

## Desire for control and traffic accident perception in professional driving

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### Abstract

This study aimed to elucidate the relationship between causal attribution for traffic accidents and the desire for control among professional and semi-professional drivers in Morocco. Given the prevalent traffic accidents in the country, understanding the human factor, specifically the cognitive attributions, is paramount. A survey, comprising two scales, was administered to a sample of 401 drivers: 201 from ride-sharing platforms (Indrive, Uber & Heetch) and 200 professional small taxi drivers. The research employed scales inspired by the Levinson Scale (1972) for causal attributions and the Desire for Control Scale by Burger & Cooper (1979), appropriately adapted for cultural relevance. Findings indicated that both social and professional factors significantly influence drivers' attribution styles and their control desire. Furthermore, a notable correlation was found between these two variables. These insights have potential implications for tailored interventions, training modules, and policy formulations aimed at enhancing road safety in Morocco by addressing the human cognitive elements in driving behaviors.

Key words: Causal Attribution, Naïve Psychology, Desire for Control, Comparative Optimism, Traffic Accident, Professional and Semi-Professional Drivers.

## INTRODUCTION

The road serves as a primary avenue for the movement and transit of both individuals and vehicles. Its significance has made it a focal point for psychological research, especially in the realm of risk psychology. When traveling, individuals often confront various hazards to reach their desired destination. The issue of traffic accidents remains a prominent concern for several public bodies and policy-making institutions. This is evident in the economic and social data highlighting the implications of such accidents. Professional drivers, especially those operating small taxis, are particularly vulnerable due to their frequent road usage.

As per NARSA's 2021 data, car drivers in Morocco account for a 25.21% accident rate, making them second-highest in fatalities. This raises questions about how small taxi drivers perceive their role on the road, the risks associated with their profession, and the driving behaviors that influence their decisions.

The objective of the present research is to highlight the relationship between the bias of desire for control and the causal attribution of the road accident when it occurs among professional drivers (small

taxi) and semi-professional drivers (driver uses applications and its own vehicle). We will see how the attribution style variable is related to desire for control through a group of social and professional factors related to the driver who is the subject of the study.

### Literature review

Heider's (1958) work "the psychology of interpersonal relations" is one of the founding works of the theory of causal attribution. "It remains on occasion, and following his work on cognitive balance, one of the first social psychologists to have introduced the notion of attribution as a fundamental process in the perception of social causality" (Belhaj, 2009, p. 76). Causal attribution theory describes the psychological processes people use to explain life events or observed behaviors. It is a very broad theory that encompasses several theoretical models (Heider, 1944; Jones & Davis, 1965; Kelley, 1967). The notion of causal attribution is proposed by Heider (1958) to account for the way in which individuals explain their behavior and that of others. For Heider (1958), causal

attribution is the process by which people apprehend, predict, and control reality. It is a process that allows individuals to investigate the causes of an event, make sense of the event, and determine its origin. According to causal attribution theory, people often make attributions about others and themselves. They also try to structure their world, including their thoughts, in order to achieve harmony and balance. On the basis of this theory, pioneering works were developed, namely the naive analysis of action by Heider (1958), the model of corresponding inferences by Jones and Davis (1965), the model of covariation by Kelley (1967, 1972), and Weiner's (1979) attributional theory of motivation. Each of these models offers an approach and an explanation of the causal attribution processes, adopting the principle of Heider's ideas (Belhaj, 2010) which assumes that the individual in society seeks to understand, explain, and interpret the causes of events. With Kouabenan (1999), a theoretical model specific to the naive explanation of the accident is developed. This model is essentially inspired by Heider's (1958) naive analysis of action approach. The work of Kouabenan (1999, 2006a, 2013) shows that the explanations that ordinary individuals spontaneously give for accidents can help to understand their attitudes and behaviors towards risk, as well as their support and non-adherence to prevention campaigns. For Kouabenan (1999), the notion of naive explanation of accidents refers to the spontaneous explanation of accidents by ordinary individuals who are not specialists in safety issues but also by experts.

Several studies show that status or hierarchical position in the organization can affect the way in which individuals explain accidents (Gyekye, 2010; Kouabenan, 1990; Kouabenan et al., 2001; Nguetsa, 2012). For example, in a study of 320 French telecommunications workers, Kouabenan (1985b) found that individuals with a high hierarchical position within the organization tend to explain accidents by factors implying the causal responsibility of their subordinates (inexperience, inattention, non-compliance with safety measures, etc.). On the other hand, subordinates tend to attribute accidents to factors involving the responsibility of the organization (time pressure, lack of means of protection, etc.). Furthermore, Gyekye and Salminen (2004) show in a study of 320 mining workers in Ghana that subordinates who are victims of accidents explain them more by external factors than their supervisors who explain them more by factors internal to the subordinates. This conception of the causality of accidents by individuals occupying a high level in the organization and those occupying a low level (subordinates) reflects a defensive tendency according to which each individual seems to place the responsibility for the accident on another individual belonging to a different hierarchical level. This observation is also observed by Kouabenan et al. (2001) within an electricity production and distribution company and in a ski resort. The authors observe that hierarchical position is a determining factor in the causal explanations of accidents. Indeed, hierarchical superiors explain accidents more by factors linked to the causal role of the subordinate victim. Furthermore, Kouabenan (1990) carried out a study in the field of road traffic aimed at understanding how pedestrians and drivers explain traffic accidents. This study is carried out among 120 road users, of which

40 are professional drivers, 40 are private drivers and 40 are pedestrians. Participants are invited to indicate, on a list containing 28 causes of accidents (14 causes external to drivers and 14 causes internal to them), those that they consider to be responsible for the occurrence of accidents in Côte d'Ivoire. The results indicate a significant difference between the explanations of drivers and those of pedestrians. In this case, drivers provide external causal explanations for road accidents (technical factors, infrastructure, etc.), while pedestrians explain the accidents caused by factors internal to drivers (recklessness, non-compliance with traffic rules, etc.). In the same vein, Nguetsa (2012) carried out a study among road users in Cameroon. The results of this study show that pedestrians and traffic agents (gendarmes, police officers, road engineers) explain accidents by causes internal to drivers, while economic operators in the transport sector (travel agency bosses, insurance agents, driving school directors, etc.) explain them by causes external to less controllable drivers. It appears from the results reported above that individuals do not explain accidents in the same way depending on their status. Each individual belonging to a status tends to provide explanations which make the other individual responsible and protect the individual from the status to which he belongs. Beyond the impact of status on naive causal explanations, expertise can also play an important role.

According to Kouabenan and Nguetsa (2015), studies exploring the link between gender and naive causal explanations give rise to contradictory results. Some studies conclude that there is an effect of gender on naive causal explanations (Baldwin & Kleinke, 1994; Kanekar & Sovani, 1991; Shaw & Skolnick, 1971; Whitehead & Hall, 1984), while others do not find it (Gletty, 2017; Kouabenan et al., 2011; Nguetsa, 2012; Shaw & McMartin, 1977; Taylor & Kleinke, 1992). For example, Kouabenan et al. (2011) asked 215 participants to give their opinion on the prevalence of 14 causes in the occurrence of a fire in a road tunnel. These authors observe that there are no differences between women and men regarding their explanations of the fire. On the other hand, Shaw and Skolnick (1971) asked 116 students to explain an accident involving a young student. The perpetrators manipulate the severity of the accident. They note that men identify more than women with the accident victim. In addition, men attribute more responsibility for the accident to the victim when the consequences of the accident are slight, while women attribute it to the victim when the consequences of the accident are serious. According to the authors, the fact that men identify more with the victim testifies to a greater personal relevance of the accident for them than for women; which explains the lesser attribution of responsibility to the victim on their part. A more mixed result, however, is obtained by Kouabenan et al. (2001). The authors present a story of an accident involving an employee of an energy production and distribution company to 80 participants: among them, 40 are at the same hierarchical level as that of the victim and 40 at a higher hierarchical level. They then invite the participants to explain the causes of this accident. The results show that the causal explanations of male executives are more internal when the accident is serious, while female executives provide fewer internal explanations to the subordinate victim when the accident is serious. The authors believe that the women's reaction may be due to a

certain empathy for the victims when the accident is serious. Additional studies are still needed to better clarify the link between gender and naive causal explanations of accidents. In addition to gender, studies (Gletty, 2017; Gyekye, 2010; Niza et al., 2008) show that age is a source of variation in naive causal explanations of accidents.

When we talk about the effect of age on causal explanations, we are talking about the variations that exist in individuals' explanations depending on their age. In a review of studies conducted in the industrial context on the effect of sociodemographic and organizational variables on causal attributions, Gyekye (2010) indicates that older individuals tend to explain accidents more by external factors, while younger individuals explain them by internal factors (e.g., Melia et al., 2001; Mitchell & Kalb, 1981; Salminen & Gyekye, 2007). This finding is consistent with that of Niza et al. (2008), who observe that older supervisors explain workplace accidents as being caused by external and unexpected events, while younger people explain them more by organizational factors. In another study carried out in the field of board sports, Getty (2017) reports, on the contrary, opposite results. This author observes that the older the practitioners are, the more they cite internal causes of the victims to explain off-piste avalanche accidents. The author explains this result by the fact "that with age, practitioners can take more responsibility in their practice, or become aware of their responsibility in the production of avalanche accidents" (pp. 228-229). Furthermore, according to Kouabenan and Ngueutsa (2015b), the effect of age on naive explanations can also be explained by a defensive attribution bias. This means, according to the authors, that individuals of a certain age believe that accidents are mainly caused by individuals belonging to other age groups and that they are better able to cope with risks. For example, in the context of our study, older road users may believe that road accidents are caused by young people and that they themselves are better able to manage risks on the road.

The studies mentioned above show that age is an important variable that can help us understand naive causal explanations of accidents. These studies generally report a greater number of external explanations for older people and internal explanations for younger people. In the context that interests us, we believe that older drivers will be more likely to explain traffic accidents by external causes. Beyond different factors (status, hierarchical position, expertise, experience of accidents, gender, age, etc.) which intervene in naive causal explanations of accidents, according to Kouabenan (1999), several psychological mechanisms are involved in the explanations naive causality of accidents. Knowledge of these mechanisms seems very enlightening, for understanding naive explanations of accidents, as well as for the diagnosis of safety and prevention.

There are also control beliefs, called in many works perceived effectiveness (Bandura, 1977, 1997) or perceived control (Ajzen, 1985, 2002). This form of belief is the most studied and is found in several models of adoption of safety behaviors (e.g., the social cognitive theory of Bandura, 1977, 1997; the theory of planned behavior of Ajzen, 1985; the model of protection motivation of

Rogers, 1983; the sequential model of self-protective behavior of Dejoy, 1996). Indeed, Ajzen (1985, 2002) defines control beliefs as the perception of personal reasons and elements of the situation that can prevent or facilitate the production of a behavior. For Bandura (1977), control beliefs refer to the feeling of control that an individual thinks they have over an event or action. We can therefore define this form of belief as an individual's subjective feeling of being able to influence the events that happen to them. In this work, we are interested, like Ngueutsa (2012), in the perceived capacity of individuals to cope with dangerous road situations.

Control beliefs can affect risk perception. Numerous studies show that individuals who overestimate their abilities tend to perceive risks as low (Causse et al., 2004, 2006; Chaurand & Delhomme, 2013; Delhomme, 2000; Morisset et al., 2010). For example, Morisset et al. (2010) show in their study on the role of perceived self-efficacy on the comparative subjective judgment of risk that strong self-efficacy is linked to an underestimation of the risk for oneself and for others. In addition, Chaurand and Delhomme (2013) carried out an online study on two samples, cyclists (N = 336) and motorists (N = 92). The results show that cyclists and motorists who overestimate their driving abilities are likely to underestimate their driving abilities.

Risks compared to those who underestimate their driving abilities. The authors explain that by underestimating risks when feeling more competent, participants may feel more in control and therefore more able to avoid an accident. According to Described et al. (2001), the link between the overestimation of one's abilities and the perception of risk can also be explained by the tendency of individuals to believe that they are making more efforts in order to avoid negative consequences. For his part, Rumer (1988) also indicates that by overestimating their driving abilities, drivers can believe that they are in control of any driving situation; which can lead them to underestimate the risks. If control beliefs lead individuals to underestimate risks, what about the link between control beliefs and naive causal explanations of accidents?

Control beliefs can also affect naive explanations of accidents. Studies show that control beliefs are positively related to internal causal explanations (Dejoy, 1989; Gletty, 2017; Ngueutsa, 2012). For example, Hoyt (1973) shows, from a sample of 73 American students, that those who have high control over events are likely to attribute the causality of traffic accidents to their behavior. This effect of control beliefs on naive explanations of accidents is also observed in Ngueutsa's (2012) study of road users in Cameroon. This author notes that road users who have a high sense of control are likely to explain traffic accidents by factors internal to the victim. Another study in the field of board sports reports similar results (Gletty, 2017). The author of this study invites 238 snow sports practitioners to respond to a questionnaire containing a scale for measuring the explanations of the causes of avalanche accidents off-piste, a measure of feeling of control over avalanche risk in off-piste, questions about the habits of practitioners and their experience of avalanche accidents, etc. The author observes that participants who overestimate their abilities to manage avalanche risk off-piste tend to provide explanations that are more internal to avalanche victims than external. However, a study by

Reynier et al. (2014) shows that people with a high level of control can invoke external explanations when they themselves are victims of an accident. These authors note that participants who overestimate their abilities to cope with risks explain accidents by fatality. This means that control beliefs can sometimes lead to external explanations when it comes to explaining accidents to oneself. Beyond the effect of control beliefs on the causal explanations of accidents, control beliefs can also affect safety behaviors (Morisset et al., 2010).

## Method

This study was conducted on a sample of 401 drivers. A questionnaire was distributed to measure the process of causal attribution for traffic accidents, inspired by the translation of the Levinson scale (The Internal Powerful Others and Chance Scale, 1972), translated into French by Loas & coll, and I translated it into The Arabic language and its review by a group of doctoral research students and professors in psychology and the French language. This questionnaire consists of 15 items that must be answered according to a rating from 1 to 5 (1 = strongly disagree, 5 = completely agree) (example Whether I get into an accident or not depends on how skilled I am at driving. After that, the driver passes through the Burger & Cooper (1979) desire for control scale, translated into French by Alain, and it was translated into Arabic and judged by a group of doctoral research students and professors in psychology and the French language. It consists of: This scale consists of 20 items that are answered according to a rating scale from 1 to 5 (1 = strongly disagree, 5 = completely agree) (Example: I like to make my own decisions). Questions were asked about social factors, such as age, gender, & level of scolarity, and professional factors as, profession category, years of seniority, history of exposure to an accident.

## Procedure

The questionnaire was shared on the authors' social media platforms, asking peers to complete it and further disseminate it amongst their colleagues or by distributing it on paper to drivers in places where they gather, such as road stations or traffic ends. All answers were done individually, and the questions were answered by writing or by asking questions to the group that cannot read and writing down the answers in the form. This approach combined voluntary response, purposive convenience, and snowball sampling techniques.

## Participants

The study was conducted on 401 professional drivers divided into professional drivers of small taxis and semi-professional drivers who use electronic applications to receive customer orders such as (Heetch; Indrive; Carem) (201 semi-professional and 200 professionals). The category of semi-professional drivers contains a gender variable, where the number of females is 82 compared to 119 males, and this variable is absent among the taxi drivers whom we called professional drivers. The sample is distributed according to the age group between 18 and more than 45 years, and also according to gender, age, marital status, and years of seniority from less than one year to more than 20 years of experience.

## Results

The correlation analysis between the attributional style adopted by drivers and the level of desire showed a statistically negative link (Appendix N° 1). In other words, the higher the desire for control the study subject drivers have, the lower the attribution score (the low attribution score means an external attribution tendency), that is to say, the drivers who believe that they have control over the driving situation, explain the causes of the accident when it occurs through external conditions.

At the same time, the analysis of the linear regression between the attributional style adopted by the drivers and their level of desire for control is shown that there is a functional relationship between them (Appendix N° 2), that is to say that the level of desire for control can explain and predict the attributional style that will be produced by the driver towards the causal explanation of road accident.

The study of the gender factor indicates that females have a low level of desire for control ( $M_{DCF} = 29.77$ ) and the mean of attribution of accident causes higher ( $M_{CAF} = 31.23$ ), we see that it is the opposite for men, as they record a high level of desire for control ( $M_{DCM} = 45.87$ ) and a low mean of attribution ( $M_{CAM} = 26.66$ ) (Appendix N° 3). Otherwise, females associate the causes of the accident when it occurs with factors linked to them, that is to say to their driving skills and abilities, which makes their desire for control weak, while male attribute the causes of the accident when it occurs to external factors, among them are related to the condition of the road, coincidence or fate, and this is related to their great desire for control.

When we come to the age factor, it is clear from (Appendix No. 4) that this factor plays an important role in explaining the style of attribution in its relationship with the desire to control, as new drivers "between 18 and 24 years old" tend to attribute the causes of the accident when to internal factors ( $M_{CAN} = 29.8$ ), that is, related to their driving abilities and skills, and this is in line with their high desire for control ( $M_{DCN} = 46.29$ ). As for middle-aged drivers ("between 25 to 34"), they recorded a mean attribution of ( $M_{CAM1} = 27.32$ ) and the mean of desire for control is ( $M_{DCM1} = 45.19$ ), which is almost the same as the mean for drivers "between 35 and 44 years old" ( $M_{CAM2} = 27.6$ ) and ( $M_{DCM2} = 45.74$ ), and finally, we find older drivers. 'Over 45' who have a mean desire for control ( $M_{DCO} = 45.55$ ) and a mean causal attribution ( $M_{CAO} = 24.29$ ). the interpretation of these figures and these means, says that novice drivers have a tendency to attribute the causes of road accidents to factors which are linked to themselves, their characters, and personality traits, and this is what which pushes them to believe that they are capable of controlling the driving situation, while middle-aged drivers (both types 1 and 2) tend to explain the causes of the accident by external factors, and they believe the same thing regarding the desire for control, and finally the oldest drivers who tend to attribute the causes of the accident to external factors with a high desire for control as well. In the same direction, this study highlights the factor of level of scolarity, and we found that the attributional style goes internally as the scolarity level increases (Appendix N° 5). For drivers who

have primary level we figured out that they explain the causes of attribution by external factors ( $M_{CAP} = 23.51$ ), and their desire for control is the highest among all drivers' category ( $M_{DCP} = 45.37$ ), compared to those who are belonging to secondary, causal attribution ( $M_{CAS} = 24.02$ ), desire for control ( $M_{DCS} = 38.25$ ); and drivers who has the highest level of scolarity "university", they recorded the highest mean of causal attribution ( $M_{CAU} = 30.61$ ) and the lowest mean of desire for control ( $M_{DCU} = 29.38$ ). We can explain those results by the effect of having a sort of education on the risk perception, which means that the highest level of scolarity gives the driver a kind of consciousness about their responsibility for causing an accident, and also his awareness about the ability for controlling his vehicule, which leads him to be always paying attention to his behaviour on the road.

For the professional factors highlighted in this study, we studied the factor of the professional category, since the study is carried out with the two types of driver as we mentioned before, professional and semi-professional drivers. And according to (Appendix N° 6) we notice that professional drivers adopt an external attributional style ( $M_{CAP} = 23.74$ ), compared to semi-professional drivers who record ( $M_{CASP} = 31.43$ ), which remains higher and which signifies a style internal attributional when it comes to the causal explanation of the accident; and for the level of desire for control, professional drivers record the highest mean ( $M_{DCP} = 45.65$ ) while semi-professionals ( $M_{DCS} = 32.64$ ); We can deduce that professional drivers have perception that directs them towards explaining the causes of the accident to external factors, and that their ability to control their vehicules is strong. This can be explained by the fact that they consider themselves road experts, meaning that they control their vehicles compared to semi-professional drivers, and this is what makes them rule out causing a traffic accident. The second professional factor studied is the years of seniority, from (Appendix N° 7), we notice that the more years more years lead the driver to tend to explain the causes of the accident to external factors, and makes his desire for control stronger. This makes new drivers "less than a year" record the highest mean for attributional style ( $M_{CAN} = 34.08$ ) and the lowest mean for desire for control ( $M_{DCN} = 38.54$ ), and the opposite for drivers with the most years of seniority "more than 20 year", mean of causal attribution ( $M_{CAE} = 22$ ), mean of desire for control ( $M_{DCE} = 47.12$ ). we can give the same explanation for this factor as the factor of age, otherwise more years of seniority leads drivers to believe the they have enough experience, which turns them as experts of the road. Ultimately, we have the factor of experiencing an accident in the past; we notice from (Appendix N°8), that it can have an effect on the way of perceiving the causes of the accident; drivers who had never been involved in an accident had a high mean of causal attribution ( $M_{CAN} = 32.17$ ) and a low mean of desire for control ( $M_{DCN} = 36.52$ ) compared to those who had previously been involved in a traffic accident, whose mean causal attribution was low (27,  $M_{CAY} = 01$ ) and a strong desire for control ( $M_{DCY} = 45,77$ ). We can explain those results by the effect of driver's beliefs, whereas, the experience of the accident helps him avoid future experiences, which makes him feel immune to accidents. This is what prompts him to explain the causes of the

accident to external factors, and makes his ability to control stronger.

## Discussion

This present study allowed us, on the one hand, to focus on the causal attribution of road accidents and its essential role in understanding the perception of risk among professional and semi-professional drivers, and its relationship with the desire for control.

On the other hand, we were able to examine how social and professional factors can participate in forming a perceptual structure which guides the causal explanation of the causes of road accidents among professional and semi-professional drivers.

The results on participants' attributional style coincide and contrast with various previous studies in this area. Research carried out by Kouabenan (1990) in traffic matters showed that drivers, whether professional or not, tend to blame external causes or pedestrians for accidents. However, pedestrians tend to point fingers at drivers. Ettouzani (2013) revealed a marked tendency towards an external attributional style. In terms of gender, research shows varied findings. Although some studies identify an influence of gender on attributions (Baldwin & Kleinke, 1994; Kanekar & Sovani, 1991), others contradict this notion (Gletty, 2017; Kouabenan et al., 2011). Regarding the impact of age, it is found that older people frequently attribute accidents to external causes, while younger people focus on internal factors, as observed by Gyekye (2010) and Niza et al. (2008). However, studies like that of Gletty (2017) in the sports field have shown contradictory results. As for professional seniority, it could affect the perception of risks. Results on this subject are divergent, with studies suggesting that experienced professionals minimize risks (Kouabenan et al., 2007; Machado-León et al., 2016) while others highlight an increased perception of danger among the least experienced (Oyeleke et al., 2017). Regarding professional category, another occupational factor in this study, research suggests that the causal attribution of road accidents has not been specifically studied among professional and semi-professional drivers.

For the second variable which is feeling of control, we note variations in control beliefs depending on certain social or professional variables. First of all, our results show that professional drivers are likely to have a higher feeling of control over road risk compared to semi-professionals. We can explain this result by the fact that professional drivers practice driving activity on a daily basis, and thus accumulate experience which allows them to have skills in road risk management. This can promote a high sense of control over road risks. This result is consistent with the study by Kouabenan (2002), which indicates that more experienced drivers have a more fatalistic definition of the accident and attribute accidents more to fate. The fatalistic nature of experienced drivers may be due to a defensive tendency aimed at avoiding blame and protecting self-esteem (Kouabenan, 2002). Furthermore, we find that drivers with low education levels tend to be more fatalistic than drivers with high education levels. This result is consistent with other studies (Ngueutsa, 2012; Peltzer & Renner, 2003), indicating that a low level of education is associated with a higher degree of fatalism. We can explain this

result by the fact that gaps in knowledge and the complexity of the event to be explained favor the use of beliefs, particularly fatalistic ones, to explain an event (Kouabenan, 2007). Finally, we also observe that older drivers tend to be less fatalistic than younger drivers. This result is opposed to several studies indicating that there is no link between age and fatalistic beliefs (Kouabenan, 1998, 2002; Ngueutsa & Kouabenan, 2017; Peltzer & Renner, 2003). The fact that older drivers tend to be less fatalistic than younger drivers is surprising. We can explain our result by the fact that in our sample, a large number of participants have a high level of education (university), and therefore this effect of age on fatalistic beliefs may reflect an effect of the level of education some participants. Studies in the field of road risk show that having a high sense of control over risk can lead to less safe behaviors (Horswill & McKenna, 1999; Măirean & Havârneanu, 2018; Ngueutsa, 2012; Yang et al., 2020).

**Appendix**

**Appendix N° 1: Correlation**

		Control for desire	Attribution style
SCORE_DC	Corrélation de Pearson	1	-,712**
	Sig. (bilatérale)		,003
	N	401	401
SCORE_AC	Corrélation de Pearson	-,712**	1
	Sig. (bilatérale)	,003	
	N	401	401

\*\*Correlation is significant at the 0.01 level

**Appendix N° 2: Linear regression between attributional style and desire for control**

Attribution style	Control for desire
R= 0,812	
N= 401	
Sig= 0,000	

**Appendix N° 3: attributional style and level of desire for control according to gender.**

Gender		Attribution style	Control for desire
Female	mean	31,23	29,77
	N	82	82
	Standard deviation	4,24	5,04
male	mean	26,66	45,87

	N	319	319
	Standard deviation	5,73253	6,00569
Total	mean	28,94	37,82
	N	401	401
	Standard deviation	5,76084	5,83218

**Appendix N° 4: attributional style and level of desire for control according to age.**

**Rapport**

Age		Attribution style	Control for desire
18 to 24 yo	mean	29,8	46,29
	N	105	105
	Standard deviation	5,73183	6,02832
25 to 34 yo	mean	27,32	45,19
	N	153	153
	Standard deviation	4,91193	5,54379
35 to 44 yo	mean	27,6	45,74
	N	85	85
	Standard deviation	6,40164	5,56381
More than 45 yo	mean	24,29	45,55
	N	58	58
	Standard deviation	5,28821	6,59392
Total	mean	27,59	45,65
	N	401	401
	Standard deviation	5,76084	5,83218

**Appendix N° 5: attributional style and level of desire for control according to level of scolarity.**

Level of scolarity		Attribution style	Control for desire
Primary	mean	23,51	45,37
	N	35	35
	Standard deviation	4,27972	7,28046

Secondary	mean	24,02	38,25
	N	56	56
	Standard deviation	5,45891	5,43474
High school	mean	25,86	34,17
	N	138	138
	Standard deviation	5,08978	5,98244
University	mean	30,61	29,38
	N	129	129
	Standard deviation	4,86427	5,76248
Total	mean	27,59	48,04
	N	401	401
	Standard deviation	5,76084	5,83218

**Appendix N° 6: attributional style and level of desire for control according to professional category.**

Profession Category		Attribution style	Control for desire
Semi-professional	mean	31,42	32,64
	N	201	201
	Standard deviation	3,94918	5,83276
professional	mean	23,74	45,65
	N	200	200
	Standard deviation	4,60661	5,84623
Total	mean	27,59	45,65
	N	401	401
	Standard deviation	5,76084	5,83218

**Appendix N° 7: attributional style and level of desire for control according to years of seniority.**

Years of seniority		Attribution style	Control for desire
Less 1 years	mean	34,08	38,54
	N	37	37
	Standard deviation	2,80256	5,10770
1 to 9 years	mean	27,91	42,41
	N	233	233

10 to 19 years	Standard deviation	5,31747	5,85914
	mean	26,28	45,37
	N	98	98
More than 20 y	Standard deviation	6,13387	6,29906
	mean	22	47,12
	N	33	33
Total	Standard deviation	,00	4,78120
	mean	27,59	45,65
	N	401	401
Total	Standard deviation	5,76084	5,83218

**Appendix N° 8: attributional style and level of desire for control according to exposing an accident**

Exposing an accident		Attribution style	Control for desire
No	mean	32,17	36,52
	N	200	200
	Standard deviation	5,60997	6,08479
Yes	mean	27,01	45,77
	N	201	201
	Standard deviation	5,86344	5,58188
Total	mean	27,59	42,64
	N	401	401
	Standard deviation	5,76084	5,83218

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