Hope, Self-Efficacy, Prosocial and Aggressive Behavior, and the Anger and Frustration Scale for Mexican Drivers

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Abstract

This study aims to determine how these variables determine the prevalence of prosocial and aggressive behaviors in Mexican drivers. Afirst sample of 444 drivers in the city of Cuernavaca, in the state of Morelos, in the central region of Mexico was examined. It was found that the relationship between Hope and Self-Efficacy is incredibly strong, and that they are both, as a system, predictors of Prosocial Behavior. However, Aggressive Behavior was found to negatively predict all three of the other variables, but in a weak manner. A second sample of 316 individuals confirmed these findings, and also determined that the manner in which a person behaves determines his or her negative emotions.

Keywords: Self-Efficacy, Aggressive Behavior, Traffic Psychology, Well-Being, Anger-Frustration

Introduction

Self-efficacy and hope are two constructs that have trait and state manifestations. They are both goal-oriented, and are constructed over the distance between the individual and his or her set goals. This paper seeks to understand the relationship between two goal-oriented personality factors, the self-report manifestation of prosocial and aggressive behaviors, and the evaluation of Anger and Frustration, all in the realm of traffic. Establishing the relationship of these cognitive structures in the realm of transportation psychology will allow the construction of strategies that aim to promote well-being in an urban community and its mobility.

An important factor in human cognition is attitudinal beliefs, or the measure a person has of expectancy or anticipation of success or competence to a given domain or situation (Vaskinn, Ventura, Andreassen, Melle, & Sundet, 2015). It may be possible to reduce attitudes of a dysfunctional nature through the improvement of self-efficacy (Passanisi, Sapienza, Budello, & Giaimo, 2015). It is possible that driver aggression, which may be characterized as attitudes of a dysfunctional nature, may be related to low levels of self-efficacy. Assessing behavioural and cognitive aspects of social interaction is key to understanding self-efficacy (Grieve, Witteveen, Tolan, & Jacobson, 2014). If self-efficacy is related to driver aggression, a possible understanding of why a certain collective of individuals behaves so may be generated. The relationship between identity, self-efficacy and self-esteem are related to motivation and goals is of interest to determine psychosocial factors behind actions (Komarraju & Dial, 2014). Guilt, shame and self-efficacy are also an influence on how humans interact and how they view themselves (Passanisi et al., 2015).Self-efficacy, especially of the generalized kind, is related to problem solving and adjustment (Parto, 2011), it would be surprising to find that drivers that are not adjusting properly to their environments depend on the psychosocial factors inherent to their cognitive processes. The level of congruency between an action and a person's identity determines how likely an individual is to overcome difficulties when a goal is unachievable (Komarraju & Dial, 2014).

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Psychosocial factors related to personality and identity may be related to behaviors that are more difficult in a social context, such as prosocial behavior. There are two types of self-efficacy (Vaskinn et al., 2015): general self-efficacy, or the belief a person has on the capacity he or she has to perform a certain task; and specific self-efficacy, or the confidence the same person has on performing a specific behavior. In other words, one may have a good level of self-efficacy as a personality trait, but not expect to have a high level of task performance on a determined behavior. The ability to perform in a certain task is different from one's perception of his or her ability to perform in said task (Grieve et al., 2014), which in turn provides a measure of the accurateness of said person's perceived reality. Self-efficacy has been found related to social functioning in schizophrenia (Vaskinn et al., 2015), and to humor and prosocial behaviors (Falanga, Elvira, Caroli, & Sagone, 2014).

Due to the pervasiveness of self-efficacy in a person's life, effective and accurate assessment of the construct may be related to predicting and understanding psychosocial factors (Grieve et al., 2014). Self-efficacy may be used to estimate the need of psychosocial resources (Vancouver, Gullekson, Morse, & Warren, 2014), which returns the argument to evaluation and coping (Lazarus & Folkman, 1984). If an individual not only evaluates the task as demanding, but also weighs in his or her available resources, must subsequently evaluate his or her own ability to successfully carry out the task in question. Humans calculate likely outcomes to the goals they set for themselves, which in turn guides and motivates their efforts before they carry them out (Bandura & Locke, 2003), and hope is the personality variable that is most related to the pursuit of goals (Feldman & Snyder, 2005). This must definitely relate a person's self-efficacy to his or her levels of hope as a personality trait.

Hope, as a personality trait, may coexist with other emotion related constructs (Hirsch, Visser, Chang, & Jeglic, 2012), which in turn may relate it to evaluation. Hope may well be related to self-efficacy in a way that it influences aggressive driving and prosocial behavior. The expectations of one's efficacy is determinant in how much effort an individual will exert in overcoming obstacles, and why an individual may manifest avoidance behavior in those activities that he or she believes are beyond their capabilities (Parto, 2011). It is possible that the association between social support and hope may indicate that well-being as a whole is determined by effective emotional interaction and support (Ling et al., 2015). If there is a set of psychosocial factors that facilitate the reduction of hope, then the improvement of factors that are shared at a macro-level will have an impact in positive behaviors (Hirsch et al., 2012), such as prosocial driving. It is found that a high level of self-efficacy is related to a higher level of assertive interaction (Parto, 2011), this may imply that it may also be related to prosocial behavior. Hope is a bi-component construct, where on the one hand there is the perceived capacity a person has to generate cognitive paths to a set goal, and on the other is the ability said individual has to initiate and follow said paths (Feldman & Snyder, 2005). Personality and who the individual actually is must be at the center of these cognitive processes. There is evidence that social support has influence in the identity of the individual, which facilitates the development of hope in the individual (Ling et al., 2015), which in turn may be related to self-efficacy as well.

Humans have a hard time feeling responsible about acting prosocially when they are unaware that not acting in said manner will have undesired consequences (De Groot & Steg, 2009). Engaging in activities that promote prosocial behaviors, or are exposed to media that promotes these type of behaviors, will predict less reckless and risk taking activities (Greitemeyer, 2012). It is likely that engaging in prosocial behaviors will also inhibit those that are of an aggressive nature. It is possible that the elements self-efficacy and hope may have an influence on prosocial behavior, but also have an inhibitory effect on driver aggression. Hennesy&Wisenthal (2002) define aggression as "any behavior that has the intention of hurting others, either physically, psychologically or emotionally." It is important to underline the component of intention, due to the fact that many behaviors have the possibility of causing harm, but do not attack the tissue of society in its lack of purpose to cause violence and evil. Road rage is defined as the use of a motor vehicle to express aggressive behavior, which contributes to traffic violence (Brewer, 2000). Awareness of consequences precedes the feelings of responsibility that activate moral mechanisms that initiate prosocial behavior (De Groot & Steg, 2009). One may understand that there is a relationship with the awareness of the consequences of one's actions, and the probability of success at obtaining a set goal. There was no evidence of other studies linking self-efficacy to prosocial behavior. However, social comparison is also found to be related to less empathy, which in turn results in less prosocial behavior (Yip & Kelly, 2013), and priming prosocial behavior has an influence on actually carrying out prosocial behavior, regardless of being observed by bystanders (Abbate, Ruggieri, & Boca, 2013).

There is no doubt that several cognitive elements related to self-efficacy are also present in the carrying out of prosocial behaviors. Aggression in the context of driving a motor-vehicle is not a new idea. Some of the inventoried behaviors by previous researchers include: threatening to collide one's vehicle, excessive use of one's car horn, use of obscene gestures, using high beams to indicate frustration, and driving at high velocities (Houston, Harris, & Norman, 2003). Deffenbacher, Petrilli, Lynch, Oetting, & Swaim (2003) find that aggressive behavior is more related to physical aggression in general and vengeful thinking, and with risk behavior behind the wheel. Consensus revolves around adaptation of the person to its environment and the events that are demanding, threatening, or even dangerous to the individual (Lazarus & Folkman, 1984).Anger and aggressive driving have been thoroughly studied together (Berdoulat, Vavassori, & Sastre, 2013; Danaf, Abou-Zeid, & Kaysi, 2015; Deffenbacher, 2016; Deffenbacher, Deffenbacher, Lynch, & Richards, 2003; Deffenbacher, Lynch, Oetting, & Swaim, 2002; Jovanović, Lipovac, Stanojević, & Stanojević, 2011; Kovácsová, Rošková, & Lajunen, 2014; Wickens, Mann, Ialomiteanu, & Stoduto, 2016), and yet frustration and aggressive driving have not been as prominent in research (Beck, Ali, & Daughters, 2014; Kaiser, Furian, & Schlembach, 2016; Lajunen, Parker, & Summala, 1999; Siegel et al., 2016), and very little research was found that involved all three of them together (Stephens & Groeger, 2009). This is an opportunity to broaden the scope of negative emotions, personality factors and behavior.

Other studies carried out in the same context as the present paper include the relationship between stress, aggressive behavior and prosocial behavior (Dorantes-Argandar, Cerda-Macedo, Tortosa-Gil, & Ferrero Berlanga, 2015b), and the influence of aggressive behavior in stress, prosocial behavior and accident rates (Dorantes-Argandar, Cerda-Macedo, Tortosa-Gil, & Ferrero Berlanga, 2015a). It is important to determine the cognitive processes that influence prosocial and aggressive behaviors, such as the influence self-efficacy and hope have on these variables,and how negative emotions play a key role in these variables, if there is to be an effort to enforce a driving style that promotes social well-being.

Method

Two separate studies were carried out. The first one was meant to establish the relationship between Hope, Self-Efficacy, Aggressive Behavior and Prosocial Behavior, and based on the results obtained in said study, a second study was warranted regarding Anger and Frustration in the context of operating a motor vehicle.

Participants were selected through a non-probabilistic method and were approached through a variety of settings. A team of volunteers was composed from Psychology students, which were trained and supervised by one of the main researchers involved in this study. These then sought out people in streets, stores, shops, and squares in downtown Cuernavaca, Mexico. Volunteers were instructed to stratify their collection, paying attention to include as much men as women in the sample, and to keep track of the age of participants so as to maintain the age quota of the sample as close to population distributions as possible. Instruments were available in a paper and pencil format, and then keyed in by hand into the SPSS version 19, which was subsequently used to carry out statistical analyses, such as: Cronbach's Alpha to determine internal consistency of the items, Exploratory Factor Analysis to determine the factorial distribution of the items that composed the scale, Pearson's Correlations to determine relationship of the factors that were drawn, and student's t to determine differences between the groups. AMOS Graphics was used to construct structural equation models and confirmatory factor analysis.

Study 1

Participants

The sample was comprised of 444 participants (60.8% men,39.2% women, age mean 36.42 years old, std. dev. 9.79) who were selected by a non-probabilistic method. Again, inclusion criteria consisted of (1) having a driver's license, and (2) living within the municipal limits of Cuernavaca, Morelos (Mexico). 43.2% of participants had finished their University studies, 33.8% had finished High-school, 15.8% had only finished their Middle School studies, and 4.1% had less than Middle School studies. Educational level is a bit high in this sample as well when compared to local standards, but being able to drive a motor vehicle may be correlated to the level of education an individual has.

Instruments

The instruments used in this study were the following:

1. The Inventory of Prosocial Behavior in Traffic (Dorantes Argandar, Cerda-Macedoo, Tortosa Gil, & Ferrero Berlanga, 2015b). This instrument allows evaluating how prosocial behavior is manifest in drivers in the context of operating an automobile. It has 3 factors that explain 53% of variance, has an Cronbach's Alpha of .94, and uses 22 Likert scale items that measure frequency (1 = never, 5 = always).
2. The Inventory of Aggressive Behaviors in Traffic (Dorantes-Argandar et al., 2015a, 2015b). This instrument allows evaluating aggressive behaviors that are more frequent amongst drivers in the context of operating an automobile. It has 3 factors that explain 51% of total variance, has a Cronbach's Alpha of .93, and uses 21 Likert scale items that measure frequency (1 = never, 5 = always).
3. Baessker&Schwarzer's Scale of General Self-Efficacy validated in Spanish (Sanjuán Suárez, Pérez García, & Bermúdez Moreno, 2000). This scale was created to evaluate hope in adults in both a clinic and non-clinic setting. It has a Cronbach's Alpha of .93 and uses a Likert Scale to evaluate how much an individual agreed to each item (1 = Completely Disagree, 5 = Completely Agree).
4. Hearth's Hope Scale validated in Spanish (Martinez, Cassaretto, & Herth, 2012). This scale was created to evaluate hope in adults in both a clinic and non-clinic setting. It has a Cronbach's Alpha of .851 and uses a Likert Scale to evaluate how much an individual agreed to each item (1 = Completely Disagree, 5 = Completely Agree).

All activities and materials were printed in Spanish. Information is provided in English for purpose of this paper.

Results

All scales were reduced to indexes using a simple reduction process: adding up the values obtained for each item, and dividing the result into the number of items included in each individual scale. This permitted to formulate values that were all in a 1 to 5 format, with which inferential analyses were carried out. The sample was divided among sex groups and age groups, and student ts were calculated to compare them. Only two significant results were found in these analyses: first, when divided by sex, men manifest more aggressive behavior than women (t=2.164 df=432 p≤.03); and when divided by age groups, participants over 36 years of age have a higher level of self-efficacy (t = 2.1 df = 439 p ≤ .04). Afterwards, Pearson's r analyses were carried out to determine the relationships between these variables. These analyses are presented in Table 1.

Table 1. Pearson's r correlation matrix for the variables approached in this study.

	Aggressive Behavior	Prosocial Behavior	Self-Efficacy
Prosocial Behavior	-.15**		
Self-Efficacy	-.17**	.4**	
Hope	-.13**	.43**	.77*

**Correlation is significant p ≤ .001

Significant correlations were found across all variables, although the strength of these relationships is not the same between all variables. The most important finding at this level of analyses is that Self-Efficacy and Hope are very strongly related. It is also worth noting that both of these variables are also related to Prosocial Behavior, although their relationship is not as strong. Finally, all three of the variables just mentioned have weak but significant relationships with Aggressive Behavior, and they are of an inverse nature. Regression analyses were carried out to determine the influence of one variable on the other, in order to build an influence model.

Hope is found to predict Self-Efficacy (R^2 = .57 F = 588.22 p ≤ .001 B = .77), but by only a slightly superior strength than when the coefficient is calculated the other way around (B = .74). The relationship between these variables is incredibly strong. Hope is also found to be a better predictor of Prosocial Behavior (R^2 = .18 F = 99.2 p ≤ .001 B = .53) than Self-Efficacy (R^2 = .16 F = 82.24 p ≤ .001 B = .48), and when acting together, they strongly predict Prosocial Behavior (R^2 = .2 F = 53.73 p ≤ .001 B(Self-Efficacy) = .203 B(Hope) = .373). Aggressive Behavior is found to predict Hope (R^2 = .02 F = 7.43 p ≤ .007 B = -.14), and Self-Efficacy (R^2 = .03 F = 12.24 p ≤ .001 B = -.19), and Prosocial Behavior (R^2 = .18 F = 89.9 p ≤ .001 B = -.553), although all three relationships are of an inverted nature. This model was tested in a SEM, which is presented in Figure 1.

Figure 1. Structural Equations Model for the variables included in this study.
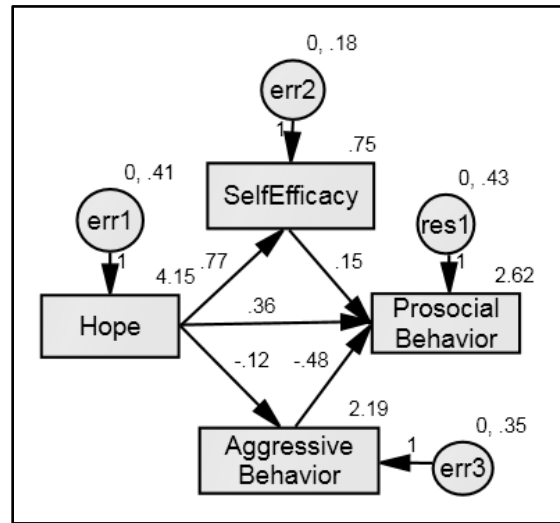
Results for the SEM showed an adequate level of adjustment for the model proposed (X^2= 3.74, gl = 1, p≤.001, CFI=.99, RMSEA = .08, TLI=.95), however, the relationships did not behave exactly as was expected. Self-efficacy is still a moderator between Hope and Prosocial Behavior, and Aggressive behavior is a negative moderator between Hope and Prosocial Behavior, although in a weaker manner.

Discussion for Study 1

This study provides strong evidence that Hope and Self-Efficacy have an influence on behaviors that should be considered of a more acceptable nature. Everyone should make an effort to behave prosocially at every opportunity, but doing so does not inhibit the proliferation of aggressive behavior. In fact, it is the other way around: displaying more aggressive behavior will inversely predict that of a prosocial nature and the cognitive variables that predict it in this study. A closer look at the mechanisms behind aggressive behavior is definitely warranted. It would be expected that an individual with a higher level of well-being would be less likely to behave aggressively, and will at the same time display less aggressive behavior. It would be logical that traits that predict a more healthy manner of behavior, would also predict the opposite. However, it was erroneus to believe that Prosocial Behavior and Aggressive Behavior would be direct opposites, and that they would depend on the same constructs. The strength of the relationships shows that the relationship betweeh both types of behavior is not linear. This study spawned the idea of studying the relationship of not only psychological and personality variables that are involved in emotions, but negative emotions themselves, due to the evidence that aggressive driving is related to anger (Danaf et al., 2015; Deffenbacher, Deffenbacher, et al., 2003; Deffenbacher, Petrilli, et al., 2003; Jovanović et al., 2011; Kovácsová et al., 2014; Moore & Dahlen, 2008).

Study 2

Participants

The sample was comprised of 316 participants (62.4% men, 37.6% women, age mean 37.65 years old, std. dev. 10.56) who were selected by a non-probabilistic method. Again, inclusion criteria consisted of (1) having a driver's license, and (2) living within the municipal limits of Cuernavaca, Morelos (Mexico). 46.2% of participants had finished their University studies, 37% had finished High-school, 10.9% had only finished their Middle School studies, and 1.6% had less than Middle School studies. Educational level is a bit high in this sample as well when compared to local standards, but being able to drive a motor vehicle may be correlated to the level of education an individual has.

Instruments

The instruments used in this study were the following:

1. The Inventory of Prosocial Behavior in Traffic (Dorantes Argandar et al., 2015b). This instrument allows evaluating how prosocial behavior is manifest in drivers in the context of operating an automobile. It has 3 factors that explain 53% of variance, has an Crombach's Alpha of .94, and uses 22 Likert scale items that measure frequency (1 = never, 5 = always).
2. The Inventory of Aggressive Behaviors in Traffic (Dorantes-Argandar et al., 2015a, 2015b). This instrument allows evaluating aggressive behaviors that are more frequent amongst drivers in the context of operating an automobile. It has 3 factors that explain 51% of total variance, has a Crombach's Alpha of .93, and uses 21 Likert scale items that measure frequency (1 = never, 5 = always).
3. Baessker&Schwarzer's Scale of General Self-Efficacy validated in Spanish (Sanjuán Suárez et al., 2000). This scale was created to evaluate hope in adults in both a clinic and non-clinic setting. It has a Crombach's Alpha of .93 and uses a Likert Scale to evaluate how much an individual agreed to each item (1 = Completely Disagree, 5 = Completely Agree).
4. Hearth's Hope Scale validated in Spanish (Martinez et al., 2012). This scale was created to evaluate hope in adults in both a clinic and non-clinic setting. It has a Crombach's Alpha of .851 and uses a Likert Scale to evaluate how much an individual agreed to each item (1 = Completely Disagree, 5 = Completely Agree).
5. The Anger-Frustration Scale was constructed *ex profeso* for this study. Using the items included in the Aggressive Behavior Inventory (Dorantes-Argandar et al., 2015a, 2015b), participants were required to evaluate how angry and how frustrated they felt for each of the items of the inventory, which resulted in a 42 item scale. Due to the particularities observed in the results, the Anger-Frustration in Traffic Scale (EEFyT because of its abbreviation in Spanish) will be considered a single scale that evaluates two different components. Its Cronbach's Alpha is .98, which is considered as excellent.

Due to the fact that apparent validity is obtained through the perception a population has of a phenomenon that is to be explored, and that the validity of content seeks to ascertain how adequately an instrument measures a phenomenon (Cohen & Swerdlik, 2009), it is considered that the procedure carried out here satisfies the minimum requisites to determine that the instrument here presented is valid. Initially, the idea was to obtain two separate scales that evaluated Anger and Frustration independently. However, when an excessively high correlation coefficient was found (r = .85, p ≤ .001, R^2 = .73 F = 466.2 p ≤ .001 B = .87), all the analyses were carried out from scratch to understand the scale as a single instrument. Following are the analyses carried out regarding the validation of this scale.

An exploratory factorial analysis that weighed maximum likelihood was carried out, which is presented in Table 2.

Table 2. Exploratory Factor Analysis of the Anger and Frustration in Traffic Scale.

| Item	Factorial Weight	Item	Factorial Weight
EN1	.700	F1	.734
EN2	.748	F2	.774
EN3	.727	F3	.733
EN4	.735	F4	.732
EN5	.802	F5	.782
EN6	.768	F6	.787
EN7	.830	F7	.816
EN8	.846	F8	.852
EN9	.848	F9	.873
EN10	.784	F10	.840
EN11	.752	F11	.808
EN12	.781	F12	.781
EN13	.831	F13	.843
EN14	.864	F14	.834
EN15	.833	F15	.833
EN16	.716	F16	.754
EN17	.800	F17	.825
EN18	.772	F18	.796
EN19	.783	F19	.773
EN20	.749	F20	.780
EN21	.769	F21	.819

The exploratory factor analysis finds that all 42 items belong to a single factor that explains 63.43% of variance. This factorial grouping obtained a sample adequacy measure (KMO) of .94 and passed Bartlett's test of sphericity (X^2 = 10158.62 gl = 861 p ≤ .001). All communalities obtained values higher than .6. Because of the amount of items and the high value of statistical coefficients, all items that weighed below .8 in their factorial weight were excluded, which resulted in 8 items from the Anger section and 10 for the frustration section. It is odd that the amount of items is different from each section, and that the items are different in themselves, but no empirical evidence was sought to explore this finding. A Pearson's r correlation matrix was constructed with the final items, and all relations were of a significant nature. These analyses are presented in Table 2.

Table 3. Correlation Matrix for all of the final items in the Anger and Frustration in Traffic Scale.

	EN5	EN7	EN8	EN9	EN13	EN14	EN15	EN17	F7	F8	F9	F10	F11	F13	F14	F15	F17
EN7	.781**																
EN8	.741**	.778**															
EN9	.712**	.766**	.887**														
EN13	.688**	.664**	.727**	.719**													
EN14	.741**	.788**	.773**	.782**	.780**												
EN15	.726**	.762**	.742**	.772**	.705**	.855**											
EN17	.618**	.684**	.659**	.718**	.673**	.723**	.733**										
F7	.679**	.739**	.645**	.603**	.563**	.706**	.664**	.587**									
F8	.633**	.692**	.841**	.753**	.653**	.703**	.663**	.582**	.767**								
F9	.644**	.678**	.793**	.816**	.658**	.687**	.696**	.611**	.714**	.883**							
F10	.565**	.620**	.608**	.644**	.670**	.656**	.626**	.616**	.670**	.701**	.786**						
F11	.600**	.635**	.584**	.572**	.626**	.651**	.654**	.577**	.712**	.662**	.686**	.792**					
F13	.610**	.616**	.648**	.601**	.815**	.694**	.608**	.585**	.683**	.718**	.729**	.796**	.766**				
F14	.636**	.721**	.625**	.613**	.658**	.812**	.718**	.616**	.753**	.715**	.714**	.732**	.719**	.788**			
F15	.614**	.689**	.645**	.654**	.626**	.747**	.804**	.609**	.737**	.731**	.749**	.752**	.771**	.767**	.839**		
F17	.572**	.658**	.589**	.635**	.628**	.670**	.636**	.791**	.678**	.694**	.714**	.757**	.703**	.698**	.697**	.719**	
F21	.577**	.561**	.646**	.677**	.615**	.648**	.619**	.666**	.679**	.739**	.753**	.688**	.608**	.658**	.650**	.657**	.730**

This new set of items (α = .98) was subjected to a confirmatory factorial analysis, which is presented in Figure 2.

Figure 2. Confirmatory Factor Analisis for the Anger and Frustration in Traffic Scale.
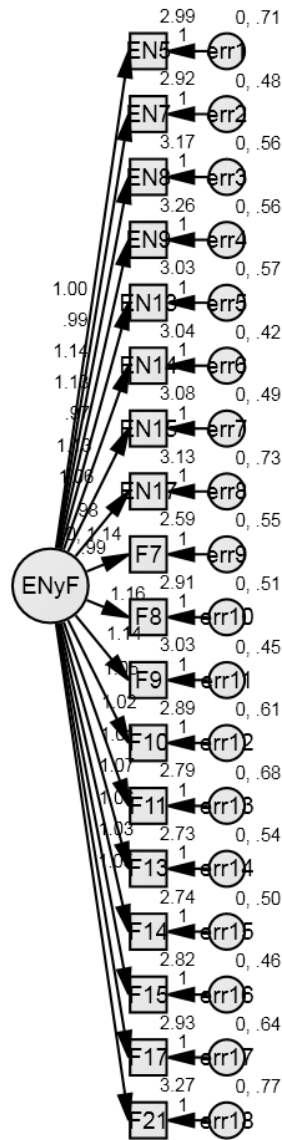
This new model obtained minimum statistical values that are considered as acceptable (X^2 = 1122.72, gl = 135, p ≤ .001, CFI = .76, RMSEA = .19, TLI = .7), which indicates that the Anger and Frustration in Traffic Scale is a valid tool in measuring these emotions in the context of traffic in the city of Cuernavaca, Morelos.

Results

All scales were reduced to indexes using a simple reduction process: adding up the values obtained for each item, and dividing the result into the number of items included in each individual scale. This permitted to formulate values that were all in a 1 to 5 format, with which inferential analyses were carried out. The first of these was Pearson's correlations to determine the strength of relation between variables, which are presented in Table 4.

Table 4. Pearson's correlations between the variables included in this study.

	Prosocial	Hope	Self-Efficacy	Aggressive B.
Hope	.39**			
Self-Efficacy	.36**	.65**		
Aggressive B.	-.37**		-.15**	
A-F	-.27**		-.23**	.29**

** p ≤.001

Regression analyses were carried out to explore the nature of the relationships found. Again, Hope predicts Self-Efficacy (R^2 = .42 F = 129.23 p ≤ .001 B = .7), and its relationship with Prosocial Behavior is notorious. Hope is again found to be a better predictor of Prosocial Behavior (R^2 = .16 F = 33.9 p ≤ .001 B = .5) than Self-Efficacy (R^2 = .13 F = 26.02 p ≤ .001 B = .41), and when acting together, they strongly predict Prosocial Behavior (R^2 = .18 F = 19.18 p ≤ .001 B(Self-Efficacy) = .19 B(Hope) = .39). This confirms results found in study 1. Anger-Frustration has negative correlations with variables associated with well-being, yet correlates positively with Aggressive Behavior. It is found that Aggressive Behavior (R^2 = .09 F = 15.98 p ≤ .001 B = .6) and Prosocial Behavior (R^2 = .07 F = 14.05 p ≤ .001 B = -.43) predict Anger and Frustration separately, and also as a system (R^2 = .11 F = 10.57 p ≤ .001 B(AB) = .47 B(PB) = .23). Finally, Self-Efficacy predicts Anger and Frustration (R^2 = .05 F = 9.59 p ≤ .001 B = -.42).These analyses gave way to a model that was subjected to Structural Equations Modeling, which is presented in Figure 3.

Figure 3. Structural Equations Model for the Variables included in Study 2.
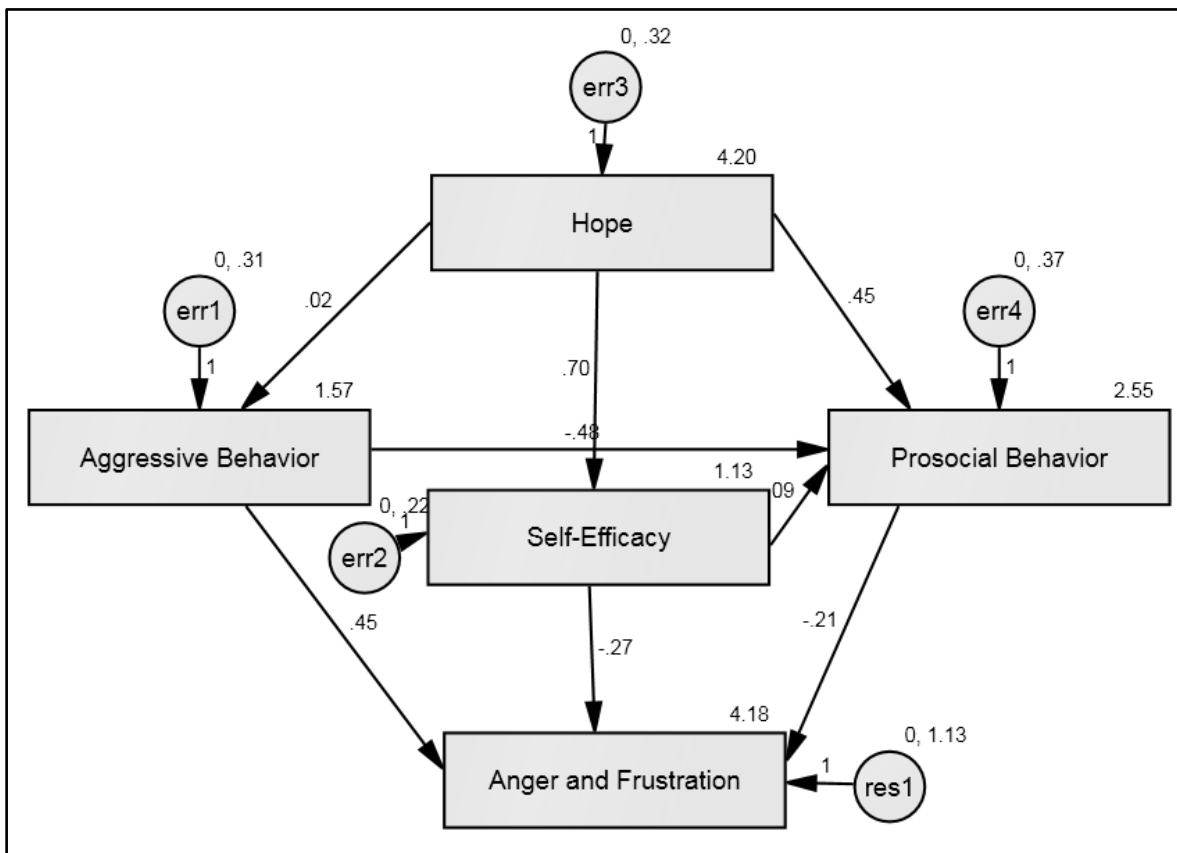
Results for the SEM showed an adequate level of adjustment for the model proposed (X^2=40.83, gl= 4, p≤.001, CFI=.8, RMSEA=.25, TLI=.25), which are parameters that meet minimum acceptable variables. The model obtained at the end of this study confirms the findings achieved in Study 1, and add a new variable into the mix which is the element of Anger and Frustration.

Discussion for Study 2

Study 2 confirms the findings of Study 1, and provides some insights regarding the emotional weight behind psychological variables such as the ones included in this study. It was unexpected that both types of Behaviors predicted Anger and Frustration, when one would assume it should be the other way around. This suggests that Aggressiveness and Prosociality are linked to personality factors related to emotional management. It seems who an individual is determines how he or she behaves (which is rather unsurprising), but the manner in which they behave determines how they handle their emotions (which does require further inquiry), although this study does not state in

any way how this relationship is constituted or which personality factor are at play, other than Self-Efficacy and Hope (which were measured as traits, rather than as state variables). It would appear that hope and self-efficacy are psychosocial factors behind actions as Komarraju & Dial (2014) state, but this is only true for the prosocial kind. This may be because these two constructs are related to the effort an individual exerts in overcoming an obstacles (Parto, 2011), and aggressive behavior may not be as related to problem solving and overcoming unachievable goals (Komarraju & Dial, 2014). If aggressive behavior is that which has the intention to cause harm (Henessy & Wisenthal, 2002) and is more related to vengeful thinking (Deffenbacher, Petrilli, et al., 2003), then it is possible that there is a cognitive difference between having a determined intention, and pursuing a stated goal. This study does not offer information in this regard, but this is a good suggestion for further study.

It is possible that Hope is a more powerful construct than Self-Efficacy because of its strong emotional content, but the relationship between both is so strong that further evaluation is needed to further arguments in this direction. It was odd that Anger and Frustration did relate to Self-Efficacy, but not to Hope. Evidence points that these two constructs are different in their nature: Self-Efficacy is more about calculating probabilities of success (Bandura & Locke, 2003), and Hope is more about the essence in the pursuit of said goals (Feldman & Snyder, 2005); a deeper examination of these constructs is required to determine exactly what makes one different than the other. Regarding Control Theory, an individual may or may not engage in a task when he or she estimates that the available resources are under an acceptable threshold (Vancouver et al., 2014), which calls to mind the fact that aggressive behavior is related to impulsiveness and disregarding such thresholds.

Discussion

The most important finding this study provides is the fact that statistical analyses led to believe that Anger and Frustration behave as a single psychological construct. Bibliographical research showed that this finding is in no way original (Deater-Deckard et al., 2010; Deater-Deckard, Petrill, & Thompson, 2007; Fox & Spector, 1999), and definitely not canon, although research seldom mentions them together (Gelbrich, 2010; Keddie, 2006; Krieglmeyer, Wittstadt, & Strack, 2009; Widger, 2012). Further research is definitely warranted in this direction to further understand this finding, especially inside the realm of traffic psychology in Mexico. It was also surprising that there were no significant differences between men and women across most of the variables, but this is consistent with most of the literature reviewed (Henessy&Wisenthal, 1999; Elander, West, & French, 1993; Deffenbacher, et al., 2003; Su, et al., 2009; Neubauer, et al., 2010; Morgan & Hancock, 2011; etc.). However, this may reflect that all these issues are of a personality nature, and are not imbued in sex or age. Further research into personality and culture of driver aggression in Mexico is warranted.

Further bibliographical research outside the realm of traffic psychology brought a few ideas. A study carried out in US nurses that work in a house for the elderly (Evers, Tomic, & Brouwers, 2001)stated that self-efficacy is a determinant for individuals under aggression, which tend to descend into conditions of unwell-being. Further studies should compare driver aggression to perceived driver aggression, which may shed some light into why individuals behave aggressively. This should be consolidated with several other personality variables that are proved to predict aggressive behavior. Doing so may permit developing positive policy and strategies that not only foster Prosocial Behavior, but also aim to reduce aggressive behaviors in drivers. Another study carried out in Amsterdam in children that are victims of bullying (Camodeca & Goossens, 2005) emphasized in the processing of social information, the selection of goals and how response calculation and emotional expression are related. This would warrant further analysis into driver cognition to determine how aggressive behavior is elicited. Finally, another study delved into the attachment issues infant develop, criticism and harsh parenting, and the developing of aggressive behavior (Cyr, Pasalich, McMahon, & Spieker, 2014). This reminded of a study carried out in Spain (Sansinenea et al., 2008) about the relationship between self-efficacy and positive affect. It is possible that Self-Efficacy is directly related to positive emotions, but it is not so to those of a negative nature. Maybe this is why it is so closely related to well-being: self-efficacy promotes well-being, but there are other variables related to the reduction of aggressive behavior.

The results of this study are limited to the urban area of the city of Cuernavaca, which comprises 4 municipalities (Cuernavaca, Jiutepec, Temixco and Emiliano Zapata). Further research transcending these population boundaries is required for a more comprehensive understanding of the phenomena described in this paper.

Compliance with Ethical Standards

References

Abbate, C. S., Ruggieri, S., & Boca, S. (2013). The Effect of Prosocial Priming in the Presence of Bystanders. The Journal of Social Psychology, 153(5), 619–622. http://doi.org/10.1080/00224545.2013.791658

Bandura, A., & Locke, E. a. (2003). Negative self-efficacy and goal effects revisited. The Journal of Applied Psychology, 88(1), 87–99. http://doi.org/10.1037/0021-9010.88.1.87

Beck, K. H., Ali, B., & Daughters, S. B. (2014). Distress Tolerance as a Predictor of Risky and Aggressive Driving. Traffic Injury Prevention, 15(4). http://doi.org/10.1080/15389588.2013.829569

Berdoulat, E., Vavassori, D., & Sastre, M. T. M. (2013). Driving anger, emotional and instrumental aggressiveness, and impulsiveness in the prediction of aggressive and transgressive driving. Accident Analysis & Prevention, 50, 758–767. http://doi.org/10.1016/j.aap.2012.06.029

Camodeca, M., & Goossens, F. A. (2005). Aggression, social cognitions, anger and sadness in bullies and victims. Journal of Child Psychology and Psychiatry and Allied Disciplines, 46(2), 186–197. http://doi.org/10.1111/j.1469-7610.2004.00347.x

Cohen, R. J., & Swerdlik, M. (2009). Psychological Testing and Assessment: An Introduction to Tests and Measurement (7th ed.). McGraw-Hill.

Cyr, M., Pasalich, D. S., McMahon, R. J., & Spieker, S. J. (2014). The longitudinal link between parenting and child aggression: The moderating effect of attachment security. Child Psychiatry and Human Development, 45(5), 555–564. http://doi.org/10.1007/s10578-013-0424-4

Danaf, M., Abou-Zeid, M., & Kaysi, I. (2015). Modeling anger and aggressive driving behavior in a dynamic choice–latent variable model. Accident Analysis & Prevention, 75, 105–118. http://doi.org/10.1016/j.aap.2014.11.012

De Groot, J. I. M., & Steg, L. (2009). Morality and prosocial behavior: the role of awareness, responsibility, and norms in the norm activation model. The Journal of Social Psychology, 149(4), 425–449. http://doi.org/10.3200/SOCP.149.4.425-449

Deater-Deckard, K., Beekman, C., Wang, Z., Kim, J., Petrill, S., Thompson, L., & DeThorne, L. (2010). Approach/Positive Anticipation, Frustration/Anger, and Overt Aggression in Childhood. Journal of Personality, 78(3), 991–1010. http://doi.org/10.1111/j.1467-6494.2010.00640.x

Deater-Deckard, K., Petrill, S. A., & Thompson, L. A. (2007). Anger/frustration, task persistence, and conduct problems in childhood: A behavioral genetic analysis. Journal of Child Psychology and Psychiatry and Allied Disciplines, 48(1), 80–87. http://doi.org/10.1111/j.1469-7610.2006.01653.x

Deffenbacher, J. L. (2016). A review of interventions for the reduction of driving anger. Transportation Research Part F: Traffic Psychology and Behaviour, 42, 411–421. http://doi.org/10.1016/j.trf.2015.10.024

Deffenbacher, J. L., Deffenbacher, D. M., Lynch, R. S., & Richards, T. L. (2003). Anger, aggression, and risky behavior: a comparison of high and low anger drivers. Behaviour Research and Therapy, 41(6), 701–718. http://doi.org/10.1016/S0005-7967(02)00046-3

Deffenbacher, J. L., Lynch, R. S., Oetting, E. R., & Swaim, R. C. (2002). The Driving Anger Expression Inventory: a measure of how people express their anger on the road. Behaviour Research and Therapy, 40(6), 717–737. http://doi.org/10.1016/S0005-7967(01)00063-8

Deffenbacher, J. L., Petrilli, R. T., Lynch, R. S., Oetting, E. R., & Swaim, R. C. (2003). The driver's angry thoughts questionnaire: A measure of angry cognitions when driving. Cognitive Therapy and Research, 27(4), 383–402. http://doi.org/10.1023/A:1025403712897

Dorantes-Argandar, G., Cerda-Macedo, E. A., Tortosa-Gil, F., & Ferrero Berlanga, J. (2015a). Accidentalidad De Automóviles De Uso Particular En México: Influencia Del Estrés Y La Agresividad. Psiencia Revista Latinoamericana de Ciencia Psicologica, (7), 418–427. http://doi.org/10.5872/psiencia/7.3.121

Dorantes-Argandar, G., Cerda-Macedo, E. A., Tortosa-Gil, F., & Ferrero Berlanga, J. (2015b). Agresividad Vial Como Predictor Del Estrés Y Del Comportamiento Prosocial, Y Su Influencia En La Siniestralidad De Vehículos Particulares En México. Ansiedad Y Estrés, 21(3), 207–217.

Dorantes Argandar, G., Tortosa Gil, F., & Ferrero Berlanga, J. (2016). Measuring situations that stress Mexicans while driving. Transportation Research Part F: Traffic Psychology and Behaviour, 37, 154–161. http://doi.org/10.1016/j.trf.2015.12.014

Evers, W., Tomic, W., & Brouwers, A. (2001). Effects of aggressive behavior and perceived self-efficacy on burnout among staff of homes for the elderly. Issues in Mental Health Nursing, 22(4), 439–454. http://doi.org/10.1080/01612840151136975

Falanga, R., Elvira, M., Caroli, D., & Sagone, E. (2014). Humor styles , self-efficacy and prosocial tendencies in middle adolescents. Procedia - Social and Behavioral Sciences, 127, 214–218. http://doi.org/10.1016/j.sbspro.2014.03.243

Feldman, D. B., & Snyder, C. R. (2005). Hope and the Meaningful Life: Theoretical and Empirical Associations Between Goal–Directed Thinking and Life Meaning. Journal of Social and Clinical Psychology, 24(3), 401–421. http://doi.org/10.1521/jscp.24.3.401.65616

Fox, S., & Spector, P. E. (1999). A model of work frustration-aggression. Journal of Organizational Behavior, 20(August 1997), 915–931.
http://doi.org/10.1002/(SICI)1099-1379(199911)20:6<915::AID-JOB918>3.3.CO;2-Y

Gelbrich, K. (2010). Anger, frustration, and helplessness after service failure: Coping strategies and effective informational support. Journal of the Academy of Marketing Science, 38(5), 567–585. http://doi.org/10.1007/s11747-009-0169-6

Greitemeyer, T. (2012). Exposure to media with prosocial content reduces the propensity for reckless and risky driving. Journal of Risk Research, 16(5), 1–12. http://doi.org/10.1080/13669877.2012.726248

Grieve, R., Witteveen, K., Tolan, G. A., & Jacobson, B. (2014). Development and validation of a measure of cognitive and behavioural social self-efficacy. Personality and Individual Differences, 59, 71–76. http://doi.org/10.1016/j.paid.2013.11.008

Hirsch, J. K., Visser, P. L., Chang, E. C., & Jeglic, E. L. (2012). Race and Ethnic Differences in Hope and Hopelessness as Moderators of the Association Between Depressive Symptoms and Suicidal Behavior. Journal of American College Health, 60(2), 115–125. http://doi.org/10.1080/07448481.2011.567402

Jovanović, D., Lipovac, K., Stanojević, P., & Stanojević, D. (2011). The effects of personality traits on driving-related anger and aggressive behaviour in traffic among Serbian drivers. Transportation Research Part F: Traffic Psychology and Behaviour, 14(1), 43–53. http://doi.org/10.1016/j.trf.2010.09.005

Kaiser, S., Furian, G., & Schlembach, C. (2016). Aggressive Behaviour in Road Traffic – Findings from Austria. Transportation Research Procedia, 14, 4384–4392. http://doi.org/10.1016/j.trpro.2016.05.360

Keddie, A. (2006). Fighting, anger, frustration and tears: Matthew's story of hegemonic masculinity. Oxford Review of Education, 32(4), 521–534. http://doi.org/10.1080/03054980600884243

Komarraju, M., & Dial, C. (2014). Academic identity , self-ef fi cacy , and self-esteem predict self-determined motivation and goals. Learning and Individual Differences, 32, 1–8.
http://doi.org/10.1016/j.lindif.2014.02.004

Kovácsová, N., Rošková, E., & Lajunen, T. (2014). Forgivingness, anger, and hostility in aggressive driving. Accident Analysis & Prevention, 62, 303–308. http://doi.org/10.1016/j.aap.2013.10.017

Krieglmeyer, R., Wittstadt, D., & Strack, F. (2009). How attribution influences aggression: Answers to an old question by using an implicit measure of anger. Journal of Experimental Social Psychology, 45(2), 379–385. http://doi.org/10.1016/j.jesp.2008.10.003

Lajunen, T., Parker, D., & Summala, H. (1999). Does traffic congestion increase driver aggression? Transportation Research Part F: Traffic Psychology and Behaviour, 2(4), 225–236. http://doi.org/10.1016/S1369-8478(00)00003-6

Lazarus, R., & Folkman, S. (1984). Stress, appraisal, and coping. Behaviour Research and Therapy (Vol. 23). New York: Springer Publishing Company. http://doi.org/10.1016/0005-7967(85)90087-7

Ling, Y., Huebner, E. S., Liu, J., Liu, W. L., Zhang, J., & Xiao, J. (2015). The origins of hope in adolescence: A test of a social-cognitive model. Personality and Individual Differences, 87, 307–311. http://doi.org/10.1016/j.paid.2015.08.016

Martinez, P., Cassaretto, M., & Herth, K. (2012). Propiedades psicométricas de la Escala de Esperanza de Herth en español Psychometric properties of the Spanish Herth Hope Scale. RIDEP, 1(33), 127–128.

Moore, M., & Dahlen, E. R. (2008). Forgiveness and consideration of future consequences in aggressive driving. Accident Analysis & Prevention, 40(5), 1661–1666. http://doi.org/10.1016/j.aap.2008.05.007

Parto, M. (2011). Social and Problem solving , self- efficacy , and mental health in adolescents : Assessing the mediating role of assertiveness. The Effect of Information Technology in the Entrepreneurship (A Case Study in Golestan Province IRAN), 30, 644–648. http://doi.org/10.1016/j.sbspro.2011.10.125

Passanisi, A., Sapienza, I., Budello, S., & Giaimo, F. (2015). The Relationship Between Guilt , Shame And Self-Efficacy Beliefs In Middle School Students. Procedia - Social and Behavioral Sciences, 197(February), 1013–1017. http://doi.org/10.1016/j.sbspro.2015.07.295

Sanjuán Suárez, P., Pérez García, A. M., & Bermúdez Moreno, J. (2000). Escala de autoeficacia general: Datos psicométricos de la adaptación para población española. Psicothema, 12(SUPPL. 2), 509–513. http://doi.org/ISSN 0214-9915

Sansinenea, E., De Montes, L. G., Agirrezabal, A., Larrañaga, M., Garbiñe, O., Valencia, J. F., & Fuster, M. J. (2008). Autoconcordancia y autoeficacia en los objetivos personales Aportes al bienestar.pdf. Anales De Psicología, 24(1), 121–128.

Siegel, J. T., Tan, C. N., Rosenberg, B. D., Navarro, M. A., Thomson, A. L., Lyrintzis, E. A., … Jones, N. D. (2016). Anger, frustration, boredom and the Department of Motor Vehicles: Can negative emotions impede organ donor registration? Social Science & Medicine, 153, 174–181. http://doi.org/10.1016/j.socscimed.2016.02.013

Stephens, A. N., & Groeger, J. A. (2009). Situational specificity of trait influences on drivers' evaluations and driving behaviour. Transportation Research Part F: Traffic Psychology and Behaviour, 12(1), 29–39. http://doi.org/10.1016/j.trf.2008.06.005

Vancouver, J. B., Gullekson, N. L., Morse, B. J., & Warren, M. A. (2014). Finding a between-person negative effect of self-efficacy on performance: Not just a within-person effect anymore. Human Performance, 27(3), 243–261. http://doi.org/10.1080/08959285.2014.913593

Vaskinn, A., Ventura, J., Andreassen, O. A., Melle, I., & Sundet, K. (2015). A social path to functioning in schizophrenia : From social self-ef fi cacy through negative symptoms to social functional capacity. Psychiatry Research, 228(3), 803–807. http://doi.org/10.1016/j.psychres.2015.05.019

Wickens, C. M., Mann, R. E., Ialomiteanu, A. R., & Stoduto, G. (2016). Do driver anger and aggression contribute to the odds of a crash? A population-level analysis. Transportation Research Part F: Traffic Psychology and Behaviour, 42, 389–399. http://doi.org/10.1016/j.trf.2016.03.003

Widger, T. (2012). Suffering, Frustration, and Anger: Class, Gender and History in Sri Lankan Suicide Stories. Culture, Medicine and Psychiatry, 36(2), 225–244. http://doi.org/10.1007/s11013-012-9250-6

Yip, J. J., & Kelly, A. E. (2013). Upward and downward social comparisons can decrease prosocial behavior. Journal of Applied Social Psychology, 43(3), 591–602. http://doi.org/10.1111/j.1559-1816.2013.01039.x