes, irrespective of their driving experience, even when age and mileage driven are controlled.

2. Method

2.1. Participants

The participants were a sample of 3002 young drivers (52% men) randomly drawn from the subject pool of the MARC survey (Mobility, Attitudes, Risk and Behavior) conducted in France. Marc was a three-phase survey run in 2003, 2004, and 2005. It focused on driver training, mobility, risk attitudes, and behaviors while driving a car, particularly with regards to speeding. The same young drivers participated in all three years. In this paper, we focus on the first phase of the survey conducted in 2003.

Participants averaged 22.3 years of age ($SD = 2.0$, range 18-25). They had obtained their driver's license at a mean age of 19 ($SD = 0.7$, range 18-25) and reported driving about 12,400 kilometers per year (median = 7750, $SD = 11375$). Among the participants, 14% ($n = 425$) had been involved in a traffic accident and 12% ($n = 370$) had received a ticket for a traffic violation within the past 12 months. Most of the accidents did not involve an injury (89.6%, $n = 441$). The most prevalent violation was speeding (34.2%, $n = 172$). The men were more likely than the women to report having been in a crash (18% vs 10%, $\chi^2(1) = 38.35$, $p < 0.001$) and being ticketed for a traffic violation (19% vs 5%, $\chi^2(1) = 126.68$, $p < 0.001$), especially speeding (7.9% vs 2.0%, $\chi^2(1) = 21.04$, $p < 0.001$).

2.2. Procedure

The MARC survey data was collected individually on a computer questionnaire by professional investigators at the participants' homes. Both the investigators and the participants read the speeding-related items that scrolled down the screen. The investigators recorded the participants' answers via the computer-aided data entry system. Data collection took approximately 20 minutes.

2.3. Measures

The questionnaire was divided into five sections. In the first section, participants had to read a scenario on speeding and answer questions while imagining themselves in the scenario. The scenario was as follows: "You are driving straight ahead in a lane where the speed limit is 90 km/h and traffic is flowing."

The second section was used to gather self-reported speeding data. The behavioral intention to speed was measured by asking the participants their preferred speed, as well as the highest speed at which they intended to drive during the next 12 months when driving in the situation described above. Then their past speeding behavior was measured by asking them to report their preferred speed and the highest speed at which they had actually driven within the past 12 months in the same driving situation.

In the third section, comparative judgments of speeding risks were collected using two items that asked the participants to compare themselves to the average driver. The measures used were the perceived probability of causing a traffic accident and the perceived probability of obtaining a speeding ticket, as compared to the estimated probability of other same-age drivers. Both items were rated on a scale ranging from 1 (lowest probability) and 5 (highest probability). The answers were then reverse-coded so that lower ratings (1 and 2) indicated CP, a rating of 3 indicated SJ, and higher ratings (4 and 5) indicated CO.

In the fourth section, DRSS was measured using the French version (Delhomme, 2002; *Cronbach's alpha* = 0.68) of Taubman et al.'s (1996) scale (*Cronbach's alpha* = 0.84). Two French researchers experienced in driving psychology who were bilingual in French and English independently translated the English version of the DRSS into French. Then two independent translators who were native English speakers and had no previous knowledge of the questionnaire translated the instrument back into English. Discrepancies were discussed by the bilingual panel of experts, and whenever there were differences that could not be resolved through discussion, the French version was revised. Finally, the provisional version of the French DRSS was produced and tested in a pilot study to assess the usability and clarity of the items. Each of the seven items described a driving preference (e.g., "I often feel like being a racing driver"; "I would like to learn how to drive cars that can go faster than 300 km/h", etc.). The answers were given on a 5-point scale ranging from 1 (not true at all) to 5 (absolutely true).

In the last section, participants reported personal identification variables such as age, sex, driving experience (i.e., number of years since obtaining a driver's license), number of kilometers driven over the last 12 months, and number of times ticketed for a traffic violation (for speeding in particular) and number of times involved in a traffic accident within the last 12 months.

2.4. Statistical Analyses

First, we used Pearson's χ^2 while taking the *phi* value into account to compare the proportion of participants who expressed CO, SJ, or CP, according to sex and driving experience. We designated "novice drivers" (those with less than one year of licensed driving); "beginner drivers" (those with one - three years of licensed driving) and "more experienced drivers" (those with three years or more of licensed driving). Then we described

the drivers according to their self-reported speeding and DRSS. We tested the overall effect of sex and driving experience on self-reported speeding and DRSS using a 2 (men vs women) by 3 (novice vs beginner vs more experienced drivers) ANOVA. Finally, general linear models were used to test the overall effects of comparative risk judgments, sex, and driving experience on self-reported speeding and DRSS. The analyses were based on 3 by 3 by 2 ANOVAs for the comparative risk judgments (CO vs SJ vs CP), driving experience (novice vs beginner vs more experienced drivers), and sex (men vs women). In all ANOVAs, the η^2 value was taken into account, and age and average mileage driven over the last 12 months were covariables. The ANOVAs were computed after logarithmic transformation of the data to correct for unequal sample sizes, and supplemented by pairwise comparisons using Tukey's correction to determine differences between groups.

3. Results

3.1. Evidence of CO

3.1.1. Evidence of CO about Speeding-Ticket Risk

Insert Figure 1 about here

Concerning the risk of being ticketed for speeding, there was a difference between the three types of comparative risk judgments ($\chi^2(2) = 1394.6, p < 0.001, \phi = 0.68$). The drivers were more likely to express CO than SJ ($\chi^2(1) = 365.9, p < 0.001, \phi = 0.34$) or CP ($\chi^2(1) = 1296.7, p < 0.001, \phi = 0.65$). For men, this was true regardless of their driving experience ($\chi^2(2) = 1.6, p = 0.4, \phi = 0.03$). For women, however, there was a CO difference between novice, beginner, and more experienced drivers ($\chi^2(2) = 9.4, p < 0.05, \phi = 0.08$). The novices were more likely to express CO than were both the beginners ($\chi^2(1) = 6.0, p < 0.05, \phi = 0.09$) and the more experienced drivers ($\chi^2(1) = 28.2, p < 0.001, \phi = 0.13$). Women were significantly more likely to express CO about the risk of

sanctions than were men ($\chi^2(1) = 97.58, p < 0.001, \phi = 0.18$). This result was observed among the novices ($\chi^2(1) = 17.2, p < 0.001, \phi = 0.20$), beginners ($\chi^2(1) = 12.9, p < 0.001, \phi = 0.11$), and more experienced drivers ($\chi^2(1) = 22.1, p < 0.001, \phi = 0.12$).

3.1.2. Evidence of CO about the Risk of Causing an Accident Because of Speeding

Insert Figure 2 about here

Concerning the risk of causing an accident because of speeding, there was a difference between the three types of comparative risk judgments ($\chi^2(2) = 2158.8, p < 0.001, \phi = 0.84$). Drivers were more likely to express CO than SJ ($\chi^2(1) = 691.8, p < 0.001, \phi = 0.47$) and more likely to express CO than CP ($\chi^2(1) = 1812.4, p < 0.001, \phi = 0.60$), regardless of their driving experience. This risk-judgment effect was found for both men ($\chi^2(2) = 2.3, p = 0.3, \phi = 0.04$) and women ($\chi^2(2) = 5.3, p = 0.07, \phi = 0.06$). Again, women were significantly more likely to express CO than were men ($\chi^2(1) = 45.32, p < 0.001, \phi = 0.12$). This finding was observed among the novices ($\chi^2(1) = 11.5, p < 0.001, \phi = 0.16$), beginners ($\chi^2(1) = 7.6, p < 0.01, \phi = 0.09$), and more experienced drivers ($\chi^2(1) = 15.1, p < 0.001, \phi = 0.10$).

3.2. Self-Reported Speeding, DRSS, and Comparative Risk Judgments, according to Sex and Driving Experience

For the sample as a whole, the mean preferred speed and the mean fastest speed at which drivers intended to drive were 99.9 km/h ($SD = 9.7$) and 111.1 km/h ($SD = 16.1$), respectively. Since these two speeds were highly correlated ($r = 0.66$), we averaged them to create a single variable we called the "behavioral intention to speed" ($Mean = 105.7, SD = 11.8$). The mean preferred speed and the mean fastest speed driven in the past were 100.7 km/h ($SD = 11.0$) and 113.7 km/h ($SD = 18.6$), respectively. The preferred and fastest past speeds were highly correlated ($r = 0.65$), so we averaged these two variables to create a single

variable we called "past speeding" ($Mean = 107.1, SD = 13.6$). As a whole, the drivers had low sensation-seeking ratings: the mean DRSS score was 2.2 ($SD = 0.7$).

Insert Table 1 about here

Table 1 gives the descriptive self-reported speeding and DRSS data (*means* and *SDs*) for men and women, according to driving experience. For the behavioral intention to speed, both sex ($F(1, 3002) = 120.5, p < 0.001$) and driving experience ($F(2, 3002) = 43.8, p < 0.001$) had an effect, but the effect sizes were small ($\eta^2 = 0.08$ and 0.04 , respectively). There was no interaction between sex and driving experience on intention to speed. Past speeding also differed across the sexes ($F(1, 3002) = 174.9, p < 0.001, \eta^2 = 0.12$) and according to driving experience ($F(2, 3002) = 61.7, p < 0.001, \eta^2 = 0.08$). There was no interaction between sex and driving experience on past speeding. Men were greater sensation-seekers than women ($F(1, 3002) = 426.6, p < 0.001, \eta^2 = 0.24$). The interaction between driving experience and sex was nonsignificant.

3.3. Relationship Between Comparative Risk Judgments, Driving Experience, Sex, and Self-Reported Speeding and DRSS, with Mileage Driven and Age Controlled

3.3.1. Comparative Judgments of Speeding-Ticket Risk

Insert Table 2 about here

Table 2 gives the descriptive data (*means* and *SDs*) for men and women, according to driving experience, comparative judgments about the risk of sanctions, behavioral intention to speed, self-reported past speeding, and DRSS.

Regarding the intention to speed ($R^2 = 0.21, F(19, 3002) = 41.3, p < 0.001$), women reported lower intended speeds than did men ($F(1, 3002) = 22.0, p < 0.001, \eta^2 = 0.01$). There was a slight difference between the driving-experience groups ($F(2, 3002) = 9.7, p < 0.001, \eta^2 = 0.01$): novice drivers reported the intention to drive at a lower speed than

beginners ($p < 0.001$) and than more experienced drivers ($p < 0.001$). There was also a difference between the risk-judgment groups ($F(2, 3002) = 114.9, p < 0.001, \eta^2 = 0.14$). Group CP reported intending to drive at higher speeds than Group SJ ($p < 0.001$) and Group CO ($p < 0.001$). The interaction between the independent variables was nonsignificant. The effects of age ($F(1,3002) = 4.7, p < 0.05, \eta^2 = 0.008$) and mileage driven ($F(1, 3002) = 56.5, p < 0.001, \eta^2 = 0.02$) were small.

For self-reported past speeding ($R^2 = 0.23, F(19, 3002) = 48.7, p < 0.001$), women reported lower speeds than men ($F(1, 3002) = 32.9, p < 0.001$), despite the small size of this sex effect ($\eta^2 = 0.02$). There was a difference between the driving-experience groups ($F(2,3002) = 9.6, p < 0.001$): novice drivers reported lower past speeds than beginners ($p < 0.001$) and more experienced drivers ($p < 0.001$), but the effect was small ($\eta^2 = 0.01$). There was also a difference between the risk-judgment groups ($F(2,3002) = 113.2, p < 0.001, \eta^2 = 0.14$). Group CP reported higher past speeds than did Groups SJ ($p < 0.001$) and CO ($p < 0.001$). The interaction between the independent variables was nonsignificant. Mileage driven had a small effect ($F(1, 3002) = 77.5, p < 0.001, \eta^2 = 0.04$).

For DRSS ($R^2 = 0.25, F(19, 3002) = 53.3, p < 0.001$), there was an effect of sex ($F(1, 3002) = 86.4, p < 0.001, \eta^2 = 0.14$) and comparative risk judgments ($F(2, 3002) = 129.3, p < 0.001, \eta^2 = 0.12$). Women were less sensation-seeking than were men ($p < 0.001$), and Group CP was more sensation-seeking than Groups SJ ($p < 0.001$) and CO ($p < 0.001$). The effect of driving experience and the interaction between the independent variables were nonsignificant. Age had a significant effect ($F(1, 3002) = 25.5, p < 0.001$) as did the mileage driven ($F(1,3002) = 37.9, p < 0.001$), but these effects were small ($\eta^2 = 0.02$ and 0.02).

3.3.2. Judgments of Speeding-Induced Accident Risk

Insert Table 3 about here

Table 3 gives the descriptive data (*means* and *SDs*) for men and women, according to their driving experience and their comparative judgments about the risk of causing an accident because of speeding, for the behavioral intention to speed, self-reported past speeding, and DRSS.

For the behavioral intention to speed ($R^2 = 0.18$, $F(19, 3002) = 34.7$, $p < 0.001$), women reported lower intended speeds than men ($F(1, 3002) = 17.2$, $p < 0.001$) and driving experience had an impact ($F(2, 3002) = 4.8$, $p < 0.01$), but these effects were small ($\eta^2 = 0.01$ and 0.006). Comparative risk judgments also had an effect ($F(2, 3002) = 84.14$, $p < 0.001$, $\eta^2 = 0.12$). Group CP reported intending to drive at higher speeds than Groups SJ ($p < 0.001$) and CO ($p < 0.001$). The effects of age ($F(1, 3002) = 6.8$, $p < 0.01$) and mileage driven ($F(1, 3002) = 84.1$, $p < 0.001$) were small ($\eta^2 = 0.004$ and 0.04). The interaction between the independent variables was not significant.

Regarding past speeding ($R^2 = 0.21$, $F(19, 3002) = 41.9$, $p < 0.001$), women reported lower speeds than men ($F(1, 3002) = 33.6$, $p < 0.001$) and there was a driving-experience effect ($F(2, 3002) = 4.7$, $p < 0.001$), although these effects were small ($\eta^2 = 0.021$ and 0.006). An effect of comparative risk judgments was observed ($F(2, 3002) = 98.5$, $p < 0.001$, $\eta^2 = 0.12$) — Group CP reported higher past speeds than Groups SJ ($p < 0.001$) and CO ($p < 0.001$). The interaction between the independent variables and the age effect were nonsignificant. Mileage driven had an impact ($F(1, 3002) = 101.6$, $p < 0.001$, $\eta^2 = 0.06$).

For DRSS ($R^2 = 0.23$, $F(19, 3002) = 46.0$, $p < 0.001$), there was a sex effect ($F(1, 3002) = 90.14$, $p < 0.001$, $\eta^2 = 0.06$) and a risk-judgment effect ($F(2, 3002) = 77.6$, $p < 0.001$, $\eta^2 = 0.08$). Women had weaker sensation-seeking tendencies than men ($p < 0.001$), and Group CP had stronger sensation-seeking tendencies than Groups SJ ($p < 0.001$) and CO ($p < 0.001$). Driving experience and the independent variables had nonsignificant effects. The effects of

age ($F(1,3002) = 25.4, p < 0.001, \eta^2 = 0.02$) and mileage driven ($F(1, 3002) = 57.7, p < 0.001, \eta^2=0.05$) were significant but small.

4. Discussion

The present study focused on comparative judgments about the risk of sanctions and the risk of causing an automobile crash because of speeding. We questioned a large sample of drivers in order to find out (1) how drivers assess their own risk of getting a ticket and their risk of causing a traffic accident because of speeding, as compared to other drivers, and (2) how realistic drivers' comparative risk judgments are. To do so, we measured the relationship between comparative risk judgments, self-reported speeding, and DRSS.

The results showed that most of the drivers exhibited CO, regardless of their sex and driving experience. This finding supports previous studies (Delhomme, 2000; Finn & Bragg, 1986; Matthews & Moran, 1986), although comparative optimism about the risks incurred by a specific behavior has not always been found (Causse et al., 2005a; Meyer & Delhomme, 2000).

As expected, the drivers' comparative risk judgments were realistic, i.e., those who expressed CO reported less DRSS and less extreme speeding behaviors than participants expressing SJ or CP. By contrast, CP drivers had higher DRSS ratings and self-reported speed scores than did SJ drivers or CO drivers. The comparative risk judgments of drivers of both sexes and all three degrees of driving experience were realistic. Since personal experience is thought to affect CO (Harris, 2007), safety behaviors while driving may in fact involve the feeling that one is less likely to receive sanctions, especially in today's context of extensive media coverage concerning recent automatic enforcement and sanction policies in France. Abiding by the speed limit may also involve the feeling that one is less likely to cause or be involved in a crash. In this vein, Causse et al. (2005b) found that drivers expressing comparative optimism about their vulnerability to accidents justified their optimism by the

fact that they generally obey traffic laws. In everyday life (Gerrard, Gibbons, Benthin, & Hessling, 1996; McKenna, Warburton, & Winwood, 1993; Milam, Sussman, Ritt-Olson, & Dent, 2001; Todesco & Hillman, 1999) as well as in the field of road safety (Causse et al., 2004; Delhomme, 2000; Harris & Middleton, 1994; Rutter et al., 1998), CO has not always been found to be positively associated with self-reported risky behaviors. There may be no link between them, or a negative link when the comparative judgments concern risks incurred by specific behaviors. Based on our drivers' self-reported speeding and DRSS, we can say that comparative risk judgments about speeding are linked to self-reported risky speeding behaviors. Accordingly, the drivers whose self-reported speeding and DRSS put them at risk assessed themselves as being more likely to get a speeding ticket or cause a crash because of speeding than the average driver.

Finally, the speeds at which the drivers intended to drive, as well as the speeds at which they said they had driven in the past, were found to be slightly lower among women, but the difference between the self-reported speeds of men and women was not very high (< 3.9 km/h). This is consistent with the results obtained by Delhomme and Cauzard (2000) and Williams, Kyrychenko, and Retting (2006). Women reported lower DRSS than did men, which supports the findings of previous studies on gender differences in sensation-seeking, considered as a nonspecific personality trait (see Jonah, 1997).

The literature on comparative health judgments has shown that there are two ways of obtaining comparative risk judgments: directly or indirectly. In the direct method, participants are explicitly asked how their risk compares to that of others and they answer on a scale ranging from "much less likely" to "much more likely". This could be considered as a limitation, since this method does not tell us whether it is the self-rating or the others-rating that influences the comparative risk judgments because neither component of the judgments is measured independently. Moreover, different results have been found with the indirect

method (e.g., Chambers & Windschitl, 2004; Helweg-Larsen & Shepperd, 2001), where participants make separate judgments for themselves and others, and comparative risk judgments are obtained by taking the difference between the ratings. Further studies using the indirect method for measuring comparative risk judgments while controlling for the comparison-target presentation order (self/other vs other/self) are needed. Such studies could lend support to our results concerning CO and the realistic nature of drivers' comparative risk judgments by revealing a link between comparative risk judgments and behaviors related to the same risks.

Our sample only includes young participants (aged 18-25) and to generalize the results, future studies should be conducted. They should explore very experienced male and female drivers, or traffic regulation offenders attending rehabilitation training courses or another risky behavior, in order to examine potential age driving experience differences and type of risky behavior in risk comparative judgments and risk exposure while driving.

Finally, the use of self-reported measures raises concerns about bias in responses, as questionnaires related to speeding are vulnerable to socially desirable response tendencies (Lajunen & Summala, 2003). As we said in the introduction, speeding is an ambivalent dimension. For some individuals, it can be considered more an undesirable behaviour (going over the speed limit is both dangerous and against the law) than a desirable behaviour (an indicator of pleasure, sensation-seeking, and driving ability). Although we endeavored to limit response bias by taking precautions when inviting participants to take part in the study, stressing the anonymity of their responses and our interest in receiving honest and accurate information, we must treat the findings of the present study with a degree of caution.

5. Impact on the Industry and Implications for Prevention

Our findings fuel the debate about one of the major issues in the study of comparative risk judgments and risk-taking. At a general level or in multiple risky behaviors, comparative optimism is most often linked to risky behaviors (Delhomme, 1994, 2001; Delhomme & Meyer, 1999; Klein, 1997; McKenna et al., 1991); however about risks inherent in a specific behavior, comparative optimism is not necessarily associated with the adoption of that risky behavior and can even be related to safe behaviors (e.g., Causse, Kouabenan, & Delhomme, 2004; Causse, Delhomme, & Kouabenan, 2005b; Harris & Middleton, 1994; Martha & Delhomme, 2009; Rutter et al., 1998). Our findings confirm this last hypothesis in the sense that comparative optimism is linked to less speeding behaviors and comparative pessimism is linked to more speeding behaviors. So comparative optimism and comparative pessimism about specific-behavior risks may be based on drivers' realistic assessments (Causse et al., 2005a, 2005b). Indeed, drivers at risk may be well aware of their standing on the risk dimension in comparison to average individual.

Our results could have practical implications for the effectiveness of road prevention and educational programs. People's comparative judgments about the risks inherent in a specific behavior may be related to the way they perceive prevention messages (e.g., Chappé, Verlhac, & Meyer, 2007; Perloff & Fetzer, 1986). Analyzing drivers' comparative judgments about speeding risks and examining the extent to which these judgments are realistic or unrealistic could be useful for devising effective prevention messages, especially ones aimed at drivers who have a high risk of automobile crashes. The most striking finding of our study was the link between comparative judgments and self-reported behaviors concerning the same risk, i.e., speeding. This finding suggests that comparative risk judgments should be taken into account in all prevention programs about the targeted risk behavior. Moreover, prevention measures could encourage drivers to reduce their speeding by emphasizing the benefits of

abiding by speed limits, such as lowering the risk of a crash and/or sanctions (fines or points on one's driving record), saving money on fuel, and contributing to environmental protection (Delhomme, Grenier, Lardon, & Rodon, 2005; Delhomme, Chappé, Grenier, Pinto & Martha, 2009).

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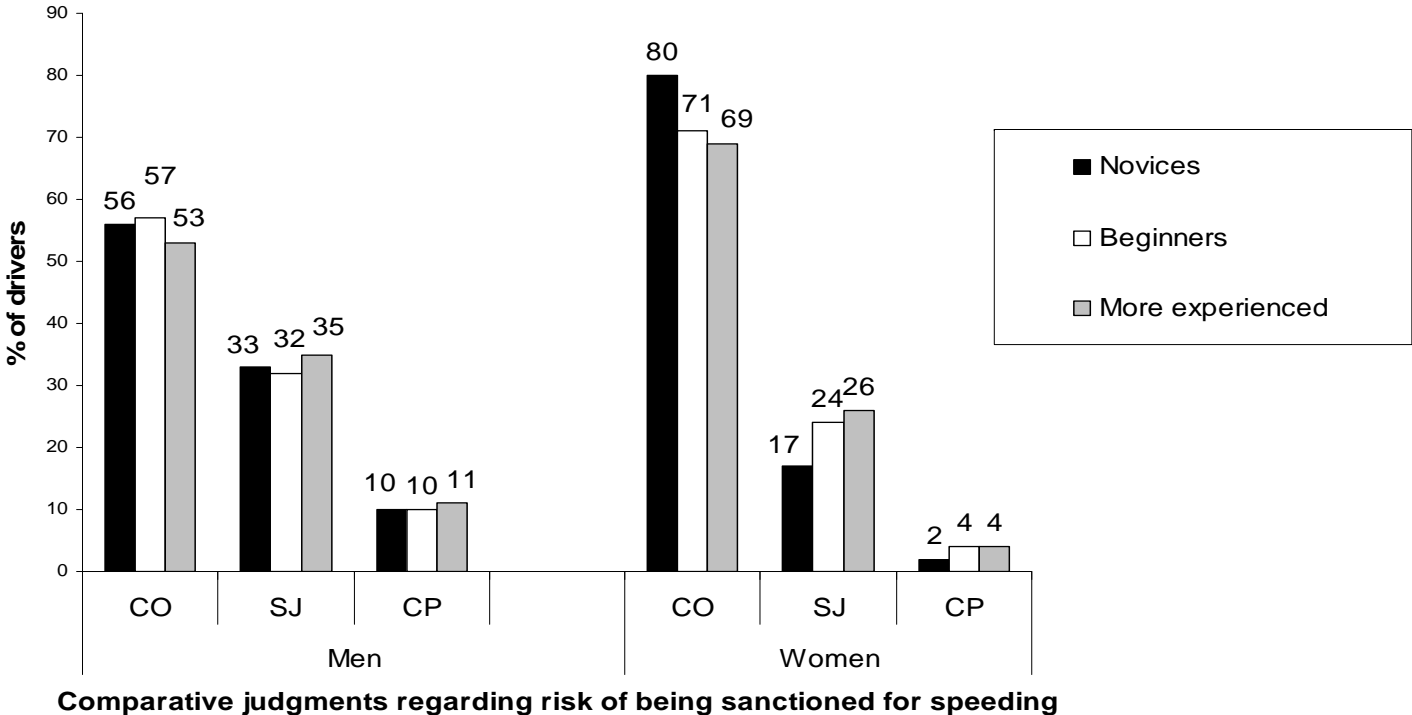
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Graphic 1

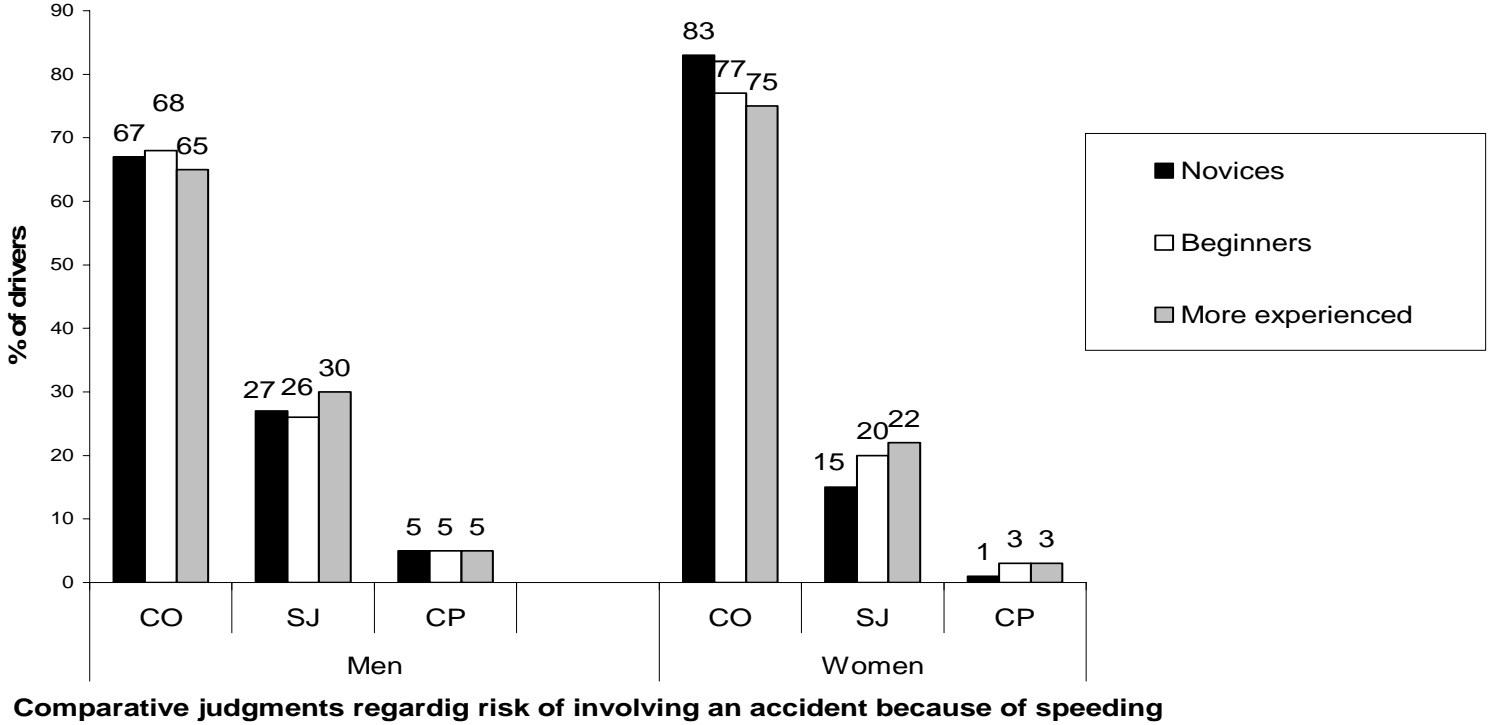
Breakdown of participants' comparative judgments regarding their speeding-ticket risk, according to sex and driving experience



Notes: CO: comparative optimism regarding speeding-ticket risk. SJ: similar judgments regarding risk of speeding-ticket risk. CP: comparative pessimism regarding risk of speeding-ticket risk. Novices: drivers with < 1 year of licensed driving. Beginners: drivers with [1-3] years of licensed driving. More experienced drivers: drivers with 3 years or more of licensed driving.

Graphic 2

Breakdown of participants' comparative judgments regarding their risk of causing an automobile crash because of speeding, according to sex and driving experience



Notes: CO: comparative optimism regarding risk of causing an automobile crash because of speeding. SJ: similar judgments regarding risk of causing an automobile crash because of speeding. CP: comparative pessimism regarding risk of causing an automobile crash because of

speeding. Novices: drivers with < 1 year of licensed driving. Beginners: drivers with [1-3[years of licensed driving. More experienced drivers: drivers with 3 years or more of licensed driving.

Table 1

Description of drivers in terms of their self-reported speeding and DRSS (n = 3002)

Measured variable	Novices (n = 443)				Beginners (n = 1040)				More experienced drivers (n = 1519)			
	♂ (n = 248)		♀ (n = 195)		♂ (n = 546)		♀ (n = 494)		♂ (n = 778)		♀ (n = 741)	
	<i>Mean</i>	<i>(SD)</i>	<i>Mean</i>	<i>(SD)</i>	<i>Mean</i>	<i>(SD)</i>	<i>Mean</i>	<i>(SD)</i>	<i>Mean</i>	<i>(SD)</i>	<i>Mean</i>	<i>(SD)</i>
Intention to speed ^a	103.8	12.1	99.2	8.8	107.6	12.5	102.6	9.1	110.2	13.1	104.1	10.1
Past speeding ^b	104.9	13.8	97.8	10.3	109.9	14.6	102.8	10.5	112.6	14.5	105.5	11.4
DRSS ^c	2.4	0.8	1.8	0.6	2.4	0.7	1.8	0.5	2.4	0.8	1.8	0.5

♀: Women. ♂: Men. ^a within the next 12 months (in km/h). ^b over the last 12 months (in km/h). ^c Driving-related sensation-seeking. Novices:

drivers with < 1 year of licensed driving. Beginners: drivers with [1-3[years of licensed driving. More experienced drivers: drivers with 3 years or more of licensed driving.

Table 2

Mean differences in self-reported speeding and DRSS (n = 3002), by speeding-ticket-risk-judgment group (CO vs SJ vs CP), sex, and driving experience

	CO (n = 1889)						SJ (n = 882)						CP (n = 231)					
	Men (n = 869)			Women (n = 1020)			Men (n = 531)			Women (n = 351)			Men (n = 172)			Women (n = 59)		
	N (n=141)	B (n=313)	M (n=415)	N (n=156)	B (n=352)	M (n=512)	N (n=82)	B (n=177)	M (n=272)	N (n=35)	B (n=120)	M (n=196)	N (n=25)	B (n=56)	M (n=91)	N (n=4)	B (n=22)	M (n=33)
Measured variable	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>	<i>Mean</i> <i>(SD)</i>
Intention to speed ^a	99.5 (9.0)	103.9 (9.6)	105.9 (12.1)	97.8 (8.1)	100.9 (8.2)	101.7 (8.5)	108.5 (12.6)	111.9 (12.8)	114.3 (12.2)	104.5 (9.1)	106.2 (9.7)	109.4 (11.1)	112.6 (15.9)	115.1 (17.3)	117.4 (13.9)	106.2 (13.7)	108.9 (10.3)	111.3 (11.8)
Past speeding ^b	100.6 (11.0)	105.3 (12.0)	107.9 (13.9)	96.4 (9.3)	100.6 (9.3)	102.9 (9.5)	109.2 (13.5)	115.0 (14.6)	116.9 (12.6)	103.1 (11.9)	107.6 (10.8)	110.9 (12.9)	115.6 (19.2)	119.8 (17.8)	121.3 (15.1)	107.5 (15.5)	111.6 (13.4)	113.5 (13.5)
DRSS	2.2 (0.6)	2.2 (0.6)	2.2 (0.6)	1.7 (0.5)	1.7 (0.6)	1.8 (0.5)	2.7 (0.6)	2.7 (0.7)	2.6 (0.7)	2.0 (0.6)	1.9 (0.6)	2.0 (0.6)	2.8 (0.7)	2.9 (0.8)	3.0 (0.8)	2.6 (0.8)	2.2 (0.7)	2.4 (0.7)

CO: comparative optimism regarding risk of speeding ticket; SJ: similar judgments regarding risk of speeding ticket; CP: comparative pessimism

regarding risk of speeding ticket. N: novice drivers; B: beginner drivers; M: more experienced drivers. ^a within the next 12 months (in km/h). ^b

over the past 12 months (in km/h).

Table 3

Mean differences in self-reported speeding and DRSS (n = 3002), by accident-causing-risk-judgment group (CO vs SJ vs CP), sex, and driving experience

	CO (n=2147)						SJ (n=735)						CP (n=120)					
	Men (n=1044)			Women (n=1103)			Men (n=445)			Women (n=290)			Men (n=83)			Women (n=37)		
	N (n=167)	B (n=373)	M (n=504)	N (n=163)	B (n=383)	M (n=557)	N (n=67)	B (n=144)	M (n=234)	N (n=29)	B (n=98)	M (n=163)	N (n=14)	B (n=29)	M (n=40)	N (n=3)	B (n=13)	M (n=21)
Measured variable	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)	<i>Mean</i> (<i>SD</i>)
Behavioral intention to speed ^a	100.5 (9.8)	104.7 (10.1)	108.0 (13.5)	98.3 (8.3)	101.4 (8.8)	102.2 (9.1)	109.4 (13.2)	113.4 (13.9)	114.2 (11.2)	103.8 (8.3)	106.4 (8.4)	109.9 (10.6)	115.1 (16.3)	116.4 (18.2)	114 (13.1)	106.6 (20.8)	109.0 (11.3)	113.1 (12.6)
Past-speeding ^b	101.4 (11.2)	106.4 (12.2)	110.1 (14.9)	96.8 (9.5)	101.2 (9.8)	103.6 (10.4)	110.8 (14.0)	117.3 (16.4)	117.0 (12.0)	102.9 (12.1)	108.0 (10.8)	11.4 (12.2)	120.0 (21.5)	118.1 (17.4)	119.5 (14.6)	106.6 (20.8)	108.6 (13.0)	110.2 (12.3)
DRSS	2.2 (0.6)	2.3 (0.7)	2.3 (0.7)	1.7 (0.5)	1.7 (0.6)	1.8 (0.6)	2.7 (0.6)	2.7 (0.8)	2.6 (0.7)	2.2 (0.7)	2.0 (0.7)	2.1 (0.7)	3.0 (0.6)	3.1 (0.7)	2.8 (0.8)	2.0 (0.1)	2.4 (0.9)	2.0 (0.7)

CO: comparative optimism regarding risk of causing a speeding-related accident; SJ: similar judgments regarding risk of causing a speeding-related accident;

CP: comparative pessimism regarding risk of causing a speeding-related accident. N: novice drivers; B: beginner drivers; M: more experienced drivers. ^a

within the next 12 months (in km/h). ^b over the past 12 months (in km/h).

