



RESEARCH ARTICLE

DO GENDER DIFFERENCES REALLY EXIST WHEN IT COMES TO DRIVING ANGER?
A PSYCHOLOGICAL PROBE

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ABSTRACT

Do men and women drivers differ in their behaviour on road? This study was undertaken to understand and analyse the driving anger of male and female drivers. The study was undertaken on young male and female drivers in the age group of 18 to 25 years, holding valid driving license and living primarily in the tricity area of Chandigarh, Mohali and Panchkula (India). For the purpose of this study the respondents were selected randomly who were administered the structured questionnaire to obtain their demographic data as well as measure their driving anger using Deffenbacher's scale. The results were tabulated and studied using Mean, SD, and t-ratio, which revealed no significant difference between male and female drivers in their driving anger.

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INTRODUCTION

Driving is no longer a personal or a private affair. It impacts other road users too. With increasing traffic and a number of road users, one finds expression of different emotions as an extension of one's personality on roads. One is not oblivious to the growing incidence of violence and aggressive behaviour by the drivers on least provocation. A number of studies have been done to assess and understand the behavioural dimension of an individual in a driving context primarily in the developed nations. Attempts are now being made for the same in developing countries as well. In a report to Congress, the US General Accounting Office (GAO, 2003) noted, "human factors are seen as the most prevalent, according to data, experts, and studies, in contributing to crashes, followed by roadway environment and vehicle factors". The driving behaviour of people in different situations, and provocative behaviour of other road users does manifest itself in various emotional forms underlying human behaviour. Anger is defined as a "strong feeling of distress or displeasure in response to a specific provocation" (Thomas, 1993). It can also be described as a negative phenomenological experience that exists on a continuum in which the frequency, intensity, and duration of the experience, along with expressive (i.e., subjective, physiological, interpretive, and behavioural) characteristics, often leads to significant impairment (Novaco 1975; Kassinove and Sukhodolsky, 1995; Kassinove and Tafra, 2002). Novaco (1975) recognized three modalities of anger: cognitive (appraisals), somatic-affective (tension and agitations) and behavioural (withdrawal and antagonism).

The cognitive explanation of anger (Beck, 1999) emphasized upon the constellation of core beliefs, automatic interpretations, and feelings that comprise the manifestation of anger an individual experiences. Trait Driving Anger is a concept derived from the state-trait model of anger (Spielberger, 1988; Deffenbacher *et al.*, 1996) where a 'trait of anger' refers to the general tendency to become angry across time and circumstances. State anger denotes momentary experience of anger arousal in a specific context. Males tend to report higher levels of anger that is sometimes associated with aggressive and risky driving (Guppy, 1993; Joint, 1995; Deffenbacher, Huff, Lynch, Oetting and Salvatore, 2000) as compared to the female drivers. Other studies highlighted that females tend to report usage of mild-forms of aggressive behaviour (e.g. honking of horn or swearing) as frequently as males; however, males reported a greater frequency of violent aggression, including verbal and physical confrontations than females (Hennessy and Wiesenthal, 2001). In another study in 2003, Deffenbacher, Lynch & Richards concluded minimal gender differences in aggression, stating that "young adult, college student, male and female drivers looked much more alike than different, especially in terms of their anger and aggressive tendencies". They also concluded that men and women did not differ on frequency of anger or intensity of anger in day-to-day driving, intensity in the scenarios, state anger in the simulations, or trait anger. Adapted to driving, the 'trait-driving anger', thus, refers to one's propensity to become angry in a driving related situation whereas a 'state-driving anger' refers to the momentary experience of anger in a specific context. A question arises as to why it is important

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to study this emotion in a driving context? Anger can assume enormous proportions escalating further into aggressive driving and road rage. As per the American Automobile Association (1997), the incidence of road rage increased approximately 7% per year through the early 1990s leading to an estimated 200 deaths and another 12,000 injuries. Adolescents are found to be more probable in engaging towards unsafe driving when in an angry mood state (Arnett *et al.*, 1997). It has been discovered that the emotions of anger, aggression, and risk taking may transfer to (Zillman, 1971) or facilitate (Berkowitz, 1990) additional anger, aggression, and risky behaviour in driving situations triggering the cycles of agitation and dysfunctional behaviour, and therefore increasing the probability of each other and consequently accidents. Recent cases of youngsters belonging to the region around Chandigarh and indulging in driving anger, road rage, rash and negligent driving, traffic violations (Thakur, 2011), drunken driving (Sinha, 2010), underage driving (Ghai, 2010) leading to crashes, accidents and even deaths reflect the need of the hour. This study, therefore, was conducted to assess the prevalence of 'Trait Driving Anger' amongst young male and female drivers. Chandigarh (India) has the highest number of vehicles per capita in the country, the city whose total population is about 11 lakh has more than 8 lakh registered vehicles (Sandhu, 2010). It is not an unfamiliar sight to see people involved in provocative behaviour on roads. With more women taking to roads, can we assume they being otherwise well-behaved in social milieu, do not express anger while driving? Or is it just a stereotypical assumption? This research attempted to explore such questions. Therefore, an investigation was carried out to study driving anger in male and female drivers in the tri-city area, comprising Chandigarh, Panchkula and Mohali (India).

Hypothesis

(H₁) It is expected that there will be a difference between male and female drivers on driving anger.

MATERIALS AND METHOD

Sample

The sample consisted of one hundred students, out of which fifty were males and fifty were females, holding valid four-wheeler driving license, in the age range 18 to 25 years. The sample primarily consisted of individuals belonging to the tri-city area i.e. Chandigarh, Panchkula and Mohali (India) who were randomly selected for the investigation.

Tool

The Driving Anger scale (Deffenbacher *et al.*, 1994) consists of 14 items pertaining to various anger-provoking situations. Items of the scale describe potentially anger-provoking scenarios that might occur while someone is driving. Respondents have to rate each item as to the degree to which the situation would anger them using a five-point Likert scale. Reported internal consistency of scale is $\alpha = 0.80$. Apart from this, a demographic questionnaire was administered to gather other driving related information.

Procedure

The questionnaire and the scale were administered to the individuals personally and it took 10 to 15 minutes to record the responses. The participation was voluntary and full confidentiality was assured.

RESULTS

Mean, SD and 't' test were applied. Results (Table 1) revealed no significant gender differences on driving anger ($t = .24$). The mean difference depicted graphically (Figure 1), shows that male drivers have slightly higher level of driving anger than their counterpart female drivers, though not statistically significant. Table 2 shows the percentages of the responses for each question that were administered along with the Driving Anger Scale. The demographic questions revealed gender differences in so far as adherence to traffic rules is concerned. Female drivers were more conscientious towards traffic rules, and adherence to speed limits compared to male drivers, which was revealed through more number of traffic violations amongst males than females.

DISCUSSION

In the present study, gender differences in driving anger amongst young drivers was investigated. A random selection of hundred four-wheel drivers, holding valid driving license was made in the age group ranging between 18-25 years, residing in the tri-city area comprising Chandigarh, Panchkula and Mohali (India). The demographic questionnaire along with the driving-anger scale was administered to them. Mean, SD and t-test were applied. The results did not support the hypothesis which expected gender differences on driving anger. The results are, however, in line with the findings of earlier studies by Deffenbacher *et al.*, 1994 and Lajunen *et al.*, 1998.

Reason behind minimal gender differences on driving anger can be due to certain predisposing factors that the driving environment provides irrespective of gender. The 'anonymity' (of self or other drivers), 'deindividuation' (of other drivers) and 'interpersonal insulation' between automobiles (impeded communication between drivers) which the driving scenario provides increase the likelihood of behaviour one is less accountable for. Researchers have revealed that the environmental conditions such as the anonymity of driving, crowded and congested conditions, and level of impedance certainly contribute to anger on the highways (Novaco, Stokols, Campbell and Stokols, 1979; Novaco, Stokols and Milanesi, 1990; Potter, Goern, Petri and Figler, 1995; Deffenbacher, Huff, Lynch, Oetting and Salvatore, 2000). It has been found that anonymous drivers are more prone to defy restraint against harming others (Novaco, 1991). Also, because of the low likelihood of coming in contact with the other driver again, one is more prone to indulge in acts that would make them at ease momentarily and un-accountable. As observed, the driving environment therefore provides a unique opportunity to both male and female drivers to express anger (Marsh and Collett, 1987). The explanation for minimal gender difference on driving anger might be traced to the socio-cultural model which put emphasis on the social and cultural factors that directly produce gender differences in personality traits. Diminishing gender differences especially in urban developed society in almost all areas of life could be

another reason. Post-independence era in India has seen marked changes in women’s role from their traditional ones.

commenting on drunken driving accident in which a woman was involved, remarked that “what sex we have has got

Table 1: Mean, SD, t on ‘Driving Anger’

Variable	Male		Female		MD	SEDM	‘t’ ratio
	Mean	SD	Mean	SD			
Driving Anger	40.76	8.87	40.34	8.34	0.42	1.723	0.24

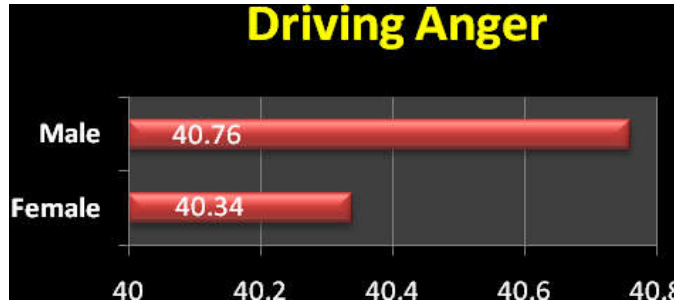


Figure 1: Graphical presentation of mean scores with regard to Driving Anger between male and female drivers

Table 2: Responses obtained on Demographic Questionnaire

Questions	Gender	Yes	Yes	Not	Unanswered	
		Always	Sometimes	at all		
Item 1.	Male	28%	50%	12%	--	
Do you drive within the specified speed limit?	Female	54%	42%	2%	2%	
Item 2.	Male	22%	68%	10%	--	
Do you drive fast when alone?	Female	24%	54%	22%	--	
Item 3.	Male	10%	60%	30%	--	
Do you drive fast when in the company of your friends?	Female	16%	42%	42%	--	
Item 4.	Male	76%	20%	4%	--	
Do you stop at the Red Traffic Lights?	Female	80%	18%	2%	--	
Item 5.	Male	42%	42%	14%	2%	
Do you stop at the red traffic light, if there is no traffic on roads?	Female	68%	32%	--	--	
Item 6.	Male	58%	28%	12%	2%	
Do you stop at red traffic light if there is no policeman at traffic lights?	Female	80%	14%	4%	2%	
Item 7.	Male	34%	36%	28%	2%	
Do you stop at red light at night, if there is no traffic on road?	Female	46%	46%	8%	--	
Item 8.	Male	6%	20%	74%	--	
Is it safe to use mobile while driving?	Female	10%	14%	74%	2%	
Item 9.	Male	34%	46%	18%	2%	
“My Car is my Territory”. Do you agree with this statement?	Female	56%	32%	10%	2%	
Item 10.	Male	46%	40%	12%	2%	
“Driving is my passion.” Do you agree?	Female	44%	32%	24%	--	
	Gender	Often	Thrice	Twice	Once	Never
Item 11.	Male	14%	10%	16%	10%	50%
Have you ever been involved in conflict with driver of another vehicle?	Female	10%	10%	8%	22%	50%
Item 12.	Male	26%	4%	10%	16%	44%
If yes, how often it has been verbal?	Female	10%	8%	8%	20%	54%
Item 13.	Male	10%	-	-	16%	74%
And how often is it physical?	Female	2%	2%	4%	8%	84%
Item 14.	Male	6%	16%	20%	32%	28%
How often have you been challenged/obtained ticket from police?	Female	-	-	14%	28%	58%

According to the social role model, gender difference in social behavior is based on gender roles, that are appropriate for males and females (Eagly, 1987; Eagly and Wood, 1991). Emphasizing on the gender roles, Simon and Corbett (1996) observed that women's traditional gender-role is non-competitive, passive, and are expected not to take risks whereas men on the other hand are encouraged to express anger, take risks and compete. The earlier prevalent practice wherein the upbringing of boys was often characterized by an “emphasis on independence, while the girls were encouraged to be dependent and obedient” (Lewis, 1986) is being challenged in urban India. Basu (2010) in an article

nothing to do with how we behave. Femininity, masculinity are gender constructs created by the society to set restrictions for men and women and set restricted role and responsibilities for them”. Research has also shown that women’s aggression (not violent responses) have been found to be equal to the levels seen in males (Hennessy and Wiesenthal, 2001; Hennessy, Wiesenthal, Wickens and Lustman, 2004). Therefore, the changing facet of Indian women and gender roles in a way strengthens the claims of socio-cultural model which provides support to the results of the present study. The research studies on gender in driving anger have also revealed non-significant sex differences (Deffenbacher *et al.*, 1994,

Lajunen *et al.*, 1998) and gender effects for anger and aggression have been found to be minimal (Deffenbacher *et al.*, 2003). In an observational study on provocation in a driving context by McGarva, Reis and Warner (2002) found female drivers to show more likelihood of expressing their anger towards a frustrating driver verbally and non-verbally as compared to their male counterparts. Many other studies (non-traffic) have also reported women becoming angry much as often and as their male counterparts, and for almost the same reasons (Archer, 1989). In an adult study of everyday experiences, Averill (1983) stated that “women reported becoming angry as often as men, as intensely, and for much the same reasons”. Bartz and Blume (1996) also observed that “men and women differ minimally in the experience, expression, and control of anger”. The demographic information assessed in the present study also revealed interesting results on other counts related to one’s driving behaviour. Regarding conformity to traffic rules, it was found that females were more likely to adhere to speed limits while driving as compared to their male counterparts, which is also supported by the research by Stradling and Meadows (1999) & Stradling (2000). They also revealed that male drivers are not only more likely to drive faster, but also more likely to commit a range of highway code violations. A number of other studies also support the present findings such as Trankle *et al.* (1990), Parker *et al.* (1995). As per this research, both male and female respondents showed an inclination to drive fast when driving alone than when in the company of friends.

In the probe related to adherence to traffic light norms, we found drastic behavioural laxity to flout the same amongst male. Some male drivers would observe traffic lights only in the presence of a policeman than when there was none, whereas female drivers conformed to the rules irrespective of the fact whether policeman was present or not. In a research by Yagil (1998) has shown that men evaluate traffic laws more negatively than women and hence have a weaker sense of obligation to comply the same. The presence of traffic on roads or vehicular density also influences the driving behaviour. During less traffic at night, male again showed a marked decline in stopping at traffic lights. One more reason can be less enforcement at night and non-stringent laws that makes one feel free to break the rules without facing adverse consequences. Probably due to fewer vehicles on roads at night, the perceived threat of road accident is also considerably reduced. The results also revealed that male drivers were issued more challans or obtained tickets from police for violating traffic rules as compared to females. Waller *et al* (2001) also observed that men are twice more likely than women to breach regulations and receive citations from the police. Research done by Yagil (1998) in Israel among university students, has also revealed that female drivers have a stronger sense of obligation to obey traffic laws, and also evaluated traffic laws positively.

To find out the cell phone usage during driving, the participants were asked about their indulgence in the same behaviour when behind the wheel. Despite of being aware of its dangerous consequences, approximately one-fourth of both male and female drivers confessed about its usage while driving. A survey of 1,000 drivers and motorcyclists conducted in UK (Green Flag, 2000) found that 37% used a

mobile phone while driving, one third of whom confessed that do use it ‘often’. In order to have some insight into ‘road rage’ where confrontations and conflict among drivers on roads escalate to unprecedented proportions, questions related to verbal and physical conflict were probed. It was found that nearly 50 percent of the drivers, both male and female, have been engaged in some or the other form of conflict on roads. The likelihood to indulge in a verbal confrontation with the other road user was more among both male and female drivers than in a physical conflict. This is in line with the results of Deffenbacher *et al.* (2001) who has also observed that men and women did not differ in expressing their anger through verbal aggression and using their vehicles to express anger, or adaptive/constructive expression. However, this study also revealed that more males indulged in physical conflict compared to females.

On enquiring about whether the respondents considered their cars as their ‘territory’, it was found that females were higher and felt it more ‘strongly’ than males. However, the results are contradictory to earlier researches where males have been found to be higher on this aspect. For instance, Marsh & Collett (1986) in their research observed an aspect of ‘territorial imperative’, unfolding the idea that humans too like animals display this instinct of protecting their territory. They associated aggressive defence behaviour to explain the high levels of aggression displayed by men when driving. The possible reasons again for the same could be the anonymity which driving environment provides. On asking about the passion for driving, males confessed being more passionate than the female drivers. This study provided an interesting insight into the driving behaviour of urban Indian youth where males are more passionate about driving but also prone to flouting traffic rules and getting more tickets/challans than their female counterparts. The female drivers, on the other hand, are emotionally involved with their possession of car and consider it as their personal territory. However, when it comes to anger while driving there does not seem to be any gender disparity. To conclude, the findings of the present investigation suggest that there exist almost negligible gender differences on driving anger which can be due to the changing gender roles in our society and certain features of a driving environment. There are, however, certain limitations of this study wherein only the driving behavior of urban youth was studied. Similar studies on youngsters coming from the rural background can be done. For future research, self report measures along with the observational data and simulation studies can provide more in-depth information. Additional research in this area is required to gain better understanding of behavioural issues in the Indian context. More research into the gender differences on driving anger and further probing into the causation of the same can be quite useful.

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