CHAPTER VII
DISCUSSION

The aim of present investigation was to assess the role of driving anger, vengeance, boredom proneness and sensation-seeking in propensity towards unsafe driving. Impulsiveness as an additional variable in relation to unsafe driving and other variables was also studied. The objective was also to understand as to how these psychological variables differed amongst gender, traffic offenders and non-offenders and two-wheeler and four-wheeler drivers.

A sample of four hundred drivers in the age group of 18-23 years was selected. The sample was further sub-divided into three broad categories i.e. on the basis of traffic offence status (i.e. traffic offender or non-offender), by their gender (i.e. male and female drivers) and by the type of vehicle they drive i.e. two-wheeler or four-wheeler. Traffic offenders were those individuals who had committed at least two moving traffic violations (i.e. traffic offence while the vehicle is still in motion) in contrast to non-offenders who had not received challan/traffic ticket for any of the violation so far. On the basis of aforementioned three major categories, a set of twenty-six groups emerged viz. males, females, traffic offenders, non-offenders, two-wheeler drivers, four-wheeler drivers, male offender, female offender, male non-offender, female non-offender, male two-wheeler drivers, female two-wheeler drivers, male four-wheeler drivers, female four-wheeler drivers, offender two-wheeler drivers, offender four-wheeler drivers, non-offender two-wheeler drivers, non-offender four-wheeler drivers, male offender two-wheeler drivers, female offender two-wheeler drivers, male offender four-wheeler drivers, female offender four-wheeler drivers, male non-offender two-wheeler drivers, female non-offender two-wheeler drivers, male non-offender four-wheeler drivers and female non-offender four-wheeler drivers. The analysis attempted to understand relationships of various groups through correlational analysis, by delineating the predictors of unsafe driving through multiple step-wise regression analysis and by understanding the gender and group differences (traffic offenders/non-offenders and two-wheeler/four-wheeler drivers) among the sample of drivers through 2 x 2 x 2 ANOVA (with two levels of gender, traffic offender or non-offender and type of vehicle driven) and t-test analysis was also applied.
**Correlation analysis**

Correlation analysis was conducted to find out relationship of various variables with unsafe driving. All groups were assessed on driving anger, vengeance, boredom proneness, sensation-seeking and impulsiveness and their role in unsafe driving. The overall picture that emerged from this analysis revealed positive relationship of unsafe driving with all the variables under study, though partially in certain groups.

**Unsafe driving and driving anger**

As per the hypothesis (H1), a positive relationship was expected between Unsafe driving and driving anger in all the groups of drivers (H1). The findings of the present study revealed positive correlation between Unsafe driving and driving anger on the total sample, as well as among groups of males (viz. male offenders, male four-wheeler drivers, male offender two-wheeler drivers, male offender four-wheeler drivers), traffic offenders (viz. offender four-wheeler drivers) and four-wheeler drivers. However, non-significant results on correlation was found among all groups of female drivers (viz. female offender, female non-offender, female two-wheeler driver, female four-wheeler driver, female offender two-wheeler driver, female non-offender two-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver), non-offenders, two-wheeler drivers, certain groups of male drivers who were predominantly non-offenders and two-wheeler drivers (viz. male non-offenders, male two-wheeler drivers, male non-offender two-wheeler drivers and male non-offender four-wheeler drivers), non-offender two-wheeler and offender two-wheeler drivers. Therefore, the positive correlation was supported in some of the groups of drivers while not supported in other groups. Hence, the hypothesis (H1) was partially supported.

Several studies have supported the positive correlation between Unsafe driving and driving anger (Dahlen & White, 2006; Mesken, Hagenzieker, & Rothengatter, 2008), with anger being the only mood state related to speeding while driving (Arnett et al., 1997). Drivers engaging in unsafe driving were also found to be higher on anger, aggression, risk-taking, impulsiveness, social irresponsibility and sensation-seeking (Arnett et al., 1997).

The findings of the present investigation supported positive correlation between Unsafe driving and driving anger on certain groups of drivers. This could be because driving anger is relatively frequent outlet of negative emotions (Nesbit, Conger, & Conger, 2007), with its
occurrence not uncommon in India too (Chakrabarty, Srivastava, Tariq & Vaijayanthee, 2009). As per the social learning theorists, these responses are learned via observation or imitation of significant social role models, media, or on-road experiences (Grey, Triggs, & Haworth, 1989). Since its portrayal in the media is also depicted as acceptable, it is more likely to be imitated and expressed readily by the drivers, especially the youngsters. At the same time, the positive correlation among some of the groups and not all of them can be due to the fact that conceptually, anger is more likely to be motivated and directly related to aggressive tendencies. On the other hand, unsafe driving is determined by several other factors as well, other than anger or aggressive tendencies (Deffenbacher et al., 2001).

Positive relationship of driving anger with unsafe driving among males has been supported by several studies (Dahlen et al., 2005; Deffenbacher et al., 2000; Deffenbacher et al., 2003). The present study also found positive correlation between Unsafe driving and driving anger among males and their groups which might be due to the fact that males have been found to be higher on 'trait anger' (a personality disposition) as compared to the females (Maxwell, Sukhodolsky, Chow, & Wong, 2005). As per the 'state-trait' theory also (Cattell & Scheier, 1961), those individuals who are high on trait anger are more likely to perceive and interpret the situations (i.e. ‘the state’) as anger-provoking, thus resulting in aggressive reaction on roads. Females, on the other hand may experience anger while driving but it may not necessarily manifest into unsafe driving. This was further explained in a study where driving anger was found to be distinct from aggressive driving (which is a part of unsafe driving), the former being an emotional construct which may or may not lead to the latter (Lonczak et al., 2007).

As per the findings of the present study the traffic offenders also revealed positive correlation between Unsafe driving and driving anger. Anger is considered as a personal attribute of offenders (Blackburn, 1993) and, as per a study, drivers who are high on anger, aggression, risk-taking, impulsiveness, social irresponsibility and sensation-seeking are also more likely to engage in unsafe driving (Arnett et al., 1997). These findings are also in line with a study done in Britain which also revealed positive correlation of driving anger with unsafe driving among traffic offenders (Smith et al., 2006). Since anger among offenders is quite common, the positive relationship of driving anger with unsafe driving among traffic offenders is further validated in contrast to the non-offenders.
The present study also revealed positive correlation of driving anger with unsafe driving among four-wheeler drivers which could be safely attributed to the anonymity that a protective cage of a car offers in contrast to a two-wheeler driver. Anonymity helps in expression of negative emotions which is otherwise restricted or thwarted from the fear of identification (Ellison-Potter et al., 1995), and since four-wheeler drivers have this advantage over two-wheelers, one can understand the positive relationship between Unsafe driving and driving anger. Another probable reason for the positive correlation among four-wheeler drivers could be the situational determinants like traffic congestion. During congestion on roads, two-wheeler drivers can easily maneuver between different vehicles due to less road space they need. Therefore, they are also less likely to get angry as compared to a four-wheeler driver which also supports the finding of the present study.

Therefore, since correlation was positively supported among certain groups, the hypotheses (H1) which expected positive correlation between Unsafe driving and driving anger was partially supported.

Unsafe driving and vengeance

Another variable which is closely related to driving anger and aggression on roads is vengeance, and this psychological variable was also studied in relationship to unsafe driving. Hence, hypothesis (H2) was framed which expected a positive correlation between Unsafe driving and vengeance in all groups of drivers. The findings of the present study revealed positive correlation between Unsafe driving and vengeance in overall sample, among males and majorly all the groups of male drivers (viz. male offender, male non-offender, male two-wheeler driver, male four-wheeler driver, male offender two-wheeler driver, male non-offender two-wheeler driver) except its two groups i.e. male offender four-wheelers and male non-offender four-wheeler drivers. The results of majority of females and its groups (viz. female non-offender, female two-wheeler driver, female four-wheeler driver, female offender two-wheeler driver, female non-offender two-wheeler driver, female non-offender four-wheeler driver) also revealed positive correlation between Unsafe driving and vengeance. While non-significant results on correlation between Unsafe driving and vengeance were found among groups of female offenders, female offender two-wheeler drivers, female offender four-wheeler drivers and female non-offender two-wheeler drivers. Positive correlation between Unsafe driving and vengeance
was also found among traffic offenders, non-offenders and its groups (viz. offender two-wheeler driver, non-offender two-wheeler driver, offender four-wheeler driver, non-offender four-wheeler driver), two-wheeler and four-wheeler drivers. Hence, since some of the groups of males and females revealed non-significant results on correlation between Unsafe driving and vengeance while, it was fully supported on the total sample, among groups of traffic offenders, non-offenders, two-wheeler and four-wheeler drivers. Therefore, the hypothesis (H2) was partially supported.

The positive correlation of vengeance with unsafe driving has been found in various studies with people holding a vengeful attitude and getting provoked easily on minor infractions, and consequently engaging in aggressive and violent behaviour (Deffenbacher et al., 1994; Stuckless et al., 1995). The positive relationship between Unsafe driving and vengeance behaviour have also been supported in several other studies (Hennessy & Wiesenthal, 2001, 2002, 2005)

Exploring the reasons for present findings, the frustration-aggression model (Dollard, Doob, Miller, Mowrer & Sears, 1939) helps to describe the same. As per this theory, aggression experienced in a driving context can either be directed at the frustrator or displaced on someone of a lesser status, where both situations reflect retaliation and vengeance on roads. Drivers experiencing vengeance often resort to unsafe driving (i.e. reckless driving, driving in a riskier manner) in order to get even with the driver who caused perceived harm. This is also supported by a study where vengeful drivers were found to react in an aggressive manner towards the perceived transgressor if they felt they have been unjustly treated, violated, or offended in any manner (Wiesenthal et al., 2000).

Results of majority of male and female groups supported positive correlation between Unsafe driving and vengeance. Several studies support the positive relationship between Unsafe driving and vengeance among males (Hennessy & Wiesenthal, 2002, 2005; Wiesenthal et al., 2000) and also among female drivers (Hennessy & Wiesenthal, 2002, 2005). The reason for positive relationship between Unsafe driving and vengeance among both male and female drivers could be due to the fact that expression of vengeful feelings in a driving scenario is either witnessed in forms of mild driver aggression or driver violence. The mild driver aggression has been reported by both male and female drivers while driver violence on the other hand has been
found to be more pervasive among male a driver (Hennessy & Wiesenthal, 2002) which explains Unsafe driving and vengeance among both males and females.

Among traffic offenders and non-offenders, positive correlation between Unsafe driving and vengeance was also found. The reason among traffic offenders could be due to the desire of vengeance (DoV) which is the underlying reason behind most of the criminal behaviour (Ohlsson & Ireland, 2011; Pardini, 2011). Vengeance is often observed to be a significant contributor to vehicular homicides (Glaeser & Sacerdote, 2003). Among non-offenders however, the reason for positive correlation between Unsafe driving and vengeance could be traced from studies done on normal population i.e. drivers who are young and have not committed any traffic offences. In these studies a direct association was found between perceived behavioural control and perception of risk (Sutton, McVey, & Glanz, 1999), with individuals having high sense of control perceiving higher risk and vice-versa. Since behavioural control is determined by one's age, young drivers are found to be low on sense of control and therefore, perceive less risk which explains their indulgence in unsafe driving behaviour (Forward, 2009). Another probable reason for positive correlation between Unsafe driving and vengeance among non-offenders could be a belief system that the law cannot (or will not) do anything about the perceived injustice suffered, hence, retaliation appears better alternative (Dukes, Clayton, Jenkins, Miller, & Rodgers, 2001).

The correlation between Unsafe driving and vengeance was also found to be positive among both two-wheeler and four-wheeler drivers which reflects that they are likely to express their vengeful feelings by resorting to unsafe driving. The findings of present study can be understood from the fact that increased number of vehicles on roads with significant less improvement in number of public roads and highways (Ponnaluri, 2012; Taylor, 1997), the competition for space, congestion levels, and potential sources of frustration, irritation, and stress have escalated enormously (Hennessy & Wiesenthal, 1997; Novaco et al., 1990). Thus, rage, violence and vengeance are the result of driving on roads on which several vehicles share the same space. Provocation is also one of the reasons which works as a situational instigator (situations acting as an escalator of negative emotions) among young drivers (Berkowitz, 1993; Geen, 1990), increasing the probability of Unsafe driving and vengeance.

The reasons for non-significant results on correlation among certain traffic offender groups (viz. female offender, female offender two-wheeler driver, female offender four-wheeler driver and male offender four-wheeler driver) who had received traffic tickets for violations
earlier, traffic offence might act as a negative reinforcer as per the learning theory, discouraging the driver to consciously avoid in such acts. However, the non-offender groups of female non-offender two-wheeler driver, and male non-offender four-wheeler driver also revealed non-significant correlation between Unsafe driving and vengeance which could be due to the fact that they might be more tolerant, trying to avoid confrontation and not affected by attribution bias that makes one vulnerable to vengeance on roads.

Hence, as the findings of the present study revealed positive relationship between Unsafe driving and vengeance in some groups of drivers, the hypotheses (H2) was partially supported.

Unsafe driving and boredom proneness

Another psychological variable studied in relation to unsafe driving was boredom proneness where as per the hypothesis framed (H3), a positive relationship was expected between unsafe driving and boredom proneness in all groups of drivers (H3). The findings of this study revealed positive correlation between Unsafe driving and boredom proneness among total sample, males and its groups (viz. male offender, male non-offender, male two-wheeler driver, male four-wheeler driver, male non-offender two-wheeler driver, male offender four-wheeler driver), female and its groups (viz. female offender, female non-offender, female four-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver), traffic offender, offender four-wheeler driver, non-offender and its groups (viz. non-offender two-wheeler driver, non-offender four-wheeler driver), two-wheeler and four-wheeler drivers, results of positive correlation between Unsafe driving and boredom proneness emerged. While some of the groups of males (viz. male non-offender four-wheeler driver, male offender two-wheeler driver), females (viz. female two-wheeler driver, female non-offender two-wheeler driver, female offender two-wheeler driver) and offender two-wheeler driver revealed non-significant correlation between Unsafe driving and boredom proneness. Since the findings of the present study revealed positive correlation between unsafe driving and boredom proneness among certain group of drivers, the hypothesis (H3) was partially supported.

The theoretical framework that provides explanation for this positive correlation is the 'Theory of Flow' (Csikszentmihályi, 1990). This theory asserts that flow is a state of focused concentration which is almost similar to being ‘in the zone’, when an individual is fully immersed in the activity involved. This is likely to happen when there is a balance between the
levels of ability and challenge faced, resulting in a sense of personal control. However, if there is a distortion or an under stimulation between these two levels, then there is bound to be apathy, anxiety or boredom (Csíkszentmihályi, 1988, 1990). In these situations where the flow is unlikely to happen, the motivation to seek stimulation is to reduce boredom (i.e. arousal-seeking occurs leading to unsafe driving) (Apter, 1982; Csikszentmihalyi, 2002; Hebb, 1955).

In the present exploration, majority of male and female drivers revealed positive relationship between Unsafe driving and boredom proneness. Several studies have revealed positive correlation among males (Burns & Wilde, 1995; Dahlen & White, 2006) and females (Arnett, 1990; Furnham & Saipe, 1993; Verwey & Zaidel, 2000). As boredom susceptibility indicate lack of stimulation, the reason for positive correlation between Unsafe driving and boredom proneness among both men and women could perhaps be the absence of external stimuli like novelty, monotonous driving or repetitiveness. Such factors are likely to produce motor restlessness, exploration and response variability leading to unsafe driving (Smith, 1981). Since stimulation plays a key role where young drivers as compared to the old drivers, get bored quickly (Csikszentmihalyi, 2002), the craving for stimulation to get away from boredom by indulging in unsafe driving makes them vulnerable.

Probing for reasons for positive correlation between Unsafe driving and boredom proneness among traffic offenders and non-offenders, it might be that youngsters who are not conscientious (like offenders) are more likely to suffer boredom while driving (Heslop, 2014). It has also been found that the activities that offenders indulge in should be rewarding, because less challenging conditions reflect less concentration, less focus, low personal control and without much payoff (Jonah, 1997). Similarly among non-offenders, the low challenging conditions with more monotony also hamper the enthusiasm for driving where drivers who are not enthusiastic have also been found to suffer boredom while driving (Heslop, 2014).

Positive correlation between Unsafe driving and boredom proneness among two-wheeler and four-wheeler drivers was also found. Accounting for reasons for the same, as boredom is related to under-stimulating and personally uninteresting environment (Davies & Parasuraman, 1982; Davies, Shackleton, & Parasuraman, 1983; Fitts & Jones, 1961; Geiwitz, 1966; Hendrick, 1983; Perkins & Hill, 1985), a driver would often resort to seek stimulation by engaging in risky or unsafe driving through maneuvering of vehicle whether it is a two-wheeler or a four-wheeler.
However, reason for positive correlation only among certain group of drivers and not all of them in the present study can be possibly because certain individuals might not experience boredom due to the heterogeneity of traffic in India (Joshi, Sinha & Patel, 2011). The diversity of vehicle population where different type of vehicles ply on the same road might not give them a room to feel bored since maneuvering among vehicles need vigilance, while others may resort to variety of distractions like turning on the music when feeling bored, air conditioner when feeling hot and like, therefore compensating for their feeling of boredom instead of indulging in unsafe driving.

Therefore, as the findings of the present study supported positive correlation between unsafe driving and boredom proneness in some of the groups of drivers, the hypothesis (H₃) was partially supported.

Unsafe driving and sensation-seeking

Another psychological variable studied in relation to unsafe driving was sensation-seeking which reflects the tendency in an individual to seek varied, novel, complex and intense experiences irrespective of the physical, social, legal or financial costs and risks it may entail (Zuckerman, 1994). The findings of this study revealed positive in almost all groups of drivers except two groups i.e. female offender two-wheeler driver, and female offender four-wheeler driver. Hence, the hypotheses (H₄) which expected positive correlation between unsafe driving and sensation-seeking was supported in all the groups of drivers except these two groups of female offender two-wheeler driver and female offender four-wheeler drivers.

Positive correlation between unsafe driving and sensation-seeking have been supported by several studies (Cestac, Paran, & Delhomme, 2011; Dahlen et al., 2005; Dahlen & White, 2006; Jonah, 1997; Schwebel et al., 2006; Zuckerman, 2007).

The positive relationship between unsafe driving and sensation-seeking among majority of drivers as per the finding of this study can also be explained by the theory of 'Yerkes-Dodson law' (1908) which supports a strong relationship between arousal and performance. As per this law, an optimal level of arousal should be maintained in order to have an optimal performance throughout. Hence one's performance increases with physiological or mental arousal, but only up to a certain level, after which it starts diminishing. Since the threshold level of arousal among young drivers is too high that in a bid to reach that threshold, performance or driving potential is
adversely affected leaving more room for errors and lapses (Roberti, 2004). Strong association of
sensation-seeking with unsafe driving behaviour is well established among young drivers, where
sensation-seeking tendency has been found to attain its peak in late adolescence or early twenties
(Arnett, 2002; Zuckerman, 1994).

As per the findings of this study, positive correlation between unsafe driving and
sensation-seeking among both groups of males and females were found. This is in line with
several studies done among males (Dahlen et al., 2005; Dahlen & White, 2006; Schwebel et al.,
2006) and females (Dahlen et al., 2005; Jonah, 1997; Jonah et al., 2001). As per the evolutionary
psychologists, sensation-seeking, which was earlier reckoned as a 'trait' exclusive to males, is
now found to exist among females as well (Cross, Cyrenne, & Brown, 2013). The social learning
theorists believe that this change in trend is due to the role of genetically influenced traits that are
being amplified or countered through cultural processes (Wood & Eagly, 2012). Hence, due to
the socialization and emerging cultural patterns, diminishing gender distinctness with both male
and females showing equal participation in thrill-seeking activities reflect positive correlation
between males and female drivers supporting the findings of the present study (Cross et al.,
2013).

Traffic offenders and non-offenders also revealed positive correlation between unsafe
driving and sensation-seeking in the present study which is also in line with the other studies
(Jonah, 1997; Renner & Anderle, 2000; Ulleberg, 2002). The explanation for positive
correlation of sensation-seeking with unsafe driving among traffic offenders and non-offenders
can be traced to the Wilde’s risk homeostasis theory (Wilde, 1982). This theory asserts that
young drivers irrespective of the fact that whether they are traffic offender or not, are high on
sensation-seeking and are risk-tolerant, trying to match their driving behaviours to personally
preferred higher states of arousal. These drivers have also been observed as endorsing the belief
that their driving is safe (NHTSA, 1996), which further explains their over indulgence in unsafe
driving. Another reason for positive correlation between unsafe driving and sensation-seeking
among these group of drivers is probably because sensation-seeking can be related to Western
ideas about masculinity and being a "skillful driver" (Naatanen & Summala, 1976).

The present investigation also found positive correlation of sensation-seeking with unsafe
driving among two-wheelers as well as four-wheeler drivers. The reason probably for the same
could be that roads in Chandigarh follow uniform street grid pattern (DeHolanda & Medeiros,
2012) which suits sensation-seeking youngsters. These results also reflect that it is the personal attribute of individuals which matters more than the type of vehicle one drives and if the driver has sensation-seeking tendency, he/she can express it irrespective of the fact that whether one drives a two-wheeler or a four-wheeler vehicle.

However, two groups that did not reveal positive correlation between unsafe driving and sensation-seeking were of female offender two-wheeler driver and female offender four-wheeler driver. The reason for the same among these female offenders could be attributed to the concept of positive punishment of learning theory of operant conditioning (Skinner, 1938), where the traffic challans/ticket might serve as a punisher discouraging similar traffic violations. These female offenders might be learning to escape an adverse situation of being caught by traffic police. Thus, they might be more conscious of the adverse consequences of driving in an irresponsible manner and hence the non-significant correlation between unsafe driving and sensation-seeking. There is also a possibility that these group might have elicted social desirable responses.

Hence, as per the findings of this study, the hypothesis (H₄) was supported in all the group of drivers except female offender two-wheeler driver and female offender four-wheeler drivers.

Unsafe driving and impulsiveness

Another variable studied in context to unsafe driving was its relationship with impulsiveness. Impulsiveness portrays a tendency of lack of reflectiveness and planning, carelessness, rapid decision-making and action (Schalling, 1978). Like sensation-seeking, impulsiveness too shared a positive correlation with unsafe driving among majority of group of drivers. As per the hypothesis (H₃), a positive relationship was expected between Unsafe driving and impulsiveness in all groups of drivers. The findings of the present study also supported positive correlation among all the group of drivers except two groups i.e. female offender four-wheeler drivers and female non-offender two-wheeler drivers.

In a driving context, it has been found that drivers who are impulsive, are more likely to indulge in risk-taking behaviour by reacting immediately without thinking about the stimuli (Arthur & Doverspike, 2001; Dahlen et al., 2005; Schwebel et al., 2006).
The reason behind positive correlation between Unsafe driving and impulsiveness in majority of group of drivers can be because young drivers tend to engage in reckless and risky driving due to their impulsive actions (Smart, Vassallo, & Sanson, 2005). Also, an impulsive action brings a sense of vigour and freedom to the human experience (Dickman, 1990; Hansen & Breivik, 2001). Young and novice drivers, thus, may not be able to distinguish and demarcate a thin line where unfettered impulse leads to violation of social norms (Cooper, Wood, Orcutt, & Albino, 2003; Lynam, 1996). Therefore, the drivers may endorse impulsive action without much regard to the consequences involved due to lack of experience and desire for freedom, and hence adversely affecting their individual and social well-being (Tangney, Baumeister, & Boone, 2004).

The theoretical framework of bounded and unbounded rationality (Sivak, 2002) aims to provide an explanation for impulsiveness. Bounded rationality is a decision-making process that occurs within the paradigm of limited information i.e. the cognitive limitations of one's mind, and the time available to make the decision. Whereas unbounded rationality indicates no limitations on the decision-making process. This theory points out that in a driving scenario it is not possible to consider all the choices while making decisions due to limited cognitive capacity and lack of experience. Therefore, 'bounded' rationality is used i.e. acting impulsively based on a criterion gap which we consider safe based upon our limited past experience, responding accordingly. Hence, due to the less driving experience of young drivers, and influx of varied information, the brain is unable to process and distinguish safety norms and there is a possibility that young drivers may take decisions within the realm of bounded knowledge resulting in faulty decisions while driving.

All groups of male and female drivers (except its two sub-groups, viz. female offender four-wheeler and female non-offender two-wheeler) revealed positive relationship between Unsafe driving and impulsiveness. This is in line with several studies done among young and middle aged men, where personality traits of impulsiveness, extroversion and social deviance was associated with driver safety problems (Fine, 1963; Hansen, 1988; Lawton et al., 1997; Panek, Wagner, Barrett, & Alexander, 1978; Renner & Anderle, 2000). The positive correlation between Unsafe driving and impulsiveness among female drivers has also been supported in other studies (Dahlen et al., 2005; Stanford et al., 1996) confirming the positive association of impulsiveness with unsafe driving among females as well.
The relationship between Unsafe driving and impulsiveness among males and its group of drivers can be justified by the fact that these drivers often tend to have a lower risk perception which supports their indulgence and modulate the occurrence of unsafe driving behaviour (Beirness, 1993; Deery, 2000; Jonah, 1986; Ryb, Dischinger, Kufera, & Read, 2006). The reason behind positive correlation of impulsiveness with unsafe driving among females could be due to the fact that they might resort for impulsive selection of poor alternative options due to lack of experience, ignorance about the consequences of their actions, or guided by some lower principle (i.e. the devil, repetition compulsion, classical conditioning) (Ainslie, 1975). Other reasons could be reacting instantaneously without much forethought due to lack of maturity and driving experience.

In other studies, impulsiveness has also been found to be positively related to unsafe driving practices among traffic offenders (Komarovskaya, Loper, & Warren, 2007; Smith et al., 2006). Among non-offenders as well, positive correlation between Unsafe driving and impulsiveness was found. A study also supported positive correlation between Unsafe driving and impulsiveness i.e. driving without seat belts, drunken driving, drug use and driving aggressively (Stanford et al., 1996). The reason could be that young drivers were found to underestimate the probability of specific risks caused by traffic situations (Brown & Groeger, 1988; Deery, 2000), overestimating their driving skills (Moe, 1986), and wrongly perceiving themselves as safe and insusceptible to negative consequences (Milstein, 1993). Hence, lesser the feeling of vulnerability more is their propensity to take risks, often impulsively, leading to unsafe driving.

Among two-wheeler and four-wheeler drivers, positive correlation was observed between Unsafe driving and impulsiveness, since majority of male and female drivers, traffic offenders and non-offenders reported positive correlation. Hence, it is the personality of the individuals per se and not the type of vehicle driven that determines his/her one's propensity towards Unsafe driving and impulsiveness.

The groups that did not reveal positive correlation between Unsafe driving and impulsiveness were that of female offender four-wheeler driver and female non-offender two-wheeler drivers. The reason for the same could be that this group of female offender four-wheeler driver who also did not report positive correlation between unsafe driving and sensation-seeking might be more conscious of the adverse consequences of driving in an irresponsible
manner. However, among female non-offender two-wheeler drivers, this group be more conscientious about driving, feel more vulnerable as compared to their four-wheeler counterparts and the fear of being caught by traffic police if found driving in a risky manner.

Hence, as majority of drivers revealed positive correlation between Unsafe driving and impulsiveness, the hypothesis (H₅) was supported except among female offender four-wheeler drivers and female non-offender two-wheeler drivers.

Driving Anger and Vengeance

While studying the inter-correlation among different variables, hypothesis for relationship between driving anger and vengeance was framed (H₆). The findings of the present study found positive correlation between driving anger and vengeance on the entire sample, predominantly males category irrespective of the offence levels, or the type of vehicle being driven (viz. male, male offender, male non-offender, male two-wheeler driver, male four-wheeler driver, male offender two-wheeler driver, male offender four-wheeler driver). However, the exception was among male non-offenders of both the two-wheeler and four-wheeler categories, understandably because non-offenders are usually safe drivers and hence non-significant results. Similarly, female group both offenders and non-offenders driving either a two-wheeler or a four-wheeler had shown non-significant results proving these two psychological factors are positively correlated predominantly among male drivers (viz. female, female offender, female non-offender, female two-wheeler driver, female four-wheeler driver, female offender two-wheeler driver, female non-offender two-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver). The results of traffic offender and its groups (viz. offender two-wheeler driver, offender four-wheeler driver), non-offenders, two-wheeler and four-wheeler drivers also revealed positive correlation between driving anger and vengeance with the exception of non-offender two-wheeler driver and non-offender four-wheeler driver. Hence, as the results among many groups revealed positive correlation while other groups found non-significant results on correlation between driving and vengeance, the hypothesis which expected positive correlation between driving anger and vengeance in all the group of drivers (H₆) was partially supported.

Reflecting on the review of literature, positive relationship between anger and vengeance was supported by Rooy, Rotton and Burns (2006), among studies on anger and driving violence
(Deffenbacher et al., 2001; Deffenbacher et al., 2002; Deffenbacher et al., 2003; Lajunen & Parker, 2001) and in other studies where vengeful drivers were found as having less ability to control anger (Hennessy & Wiesenthal, 2005; Wiesenthal et al., 2000). Reasons for the same could be that many angered individuals express their vengeful feelings through the vehicle in which they feel anonymous and safe. Moreover, the reason for positive correlation between driving anger and vengeance could be due to the "hostile attribution bias" (an interpretive bias), where actions of other drivers are wrongly construed as hostile and deliberate to cause some sort of stress, distress, or harm (Camodeca, Goossens, Schuengel, & Terwogt, 2003; Crick & Dodge, 1996) making the drivers prone towards vengeful feelings and acts. It therefore reflects a tendency to perceive hostile intent on the part of others even when it is really lacking (Baron & Richardson, 1994). This bias misinterprets perception of other's behaviour as personally vindictive. However, in some contradictory findings (Ellison-Potter, Bell & Deffenbacher, 2001), the anger was not found manifesting into vengeance.

The results of the present study found positive correlation between driving anger and vengeance among males while the same was not supported by females or any of its groups. A study also supported positive relationship between vengeance and anger among males where vengeance was found to increase even with mild driver aggression leading to violence on roads (Hennessy & Wiesenthal, 2002). The reason for same could be that males have been found to be higher on 'lust for vengeance', by experiencing greater satisfaction in revenge (Knight, 2006) than their female counterparts. Females are good at sensing the impending danger and might avoid provocation on roads and also because they might feel restricted in expressing anger (in contradiction to societal expectations). The explanation for the same could be traced to the concept of 'social identity' where females are expected to behave as per societal norms.

The findings of the present investigation also supported positive relationship between driving anger and vengeance among traffic offenders and non-offenders. Among traffic offenders, the positive relationship of driving anger and vengeance was quite expected as offenders are found to be high on anger and are more likely to seek revenge (Bradfield & Aquino, 1999), also validated by the findings of another study (Hennessy, 1999). However, to gauge the relationship between vengeance and driving anger among non-offenders, studies conducted on general public i.e. among sample of university students (Stuckless & Goranson, 1992) and another one on office workers (Lepofsky, 1993) were referred. The reasons for
positive correlation between driving anger and vengeance among non-offenders could be that anger and aggression serves as a pre-requisite for vengeful thoughts and feelings (Hennessy & Wiesenthal, 2002), since anger is one of the most frequently experienced emotion while driving, any slight provocation on roads may cause anger leading to physiological arousal, aggression and consequently vengeance.

The two and the four-wheeler drivers also revealed positive correlation between driving anger and vengeance. As most of the research has been done in Western countries where most of the commuters ply on four-wheeler than a two-wheeler vehicle, several studies point out to positive relationship between the driving anger and vengeance (Hennessy & Wiesenthal, 2001; Hennessy & Wiesenthal, 2002, 2005). Although one of the research on aggression studying different type of four-wheeler vehicles i.e. commercial, old, new, high-status and low-status cars found no effect of the type of vehicle one drove and their expression of aggression on roads (Shinar & Compton, 2004), also supports the findings of the current research where positive correlation between driving anger and vengeance among both two-wheeler and four-wheeler drivers was found. This reflects that the type of vehicle may not be a pre-requisite to determine relationship between anger and vengeance although the intensity could vary looking into different varieties of vehicle.

However, there were certain groups where no correlation between driving anger and vengeance was observed. The major part of it comprised of the female drivers and its groups who did not reveal any relationship. The reason for the same could be that the fear of aggressive behaviour leading to retaliation has been found as diminishing general aggressive tendencies (Baron, 1973; Berkowitz, 1988). As per Eagley and Steffen (1986), females are more precise in predicting potential harm for the dire consequences. On this, Geen and Stonner (1972) have observed that vengeful aggression lessens when people are made aware of the probable danger with regard to their actions. Hence, female drivers may demonstrate less violence if they perceive a greater potential for risk and personal injury as compared to the males. Since, the findings of the present study supported positive correlation between driving anger and vengeance in some groups of drivers, the hypothesis (H₆) was partially supported.
Driving Anger and Boredom Proneness

The present study also investigated the relationship between driving anger and boredom proneness and it was hypothesized that driving anger and boredom proneness will be positively correlated in all groups of drivers (H7). However, the results revealed non-significant correlation in all groups of drivers not supporting the hypotheses (H7).

Some studies have found positive correlation between trait anger (i.e. personality disposition) and boredom proneness (Dahlen et al., 2004a; Rupp & Vodanovich, 1997). One of the research study revealed anger as positively correlated with one of the sub-scale of boredom proneness i.e. boredom experienced due to lack of external stimuli. However, it failed to show positive relationship with boredom proneness due to lack of internal stimuli (Dahlen et al., 2005).

The reason behind non-significant relationship between driving anger and boredom proneness as per the findings of this study could be traced to the fact that the present study did not investigate boredom proneness arising due to lack of external or internal stimuli separately. While anger may emanate from external stimuli, boredom proneness is a state of mind where the driver looks for alternate options to stimulate his senses, to keep oneself awake or engaged. The other probable reason could be that drivers facing boredom might not experience anger while driving but may resort to other behaviour like unsafe driving, sensation-seeking etc. which has been found in the results of the present study (i.e. positive correlation of boredom proneness with unsafe driving, vengeance, sensation-seeking and impulsiveness). This finding is also supported by research studies where drivers facing boredom are found to be more likely involved in seeking additional stimulation like speeding, risk-taking etc. (Csikszentmihalyi, 2002; Fisher, 1993; Hebb, 1955; Nett et al., 2010; Yerkes & Dodson, 1908), than getting involved in a negative emotion of anger.

Moreover, boredom is associated with low arousal state while getting angry in a driving context requires relatively higher arousal. Since both these states are seemingly incompatible to each other, this might also help explain the reason for their non-significant correlation. Hence, the hypotheses which expected positive correlation between driving anger and boredom proneness (H7) was not supported in any of the groups.
Driving Anger and Sensation-seeking

Inter-correlation between driving anger and sensation-seeking was also assessed and as per the hypothesis (H₈), positive relationship between driving anger and sensation-seeking was expected. However, the results of the present study found non-significant correlation between driving anger and sensation-seeking amongst the entire groups of drivers. Hence, the hypotheses (H₈) was not supported.

The results of the present study are also in line with studies where driving anger and sensation-seeking revealed non-significant correlation (Dahlen et al., 2005; Dahlen & White, 2006; Ge et al., 2014; Taubman-Ben-Ari, Mikulincer, & Gillath, 2004). However, contradictory to this, one of the study by Lonczak, Neighbors, & Donovan (2007) revealed positive correlation between driving anger and sensation-seeking.

The reason behind non-significant results on correlation between driving anger and sensation-seeking could be due to the fact that the primary motive of sensation-seeking is involvement in varied and novel activities that gives them a feeling of "high" in contrast to the driving anger which is a negative emotion experienced while driving. Thus, anger when aggravated may give rise to negative feelings i.e. venting out one's anger and aggression unlike sensation-seeking which might encourage the individual deliberately look for various stimulations. Sensation-seeking is a positive emotion though it may also lead to unsafe driving, whereas anger being a negative emotion does not corroborate any significant relationship between the two.

Therefore, as the results of the present study found non-significant correlation between driving anger and sensation-seeking amongst the entire groups of drivers, the hypotheses (H₈) was not supported.

Driving Anger and Impulsiveness

Driving anger and impulsiveness was also assessed in relation to one another. The hypothesis (H₉) was framed which expected a positive correlation between these two variables amongst all groups of drivers. The findings of the present study did not support the hypothesis since most of the groups revealed non-significant correlation between driving anger and impulsiveness except two groups i.e. four-wheeler drivers and more particularly the male four-wheeler drivers.
The researchers assert that the relationship between driving anger and impulsiveness has not been very clear (Smith et al., 2006) and often a weaker relationship has been found among them (Dahlen et al., 2005). In another study, impulsiveness was dropped as a variable as it neither show much relationship nor did it help in predicting driving anger among males and females (Lajunen & Parker, 2001). However, another study found a positive correlation between driving anger and impulsiveness (Dahlen et al., 2005). Hence, the research did so far present mixed results where few studies support the positive relationship between driving anger and impulsiveness whereas others don't.

The findings of the present study however revealed a non-significant correlation between driving anger and impulsiveness, an explanation for the same could be traced to the behavioural theory of impulsiveness and impulse control (Ainslie, 1975). This theory asserts that impulsive action is a tendency to choose and have preference for alternatives having immediate payoffs. Presumably, as driving anger does not promise any beneficial payoff, one may not resort to it. Another explanation for non-significant correlation could be that since anger is an emotional construct, impulsiveness is a complex phenomenon involving cognitive, conative and affective levels, hence, one might or might not observe any significant relationship. There was a probability that a positive relationship between driving anger and impulsiveness could have emerged had the measure of impulsive aggression was used in the present study instead of BIS (behavioural impulsiveness scale). This same limitation and observation was also pointed in another study where BIS as a measure along with DAS was used (Smith et al., 2006).

However, the two groups of four-wheeler and male four-wheeler drivers revealed a positive correlation between driving anger and impulsiveness. The reason for the same could be attributed to anonymity which a four-wheeler drivers enjoy making them express anger as compared to a two-wheeler driver. The feeling of superiority being in a high status vehicle as compared to a two-wheeler driver is probably another reason for this positive correlation between driving anger and impulsiveness.

The hypotheses (H₉) which expected a positive correlation between driving anger and impulsiveness was not supported fully except among four-wheeler and male four-wheeler drivers.
**Vengeance and Boredom Proneness**

Vengeance and Boredom Proneness was also studied in relation to one another. The hypothesis based on review of literature was framed which did not expect any relationship between vengeance and boredom proneness (H15). The results also supported the hypothesis which revealed non-significant results on correlation between vengeance and boredom proneness in majority of group of drivers except amongst two-wheeler drivers, male two-wheeler drivers, male offender two-wheeler and offender two-wheeler drivers.

The reasons for the present findings for non-significant correlation between vengeance and boredom proneness, could be traced to the Psychoanalytic theory (late 19th century). As per this theory, a vengeful act represents an apparent absence of conscience as a restraining mechanism, and conscious absence of guilt (conscious superego guilt is absent), which restrains an individual from committing any act that might be harmful in one way or other. This phenomenon is anyhow in contrast with boredom where instinctual aims and objects, such as "inhibition of fantasy", are found to be repressed because of guilt (Greenson, 1953; Socarides, 1966). As another psychoanalyst (Wangh, 1975), concurred that "inhibition of fantasy", occurs because of an unconscious fear that fantasy might lead to action of libidinal (i.e. all of the instinctual energies and desires that are derived from the id) or aggressive behaviour which might be socially unacceptable. Also, sometimes in vengeance seemingly the ego defense mechanism of displacement (involving redirection of emotional feelings from their original object to a substitute object) is used, whereby one satisfies an 'id' impulse (part of psyche which is primitive, illogical and irrational in nature) with a substitute object i.e. aggression over other drivers whereas in boredom the defense mechanism of repression is used where instinctual aims and impulses seems to be repressed. Since vengeance and boredom seem to lie in contrast to one another, it might explain the non-significant correlation between them.

However, only four groups of drivers (i.e. two-wheeler drivers, male two-wheeler drivers, male offender two-wheeler drivers and offender two-wheeler drivers) revealed positive correlation between vengeance and boredom proneness. The reason for the same could be that a male offender might resort to vengeful acts in order to seek stimulation and to break the monotony of driving. Perhaps, due to the dissatisfaction of life per se or lower self-esteem among offenders, there is a probability that they might displace their inadequacy in form of frustration on roads.
Hence, the hypothesis \(H_{15}\) was supported in majority of groups of drivers except two-wheeler drivers, male two-wheeler drivers, male offender two-wheeler drivers and offender two-wheeler drivers.

**Vengeance and Sensation-seeking**

The present research also aimed to study the relationship between vengeance and sensation-seeking. Therefore, the hypotheses \(H_{10}\) which expected a positive correlation between vengeance and sensation-seeking in all groups of drivers was framed. The findings of this study revealed positive correlation between vengeance and sensation-seeking in males, male offenders as well as non-offender four-wheeler drivers, female offenders four-wheeler drivers and female non-offender two-wheeler drivers (viz. male offender, male two-wheeler driver, male offender two-wheeler driver, male non-offender two-wheeler driver), females and its groups (viz. female non-offender, female two-wheeler driver, female offender two-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver), traffic offender and its groups (viz. offender two-wheeler driver), non-offender and its group (viz. non-offender two-wheeler driver), two-wheeler driver and four-wheeler drivers. However, some of the groups of drivers revealed non-significant results on correlation between vengeance and sensation-seeking i.e. groups of male drivers (viz. male non-offender, male four-wheeler driver, male offender four-wheeler driver, male non-offender four-wheeler driver), groups of females (viz. female offender, female four-wheeler driver, female non-offender two-wheeler driver, female offender and female non-offender four-wheeler driver), offender four-wheeler driver and non-offender four-wheeler driver. Hence, since the findings of the present study revealed certain groups of drivers supporting positive correlation between vengeance and sensation-seeking while it was not supported in other groups, the hypothesis \(H_{10}\) was partially supported.

Studies reveal that sensation-seeking tendency and vengeance is quite prevalent among youngsters (Hennessy & Wiesenthal, 2004; Jonah, 1997; Jonah et al., 2001; Wiesenthal et al., 2000). The positive correlation between sensation-seeking and vengeance was also supported with the association of the former with physical and verbal aggression which reflects vengeful acts (Joireman, Anderson, & Strathman, 2003).

Among groups of males and female drivers, the reason for positive correlation between vengeance and sensation-seeking could be the manifestation of both these behaviours needs
certain amount of risk-taking, which is found among both men and women (Gardner & Steinberg, 2005). Taking into due concern that gender gap seems to be decreasing (Byrnes, Miller, & Schafer, 1999), with not much differences found among males and females in terms of risk-taking (Galvan et al., 2007), one can generalize that it is the context that predisposes an individual towards expression of vengeance and sensation-seeking on roads (Steinberg, 2008). This in a way supports the findings of the present study.

The present investigation also found positive correlation between vengeance and sensation-seeking among traffic offenders as well as non-offenders since vengeful feelings if harnessed while driving acts as a motivator with sensation-seeking tendency facilitating the pursuit of vengeful thoughts and emotions. High sensation-seekers indulge in risky and unsafe driving (Taubman-Ben-Ari, Mikulincer, & Gillath, 2004) and therefore riskier the driving, more is the probability of driving errors and altercation on roads with other drivers. Hence, vengeful emotions and actions might become apparent. As drivers of both two-wheelers and four-wheelers also revealed positive correlation between vengeance and sensation-seeking, it can be concluded that it is the characteristic and behaviour of the driver which matters the most regardless of the type of vehicle one drives.

The findings of the present investigation revealed partial support to the positive correlation between vengeance and sensation-seeking. The reason for the non-significant correlation among certain group of drivers could be that vengeance does not always lead to sensation-seeking or vice-versa. Vengeance reflects revenge, retaliation, a negative emotion leading to the feeling of "an eye for an eye" whereas sensation-seeking is a euphoric state, a feeling of high that one yearns to experience time and again. Therefore, sensation-seeking reflects positive emotion, resulting in pleasurable experience whereas vengeance portrays negative emotion leading to negative consequences therefore some individuals might be more mindful of the repercussions involved and would not indulge in the same.

Hence, the hypothesis which expected positive correlation between vengeance and sensation-seeking in all the group of drivers was partially supported (H10).

**Vengeance and Impulsiveness**

The inter-correlation between vengeance and impulsiveness was too investigated and hypotheses (H11) was framed which expected a positive correlation between the two among all
the group of drivers. The findings of the present study revealed positive correlation between vengeance and impulsiveness on the total sample, males and its groups (viz. male offender, male non-offender, male two-wheeler driver, male offender two-wheeler driver, male non-offender two-wheeler driver), female and sub-groups (viz. female non-offender, female two-wheeler driver), traffic offender and sub-groups (viz. offender two-wheeler driver), non-offender and subgroups (viz. non-offender two-wheeler driver, non-offender four-wheeler driver), two-wheeler and four-wheeler drivers. However, non-significant correlation emerged among male offenders and non-offenders of four-wheeler drivers as well as female offender and non-offender drivers of both two-wheeler and four-wheeler drivers (viz. male four-wheeler driver, male offender four-wheeler driver, male non-offender four-wheeler driver and similarly female offender, female four-wheeler driver, female offender two-wheeler driver, female non-offender two-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver and offender four-wheeler driver), revealed non-significant correlation between vengeance and impulsiveness. Hence, the hypothesis (H11) which expected a positive correlation between the vengeance and impulsiveness in all the group of drivers was partially supported.

Positive correlation between vengeance and impulsiveness was found in a study where vengeful drivers were found to be impulsive (Hennessy & Wiesenthal, 2005; Wiesenthal et al., 2000). Several studies reflect positive relationship between vengeance and aggression (DePasquale et al., 2001), with aggression being related to impulsive tendencies and determining traffic violations such as speeding, license suspensions, and vehicular collisions (Barkley, Murphy, DuPaul, Bush, 2002; Jerome, Habinski, & Segal, 2006; Murphy & Barkley, 1996). A large body of literature has studied the role of impulsiveness in affecting behaviour (Frederick, Loewenstein, & O’Donoghue, 2002), which has found a potential link and possibility of impulsive revenge (McCullough et al., 2001).

In support to the findings of the present study, the reason behind positive correlation between vengeance and impulsiveness could be that impulsive individuals act on the spur of the moment, lack self-control and they are also more likely to act without forethought and retaliate with vengeful feelings at the perceived injustice on roads (Lajunen & Parker, 2001; Lustman, Wiesenthal, & Flett, 2010).

Majority of the groups of both males and female drivers revealed positive correlation between vengeance and impulsiveness. The reason for the same could be that since vengeance is
also equated with being competitive (Beaumont, 2006), in a male dominated society such as India where females have to compete to make their place in society (Esteve-Volart, 2004), the same tendency might reflect on roads too. Another reason for positive correlation between vengeance and impulsiveness could be that individuals who are narcissistic also exhibit vengeance and impulsiveness (Brown, 2004; Vazire & Funder, 2006) and as the research points out, young people these days are more narcissistic than they ever were (Malcolm, 2014) which reflects positive correlation between vengeance and impulsiveness among youngsters these days.

The findings of the present investigation also found positive correlation among traffic offenders as well as non-offenders. As the research points out, impulsiveness, hostility, and emotional dysregulation are highly correlated (Tharp, Schumacher, Samper, McLeish, & Coffey, 2013), hence, there is a probability of association between impulsiveness and vengeance among offenders as well, since hostility reflects vengeful acts. Among non-offenders however, vengeance signifies the need of an individual to defend oneself when attacked, therefore, the quick reaction while driving might be impulsive in nature but may however fulfill one's need to seek revenge (Reiss, 2002).

Positive correlation between vengeance and impulsiveness among two-wheeler and four-wheeler drivers was also found as per findings of the present study. Since, revenge is treated as an irresistible impulse (Rosenbaum, 2013), it might reflect among drivers irrespective of the fact that whether one drives a two-wheeler or a four-wheeled vehicle.

The present investigation also found certain groups of drivers revealing non-significant correlation between vengeance and impulsiveness. Although some acts of vengeance might be spontaneous and impulsive, others contend that revengeful thoughts and feelings often emerge after ruminative thinking about the offense (McCullough et al., 2001). Some people might be quick to express their vengeful feelings, and use direct coping response of engaging in aggression and violence with other driver or may resort to indirect coping. Moreover, impulsiveness lacks pre-meditation whereas vengeance on the other hand is pre-meditated and sometimes nursed for a long time, well-thought out, and well planned (Bakss, 2013) which also shows the stark differences among these two psychological variables.

Therefore, the findings of the present investigation found majority of drivers revealing positive correlation between vengeance and impulsiveness, the hypotheses H₁₁ was partially supported.
Boredom Proneness and Sensation-Seeking

Assessing relationship between boredom proneness and sensation-seeking, hypotheses (H_{12}) was framed which expected a positive correlation between boredom proneness and sensation-seeking. Results of all the groups of drivers revealed a positive correlation. Hence, the hypotheses (H_{12}) which expected a positive correlation between boredom proneness and sensation-seeking in all groups of drivers was fully supported.

Boredom proneness and sensation-seeking was found to be positively correlated among all the groups of drivers. The reason for the same could be that since boredom proneness is a dimension of sensation-seeking, the positive relationship was quite expected. However, in a study where these two measures were taken separately i.e. boredom was not a sub-scale of sensation-seeking, it was found sensation-seeking to be positively correlated with one of the sub-scale of boredom proneness, i.e. boredom experienced due to lack of external stimulation while it was negatively correlated with the other sub-scale of boredom i.e. boredom experienced due to lack of internal stimulation (Dahlen et al., 2004a; Dahlen et al., 2005). The positive correlation among boredom proneness and sensation-seeking have also been confirmed through several studies (Kass & Vodanovich, 1990a; Roberti, 2004; Zuckerman, 1971; Zuckerman et al., 1972; Zuckerman et al., 1978). Hence, in consensus with the review of literature, boredom proneness in the present study was positively correlated with sensation-seeking among all groups of drivers.

As the optimal level of arousal theory puts forth, an individual seeks arousal and stimulation, and where there is lack of the same, one makes a deliberate effort to compensate by indulging in risky activities. A large body of literature has also supported this viewpoint that if a driver tends to get bored, he/she may indulge in variety of activities and responses like search for stimulation in order to obtain a flow state (Berlyne, 1960; Bryant & Zillman, 1984; Dyer-Smith, 1992; London et al., 1972; Mikulas & Vodanovich, 1993; Molstad, 1986). Hence to ward off boredom, individuals are found to indulge in various sensation-seeking activities where safety margins are often compromised (Heslop et al., 2010). This explanation therefore, helps us understand the positive association between sensation-seeking and boredom proneness.

Hence, the hypotheses (H_{12}), which expected a positive correlation between boredom proneness and sensation-seeking among all groups of drivers was upheld.
Boredom Proneness and Impulsiveness

The relationship between boredom and impulsiveness was too assessed where boredom proneness and impulsiveness was expected to be positively correlated (H13). The findings of this study supported the hypothesis (H13) with most groups revealing positive correlation between boredom proneness and impulsiveness except both male and female offenders of two-wheelers and non-offenders of four-wheeler drivers (i.e. male non-offender, male offender two-wheeler driver, male non-offender two-wheeler driver, male non-offender four-wheeler driver, female offender two-wheeler driver and female non-offender four-wheeler driver). Hence, the hypothesis (H13) was partially supported.

Positive correlation between boredom proneness and impulsiveness has been validated in few studies (Dahlen et al., 2004a; Watt & Vodanovich, 1992). Empirical research has also yielded significant correlations between boredom proneness and impulsiveness (Watt & Vodanovich, 1992).

Supporting the positive correlation between sensation-seeking and impulsiveness among majority of groups, Otto Fenichel's classic essay (1934), "The Psychology of Boredom" defined boredom as "an unpleasurable experience of a lack of impulse" (p. 292) signifying a close relationship between boredom and impulsiveness. The reason for positive relationship between boredom and impulsiveness can be due to the fact that boredom is “a state of relatively low arousal and dissatisfaction, which is attributed to an inadequately stimulating situation” (Mikulas & Vodanovich, 1993, p. 3). Therefore, in an attempt to prevent boredom whatever choice comes forth is readily and impulsively accepted. This is also supported by the fact that individuals experiencing boredom are found to be more impulsive due to their need for novelty and stimulation (Dahlen et al., 2004a).

The present investigation also found positive correlation between boredom proneness and impulsiveness among certain groups of males and females. Reflecting on the relationship between these two variables, as evident in consumer behaviour, impulse purchase among consumers has also been found to ward off boredom (Gardner & Rook, 1988). As boredom is a negative emotional state, it has been found that whether an individual is depressed, frustrated or bored, impulse buying reflects an effective tactic for breaking out of an undesirable mood state (Gardner & Rook, 1988). Hence, since boredom leads to impulsive behaviour, both of these traits seem to be interrelated.
Traffic offenders and non-offenders also reported positive correlation between boredom proneness and impulsiveness in the present study. The reason for the same among offenders could be that boredom is often cited as a hidden motive for destructive impulse (Sandywell, 2012). As offenders have a violent tendency with a heightened feeling of vengeance in comparison to others (Hall, 2013), a destructive impulse could be the root cause for it. Among non-offenders however, the reasons cited above for all the young drivers could provide an explanation for positive correlation between boredom proneness and impulsiveness. In the present investigation, the two-wheeler and four-wheeler drivers also revealed positive correlation between boredom proneness and impulsiveness nullifying the impact of type of vehicle one drives on determining one's behaviour on roads specifically boredom and impulsiveness.

However, the present study found non-significant correlation among certain groups of drivers (i.e. male non-offender, male offender two-wheeler, male non-offender two-wheeler, male non-offender four-wheeler, female offender two-wheeler, female non-offender four-wheeler driver). The reason for the same could be that impulsive reactions may not emanate or probably boredom proneness may not be its causal factors among these groups. Boredom is an affective experience (Leary, Rogers, Canfield, & Coe, 1986), whereas impulsiveness denotes behaviour tendency to act with little or no forethought (Madden & Johnson, 2010). This particular affective experience may or may not result into impulse behavioural expression. Another reason could be that impulsive behaviour could be traced to the 'drive reduction theory' (1943) (Dewey, 2007), where a state of tension is compensated with the reduction of drive which can be either a primary drive or a secondary one. But boredom in contrast arises due to craving for an arousal state.

Hence, since the present study found positive correlation between boredom proneness and impulsiveness among some of groups of drivers, the hypotheses (H13) was partially supported.

**Sensation-seeking and Impulsiveness**

Another set of variables studied in relation to one another was sensation-seeking and impulsiveness. As per the hypothesis framed, sensation-seeking and impulsiveness was expected to be positively correlated (H14) among all the group of drivers. The findings revealed majority of group of drivers except groups of female offender, female offender two-wheeler driver,
female offender four-wheeler driver, female non-offender four-wheeler driver and amongst male non-offender two-wheeler and male non-offender four-wheeler driver, as demonstrating non-significant results on correlation between sensation-seeking and impulsiveness. Hence, as positive correlation was supported on the total sample and majority of group of drivers, while it was not supported in certain other groups, the hypotheses (H14) was partially supported.

Looking into the relationship between sensation-seeking and impulsiveness, sensation-seekers have been found to demonstrate fast, impulsive reaction and lack of behavioural control (Zuckerman, 1974). Although the underlying mechanism of the reason for sensation-seeking and impulsiveness has not been established completely, explanation for the same could be traced to some biochemical commonalities they share in human body. As per Hook (2009), “Monoamine oxidases (MAOs) are enzymes that are involved in the breakdown of neurotransmitters such as serotonin and dopamine and are, therefore, capable of influencing feelings, mood, and behaviour of individuals”. Research has, therefore, found the biological mechanism of MAO activity and its inverse correlation with sensation-seeking and impulsiveness (Schooler, Zahn, Murphy, & Buchsbaum, 1978; Schalling, Edman, & Asberg, 1983). There is a possibility that since the findings of the present study supported positive correlation between sensation-seeking and impulsiveness, the underlying biochemical processes (i.e. MAO) could be the causal factor.

The findings of the present investigation found positive correlation of sensation-seeking and impulsiveness among both males and females groups. The reason for the same could be that during young adulthood, increased dopamine (neurotransmitter) release to sub-cortical reward centers have been found which encourages attraction to novel and immediately exciting experiences (Chambers, Potenza, & Taylor, 2003; Spear, 2000). The dopaminergic system, therefore serves as a motivator for seeking such experiences i.e. novel rewards (Panksepp, 1998; Spanagel & Weiss, 1999; Schultz, 2002). Zuckerman (1996), on realizing the commonalities shared between sensation-seeking and impulsiveness, combined these two constructs and termed it as 'impulsive sensation-seeking'. He added that impulsive sensation-seeking could be linked to interactions between neurotransmitter systems and is based on a highly reactive dopaminergic system. Therefore, the underlying neurotransmitter processes could also be the reason for positive correlation between sensation-seeking and impulsiveness among the sample of drivers studied.
The traffic offenders and non-offenders in this study were found to be positively correlated on sensation-seeking and impulsiveness. The reason for the same could be explained on the basis of Zuckerman et al. (1991), who developed a five model of personality called impulsive sensation-seeking (ImpSS) to identify the "basic" factors of personality, acknowledging the fact that each one of us can be defined by these five personality factors, irrespective of the fact that one is an offender or a non-offender. These basic factors have a biological-evolutionary basis with common biological markers, and moderate heritability, also corroborated in non-human species. Since sensation-seeking and impulsiveness have common biological make-up, they are attributed as related personality traits (Buss & Plomin, 1975; Eysenck & Eysenck, 1977; Zuckerman, 1983; Zuckerman et al., 1993) sharing biological foundations of a basic dimension of personality (Zuckerman et al., 1993). Zuckerman (1994) adds on that "while [impulsiveness is] not an equivalent or supra-ordinate of sensation-seeking, [it] is a highly related trait, particularly in its non-planning and risk-taking aspects" (p.96).

Positive correlation was also equally found among two-wheeler and four-wheeler drivers, supporting the fact that irrespective of the kind of vehicle one drives, the basic human biological tendencies remain the same.

However, the present study found some of the groups reporting non-significant correlation between sensation-seeking and impulsiveness. Though some researchers assert that these two constructs are strongly intertwined (Zuckerman, 1996), there are many others who support these variables as distinct from one another (Magid, MacLean & Colder, 2007; Schalling, 1978). The reason why it failed to reach positive correlation among some of the groups of drivers can be that impulsiveness is an impairing trait providing short-term relief (Hull & Slone, 2004) while others may be conscious of the long-term negative consequences and may not always act impulsively. Similarly those groups of females who did not reveal significant correlation could be that they are likely to be more conscientious, restricted and accountable for their behaviour.

Hence, as the findings of this study revealed positive correlation of sensation-seeking with impulsiveness in some groups of drivers, the hypotheses (H14) was partially supported.

**Regression Analysis**

Another objective of the present study was to delineate the significant predictors
for criterion variable i.e. unsafe driving. For this, step-wise multiple regression analysis was applied on the overall sample as well as on various groups of drivers. The variables i.e. driving anger, vengeance, boredom proneness, sensation-seeking and impulsiveness were entered as predictors. The results revealed impulsiveness and sensation-seeking contributing majorly in prediction of unsafe driving followed by vengeance, driving anger and boredom proneness.

*Impulsiveness*

Impulsiveness is a “tendency to act on cravings and urges rather than reining them in and delaying gratification” (Costa & McCrae, 1992). Although some kind of impulsiveness is required to keep pace with the rapidly changing situations in traffic (i.e. flashing lights, maneuvering through different types of vehicles to make way, horn honking), yet more of it can be dangerous (Lajunen & Parker, 2001). Therefore, in order to gauge the role of impulsiveness in predicting unsafe driving, hypotheses (H20) was framed which expected impulsiveness as a predictor of unsafe driving in all the group of drivers. Majority of the groups revealed impulsiveness as a major predictor of unsafe driving i.e. supporting the hypothesis (H20) except amongst groups of non-offender two-wheeler driver, male offender four-wheeler driver, female non-offender two-wheeler driver and female offender four-wheeler driver.

Studies on impulsiveness have proven it as a significant predictor of unsafe driving, and that it predicted lifetime moving violations (Dahlen et al., 2005) and risky driving (Dahlen et al., 2005; Loo, 1978; Stanford et al., 1996). Subjects reporting driving violations have also been found as reporting higher impulsiveness (Owsley, McGwin, & McNeal, 2003). Dangerous driving practices, i.e. driving under the influence of alcohol, aggressive driving, frequent traffic violations have been found among individuals with reportedly higher scores on impulsiveness, risk-taking and sensation-seeking (Dahlen et al., 2005; Patil et al., 2006; Schwebel et al., 2006; Zuckerman & Kuhlman, 2000). Impulsiveness has also been related to risky driving and accident involvement (Elander et al., 1993; Mayhew & Simpson, 1995) which reflects its strong link with unsafe driving.

Another reason could be that impulsiveness is a tendency of choosing short-term gains over long ones (Daruna & Barnes, 1993), quick and immediate rewards in a driving context fills one with the feeling of exhilaration by driving fast, jumping red lights, tailgating, racing with
other drivers etc, which at times lead to serious consequences. Low perception of risk among young drivers further augments impulsiveness while driving (Ryb et al., 2006).

Since the sample of drivers chosen for the study were young who are more likely to accept (or seek) risk while driving (Deery, 2000), impulsiveness emerged as a major predictor. Being young, lack of driving experience also makes them incapable of recognizing risky driving conditions and reacting instantaneously without forethought (Fox, 2012). Moreover, young drivers have more probability of getting easily distracted and failing to cope with multiple cognitive activities required while driving (Lam, 2002; Young, Regan & Hammer, 2007). As per the bounded rationality model (Sivak, 2002), youngsters already working within the realm of limited knowledge, additional tasks might add onto cognitive overload undermining their driving skills significantly, leading to 'spillover effect' and unintentional driving lapses and errors.

Another probable for predominance of impulsiveness as a predictor could be that young drivers are high on need for novelty-seeking, which is positively associated with impulsiveness (De Fruyt, Wiele, & Heeringen, 2000). Novelty-seeking reflects a tradeoff between foregoing a familiar choice in favor of a novel choice option (Costa, Tran, Turchi, & Averbeck, 2014), therefore, leading to experimentation and exploration of riskier options while driving.

However, the present study found results of non-offender two-wheeler driver, male offender four-wheeler driver, female non-offender two-wheeler driver and female offender four-wheeler driver as not revealing impulsiveness as a significant predictor of unsafe driving. The reasons for the same could be that the offenders might be purposefully avoiding impulsiveness on roads because of prior negative experience faced with traffic violation, and the fear of being caught again. This phenomena can be related to the concept of 'positive punishment' as per the learning theory of operant conditioning (Skinner, 1938), whereby a 'traffic ticket/challan' acts as a punisher to weaken the impulsiveness to indulge in unsafe driving. On the other hand non-offenders are the one who are probably safe drivers and cautious. Also, the non-offender two-wheeler drivers and female non-offender two-wheeler drivers might feel vulnerable driving a two-wheeler given the fact that they are among the vulnerable road users and account for most of the road fatalities and injuries (Gururaj, 2008) and hence may drive cautiously.

Since majority of group’s revealed impulsiveness as a significant predictor for unsafe driving, the hypothesis (H20) was supported except among non-offender two-wheeler driver, male
offender four-wheeler driver, female non-offender two-wheeler driver and female offender four-wheeler driver.

*Sensation-seeking*

As per the review of literature, sensation-seeking has been found as a significant predictor of unsafe driving (Dahlen et al., 2005; Schwebel et al., 2006; Zuckerman, 2007), and was also entered as a variable for regression analysis. The hypotheses (H19) was framed which expected sensation-seeking to be a significant predictor for unsafe driving among all the group of drivers. The findings of the present study also supported the hypothesis (H19) with sensation-seeking as a significant predictor for unsafe driving in all groups of drivers except among offender two-wheeler drivers, male non-offender four-wheeler drivers, male offender two-wheeler drivers, female offender two-wheeler drivers and female offender four-wheeler drivers.

Several studies have supported sensation-seeking as a predictor of unsafe driving (Arnett, 1994, 1996; Burns & Wilde, 1995; Dahlen et al., 2005; Furnham & Saipe, 1993; Greene, Kremar, Walters, Rubin, & Hale, 2000). In other studies, sensation-seeking along with impulsiveness and boredom proneness was found to be a good predictor for crash-related conditions, aggressive driving, risky driving, driving anger expression and self-reported driving violation (Dahlen et al., 2005; Iversen & Rundmo, 2002; Schwebel et al., 2006). Another study by Dahlen & White (2006) found sensation-seeking as a strongest predictor for unsafe driving, where role of sensation-seeking along with other personality variables were studied to predict unsafe driving behaviour among adolescents.

The findings of the present study also supported sensation-seeking as a significant predictor of unsafe driving. The reasons for the same is explained by Wilde’s risk homeostasis theory (Wilde, 1982), which puts forth that young drivers have been matching their driving behaviour to personally preferred higher state of arousal. People indulge in sensation-seeking activities while driving due to less-perceived risk and tendency to underestimate their own risk relative to others, i.e. "illusory invulnerability" or "optimism bias". This bias reflects an individuals' common belief that unpleasant events are less likely to happen to them than to their peers (Weinstein, 1989). Optimism bias hence is significantly associated with road trauma and found to promote risk-taking on the road (Weinstein, 1988, 1989, 1993). Therefore, the perception that road crashes and fatalities “won’t happen to me”, reflect that risks are perceived
but not personalised (Hatfield, Murphy, Kasparian, & Job, 2005), which in turn serves as a motivating factor for unsafe driving and sensation-seeking. Therefore, the Wilde risk homeostasis theory and the optimism bias explains sensation-seeking as a significant predictor for unsafe driving.

Majority of youngsters have been found indulging in sensation-seeking activities, involving heightened risks that could be due to the release of pleasure-seeking neurotransmitter "dopamine". It is this specific pleasurable experience that makes sensation-seeking as its significant predictor of unsafe driving. Youngsters have a high need for sensation-seeking which is evident from their over indulgence in risky driving, drunken driving, drugs, unsafe sex, gambling (Zuckerman, 2007).

Interestingly, this study also found that most of the groups of females in the present study, reported sensation-seeking as a variable explaining maximum variance in prediction towards unsafe driving. One reason behind this finding could be the aspect of 'masculinity' and the changing nature of society. To support this, a meta-analysis of sixty three studies on women's self-rating on masculinity was shown to be steadily increasing with noticeable decrease in gender differences on the same (Twenge, 1997). Looking into the fact that there are more females driving than ever before (NHTSA, 2005), driving might serve as a new found way for them in order to set themselves free. Sanjukta (2015), also talking about feminism in India, quotes a key dialogue commenting on the contemporary Indian women from one of her recent Indian movie 'Piku' where the protagonist contends "driving liberates a woman". For contemporary urban woman in India, sensation-seeking might be an outlet for freedom from subjugated feelings expressed through taking control of a vehicle and driving it.

However, certain groups of drivers in present study (i.e. offender two-wheeler driver, male offender two-wheeler driver, female offender two-wheeler driver, female offender four-wheeler driver, and male non-offender four-wheeler driver) did not show sensation-seeking as a predictor of unsafe driving. The reason for the same among female offender two-wheeler drivers and female offender four-wheeler drivers could be that probably there might be absence or inhibition of sensation-seeking tendency among these groups who might be deliberately avoiding adverse negative consequences. However, male non-offender four-wheeler driver, male offender two-wheeler driver and offender two-wheeler driver also did not reveal sensation-seeking as a significant predictor since sensation-seeking might not serve as a motivation for them to drive in
an unsafe manner. Moreover, sensation-seeking is observed more among people who need more arousal and since not every individual is in need for more arousal, this might be the reason why it did not emerge as a significant predictor among certain groups (Meyer & Ciccarelli, 2005, p. 364). Another reason could be that impulsiveness or vengeance might be the other factors predominant inciting them to drive in an unsafe manner (as per the findings of the study, Table 3) rather than sensation-seeking tendency.

Hence, the findings of the present study found sensation-seeking as a significant predictor for unsafe driving supporting the hypotheses (H19) in majority of groups of drivers except among male non-offender four-wheeler driver, female offender four-wheeler driver, female offender two-wheeler driver, male offender two-wheeler driver, offender two-wheeler drivers.

Vengeance

Vengeance is regarded as one of the most persistent and powerful emotions of man and reflects a strong desire "to get even" with the perpetrator for the perceived injury or harm committed (Socarides, 1966). Vengeance was also entered as a predictor in regression analysis and it was expected that unsafe driving will be significantly predicted by vengeance (H17) in all groups of drivers. Vengeance emerged as a significant predictor among the total sample, males and its groups (viz. male offender, male two-wheeler driver, male four-wheeler driver, male offender two-wheeler driver), female and its group of female four-wheeler driver, traffic offender and its groups (viz. offender two-wheeler driver, offender four-wheeler driver), non-offender and non-offender two-wheeler driver, two-wheeler driver and four-wheeler driver. However, exceptions were certain groups of non-offender males of both two-wheeler and four-wheeler drivers (viz. male non-offender two-wheeler driver, male non-offender, male offender four-wheeler driver, male non-offender four-wheeler driver), and also non-offender female drivers of two and four-wheeler drivers besides female offender of four-wheeler drivers (viz. female offender, female non-offender, female two-wheeler driver, female offender two-wheeler driver, female non-offender two-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver). Since most group of drivers found vengeance as significant predictor of unsafe driving while many other groups did not support the same, the hypotheses (H17) was partially supported.
Several studies have affirmed strong association of Unsafe driving and vengeance roadway aggression and violence both in self-report studies (Hennessy & Wiesenthal, 2002; Wiesenthal et al., 2000), and in field studies conducted in the actual driving environment (Hennessy & Wiesenthal, 2001). These findings have been replicated and found support worldwide e.g., Canada, Italy, (Hennessy, Wiesenthal, & Piccione, 2001), Poland (Przepiorka, Blachnio, & Wiesenthal, 2014) and China (Li, Li, Long, Zhan, & Hennessy, 2004). Driving vengeance scores were predicted by driver violence and mild driver aggression and vengeful drivers were found to report more acts of past violence, with high levels of anger in response to hypothetical roadway altercations (Li et al., 2004; Lustman, et al., 2010). These studies reflect that vengeance in a driving context is significantly associated with aggressive driving and road rage.

Elaborating on the reasons for vengeance as a predictive utility for unsafe driving, studies found that it serves as a motivating factor in the expression of aggressive behaviour (Stuckless & Goranson, 1994), arising mainly due to the perceived inter-driver conflict, feelings of threat, outrage, or danger from another driver (Gibson & Wiesenthal, 1996; Gulian, Debney, Glendon, Davies, & Matthews, 1989; Matthews, Dorn, & Glendon, 1991; Wiesenthal et al., 2000). The need to exert power, control and overcome emotional and physical discomfort immediately from the perceived threat also results from vengeance (Black, 1983; Cramerus, 1990; Daly & Wilson, 1988; Lane, Hull, & Foehrenbach, 1991; Stuckless & Goranson, 1992).

As put forth by Stuckless & Goranson (1992), vengeance is infliction of harm in retaliation to perceived injury or insult. It is akin to the perception of unfairness and injustice fulfilling a wide array of psychological fulfillment including restoring self-worth, righting perceived injustice, and deterring future injustice (Cota-McKinley, Woody, & Bell, 2001). Evolutionary psychologists also point out vengeance as the most important universal human adaptation that has evolved into an alternative response to exploitation. These psychologists assert that as human beings we are naturally endowed with both capacities, i.e. to blame and retaliate, or to seek forgiveness (Hanna, 2015). To seek revenge for perceived injustice is a deep-rooted universal, culture-independent emotion not subjected to elimination by educational means (Bar-Elli & Heyd, 1986). Vengeance therefore is considered as a primitive moral right of human beings (Henberg, 1990) enacted through dangerous driving in a driving context. Unsafe
driving therefore could serve as an expression of asserting one's honour (a universal phenomena) and a deep-rooted urge to show one's superiority (Elster, 1990).

The reason for vengeance not being a significant predictor of unsafe driving among certain group of drivers could be that vengeance mainly gives rise to aggressive driving which is only a part of unsafe driving (Akin & Akin, 2015) and does not cover all its aspects. Thus vengeance might fulfill in predicting unsafe driving partially but does not fulfill its complete criteria. As desire for vengeance is also influenced by anger, resentment and blame (Tripp, Bies, & Aquino, 2002) and the results of the present study points out that correlation between Unsafe driving and driving anger (H₁) and prediction of unsafe driving by driving anger (H₁₆) was partially supported, perhaps the sample of drivers studied might not be very high on driving anger. Other reason could be that not every individual are high on revenge or feeling to retaliate. Aggressive behaviour which forms an antecedent of vengeance is found to operate at two levels in a driving context, i.e. either as instrumental or hostile aggression (Baron & Byrne, 1994, p.461). It is not necessary that everyone will react in an hostile manner on roads.

Therefore, as some of the groups revealed vengeance as a significant predictor of unsafe driving in the present study, the hypotheses (H₁₇) was partially supported.

Driving Anger

The role of driving anger in predicting unsafe driving was also gauged through regression analysis. The findings of the present study revealed driving anger as a significant predictor for unsafe driving but it was unsuccessful in predicting unsafe driving among all the group of drivers. In entire sample, driving anger emerged as a significant predictor of unsafe driving prominent being male offenders of both two-wheeler and four-wheeler drivers, and female non-offenders i.e. male offender, male offender two-wheeler driver and male offender four-wheeler driver and female non-offender. However, the other groups that did not find driving anger as a significant predictor of unsafe driving were male and its groups (viz. male four-wheeler driver, male non-offender, male two-wheeler driver, male non-offender two-wheeler driver, male non-offender four-wheeler driver), female and its groups (viz. female offender, female two-wheeler driver, female four-wheeler driver, female offender two-wheeler driver, female non-offender two-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver), offender two-wheeler driver, non-offender and its groups (viz. non-offender two-wheeler
driver, non-offender four-wheeler driver), two-wheeler driver and four-wheeler driver. Since only a few groups supported the hypotheses that predicted driving anger as a significant predictor for unsafe driving, the hypothesis (H16) was partially supported.

Earlier studies reveal that driving anger is a significant predictor for unsafe driving. Driving anger scores are related to intensity of anger while driving, less frequent use of seatbelts, motor vehicle crashes, aggressive driving and traffic violations (Blanchard et al., 2000; Deffenbacher et al., 1994; Deffenbacher et al., 2000; Deffenbacher et al., 2003; Lajunen & Parker, 2001; Underwood et al., 1999). Several other studies (Deffenbacher et al., 2000, 2001; Deffenbacher et al., 2003; Lajunen & Parker, 2001; Underwood et al., 1999) have also supported driving anger predicting close calls, inability to concentrate, risky driving, display of verbal and physically aggression and in some instances using the vehicle itself to express anger. Dahlen et al. (2005), demonstrated the utility of driving anger and its ability to predict unsafe driving which was also supported by another study where the utility of driving anger scale was further affirmed along with sensation-seeking for predicting unsafe driving (Dahlen & White, 2006).

However, as per the results of the present study, driving anger showed least contribution in predicting unsafe driving. One of the studies in line with the present findings was the one in which the prediction for traffic violations and risk of crashes among Ecuador students was assessed and which revealed sensation-seeking, risk-taking, violation of norms and interpersonal violations to be the strongest predictors for unsafe driving (Serrano et al., 2013).

It has been found that the driving anger is the result of both personal and environmental factors. The results of the present study can be understood in the context of state-trait theory. The state-trait theory given by Cattell & Scheier in 1961, asserts a strong link between ‘state’ (i.e. situational) and the ‘trait’ (i.e. personality disposition) factors where the individuals who are high on ‘trait anger’ are likely to be provoked by ‘state’ factors (for example traffic congestion, continuous horn-honking from other drivers etc.), and are therefore, more prone to indulge in unsafe driving (e.g. desperate attempt to get out of the impeding traffic through reckless driving, expression of anger as discourtesy towards other drivers etc.).

As Deffenbacher et al. (1994) suggests that driving anger is a situation-specific form of anger and is best understood with anger provoking situations in traffic. Hence the environmental factors play key role such as traffic congestion, overcrowding, non-stringent traffic rules in India, which seems to harness favorable factors for driving anger and indulgence in unsafe driving.
These environmental triggers leading to driving anger is best explained with the help of frustration-aggression theory (Dollard et al., 1939). The theory asserts that congestion and delays interfere with the driving progress, which becomes frustrating as they are “goal blocking” by nature (Shinar, 1998). Typical situations are traffic jams, red light delays, extreme hot weather conditions in India, overcrowding of vehicles leading to unauthorised parking or traffic aberrations by other drivers causing inconvenience and the like (Mina et al., 2014). These reasons exemplify the impact of external situations contributing and inciting driving anger which lead to unsafe driving.

The reasons why majority of group of drivers did not reveal driving anger as a predictor of unsafe driving can also be attributed to the varied cultural context. There is a substantial evidence to support that cultural differences play a significant role with experience and expression of emotion differing significantly between cultures (Kitayama & Markus, 1994; Markus & Kitayama, 1991). A study on driving anger in China (Li, Yao, Jiang, & Li, 2014), revealed lower levels of anger among Chinese drivers compared to American, New Zealand and Spanish counterparts, because of cultural differences. Chinese traditional culture does not approve of extreme emotional expressions believing it to be pathogenic in nature disrupting body’s natural harmony (Chen, Cheung, Bond, & Leung, 2005; Maxwell, Sukhodolsky, & Sit, 2009). Culturally, Indians are akin to Chinese than Americans, is probably another reason for non-significant results among majority of Indian drivers studied in the present research.

Other reasons for driving anger unable to predict unsafe driving in majority of drivers could be that Indians have been found as using introspective strategies like repression and rational self-coping statements to manage anger provocation more than their western counterparts (Suchday & Larkin, 2004). Also it was found that assertive expression of displeasure was a Western value and hence might be uncomfortable for people of Asian origin, for whom inhibition of anger is shaped and found (Suchday & Larkin, 2004). One more reason could be that drivers reporting higher levels of anger while driving tend to come from relatively congested cities reporting lower weekly mileage (Li et al., 2014) unlike the city explored in the present study which is the most well planned city in India (Nijhawan, 2015).

Hence, as the findings of this study revealed driving anger as a predictor for unsafe driving in certain groups of drivers, the hypothesis was partially supported (H₁₆).
**Boredom proneness**

Boredom proneness which reflects a state of weariness and lack of enthusiasm was too assessed in terms of predictor of unsafe driving. The findings of this study revealed only one group of driver i.e. female offender four-wheelers where boredom emerged as a significant predictor of unsafe driving. Hence, this demonstrates that the hypotheses (H18) which expected boredom proneness to be significant predictor of unsafe driving were supported only among female offender four-wheeler drivers and no other group of drivers assessed.

One study also supported limited predictive utility with only external boredom proneness (i.e. boredom due to external environment) being related to unsafe driving rather than the total score of boredom proneness (Dahlen et al., 2005). This therefore also supports the findings of the present study, where other variables assessed were more successful in predicting unsafe driving rather than boredom proneness.

Another reason behind boredom not being a significant predictor of unsafe driving could be due to the heterogeneity of traffic in India (Joshi, Sinha, & Patel, 2011) and the concept of shared space on roads. Both these factors are found to defy monotony and are unlikely to facilitate boredom while driving. The shared space refers to the urban roads being shared by pedestrians, cyclists and vehicles alike invariably increasing the attention of the driver and thereby decreasing the probability of boredom to set in (Hamilton-Baillie, 2008). As in any other city of India, where all the different kinds of traffic (pedestrians, cyclists, auto-rickshaws, bullock carts, cars, heavy vehicles etc.) are plying on the same road, there is very low probability of boredom to set in.

Female offender four-wheeler drivers were the only group where boredom proneness was found to be a predictor for unsafe driving as per the findings of the present study. The reason could be that, for some female drivers, driving is boring due to its repetitive nature and the great deal of sameness it brings (Redshaw, 2012). It can be safely assumed that female driver, an offender, indulging in unsafe driving in a four-wheeler would be warding off boredom, given the fact that the car is considered to be more safe, convenient, independent and private (Australian Transport Safety Bureau, 2004), than a two-wheeler as it helps to maintain a notion of limited danger in car travel (Noble, 2003).

Therefore, the hypotheses (H18) were supported only among female offender four-wheeler drivers.
Analysis of Variance

To ascertain the differences among the sample of drivers studied, the analysis of variance (ANOVA) was performed. The 2x2x2 ANOVA was conducted to know the difference among males and females, traffic offenders and non-offenders, two-wheelers and four-wheeler drivers. The analysis of variance was done on unsafe driving, driving anger, vengeance, boredom proneness, sensation-seeking and impulsiveness.

Significant differences among the sample of drivers was assessed and hypothesis (H21) was framed which expected gender differences with males being higher than females on unsafe driving. The findings of the present study also revealed men scoring higher than women on unsafe driving, hence the hypotheses (H21) was supported.

There are several studies on unsafe driving where gender differences have been assessed and have revealed men indulging in unsafe driving behaviour more than their female counterparts (Deffenbacher et al., 2003; Laapotti, Keskinen, & Rajalin, 2003; White et al., 2004; Yagil, 1998). Multi-fold observations on general tendency of unsafe driving attitudes also reveal men to be higher on risky behaviour than women (Arch, 1993; Byrnes, Miller, & Schafer, 1999; Schubert, Brown, Gysler, & Brachinger, 1999; Siegrist et al., 2002).

Elaborating on the reason for males being higher than their female counterparts on unsafe driving, one viewpoint could be the difference in perceptual skills related to driving among men and women. Research has found that perceptual motor skills are related to masculinity and perceptual safety skills with femininity (Özkan, & Lajunen, 2006), hence higher the perceptual motor skills, greater is the probability of engaging in speeding, number of traffic violations, penalties and self-reported crashes (Lajunen, Corry, Summala, & Hartley, 1998b; Lajunen et al., 1998a). Macho personality on the other hand has also been found as positively correlated with aggressive driving (part of unsafe driving) (Krahe, & Fenske, 2002), in contrast to feminity (Krahe, 2005). Besides, the reason behind masculinity or macho personality related to unsafe driving is also because driving is considered more as a 'male' thing associated with one's ego ideal in contrast to a feminine nature. Also, as women prefer risk-prone brave males (Kelly & Dunbar, 2001) than the risk-averse men, taking risks and speeding on road is therefore, more amongst men than women. Females, in contrast, have been found more sensitive to committing a traffic violation than males (Yagil, 1998) which is also the reason why they are considered more as a "safe driver" than men. “Being a skillful driver” therefore, is perceived as a masculine
characteristic while “being a safe driver” reflects feminine feature (Özkan, & Lajunen, 2005a). Hence, perceptual and societal expectations of driving skills helps to give a fair idea on why men indulge more in unsafe driving than women.

Gauging the differences among traffic offenders and non-offender on unsafe driving, hypothesis (H27) was framed which expected traffic offenders to be higher on unsafe driving than the non-offenders. The results of the present study also revealed significant main effect of driver’s offence status with traffic offenders scoring higher than non-offenders on unsafe driving, hence supporting the hypotheses (H27).

Studies among traffic offenders and non-offenders on unsafe driving have revealed a strong relationship between crime, risky behaviour and traffic offences, with offenders being more involved in traffic offences, risky driving behaviour, crashes and social deviance (Fergusson, Swain-Campbell & Horwood, 2003). As per the studies done on similar lines, significant difference have been found among traffic offenders and non-offenders on unsafe driving (Baxter, Manstead, Stradling, Campbell, Reason, & Parker, 1990; Iliescu & Sârbescu, 2013; Wundersitz & Burns, 2006).

The findings of the present investigation also found traffic offenders being higher than non-offenders on unsafe driving. There could be varied reasons for the same, like traffic offenders are found to be overconfident about their driving skills (DeJoy, 1992). They are also found to engage in unsafe driving practices like competitive speeding (Deery & Fildes, 1999) in a bid to reduce tension and frustration (Mayer & Treat, 1977). The non-safety oriented attitudes among traffic offenders has also found to be one of the reasons (Beirness and Simpson, 1988; Ulleberg & Rundmo, 2002; Wundersitz & Burns, 2006), where risk behaviour is perceived as acceptable by them, consequences of crashing as minimal and low motivation to alter one's behaviour (Ulleberg & Rundmo, 2002). These kind of risk-prone behaviours are found to be grossly influenced by 'optimism bias' (Weinstein, 1989), which is a cognitive bias that causes a person to believe that they are at less risk of experiencing a negative event in comparison to others. This bias serves as a motivator among offenders, making them more prone towards unsafe driving (DeJoy, 1989) as compared to their non-offender counterparts.

The present investigation was also interested to study the differences between two-wheeler and four-wheeler drivers on unsafe driving. The hypothesis (H31) was framed which expected non-significant difference between two-wheeler and four-wheeler drivers on unsafe
driving. The results however, revealed four-wheeler drivers to be higher than the two-wheeler drivers thus rejecting the hypothesis (H33).

Though there were not enough references due to dearth of literature, one study found that the drivers who preferred comfort and luxury over safety features of a vehicle, reported higher chances of unsafe and distracted driving (Haje & Symbaluk, 2014).

As per the findings of the present investigation, four-wheeler drivers were higher on unsafe driving than the two-wheeler drivers, reason for which perhaps could be due to the risk perception. It has been found that risk perception among four-wheeler drivers is quite underrated and underestimated (Brown & Groeger, 1988; Deery, 2000), which is the reason why the four-wheeler drivers consider themselves as less averse to fatal outcomes (Glick, Kronenfeld, Jackson, and Zhang, 1999), thereby consequently indulging in risky driving behaviour (Arnett, 1992; Harré, 2000; Moller, 2004) as compared to the two-wheeler drivers. In addition to this, four-wheeler drivers have also been found as endorsing a negative attitude towards the two-wheeler drivers (Crundall, Bibby, Clarke, Ward, & Bartle, 2008), which could also be the reason behind one's negligent driving.

Other reasons for four-wheeler drivers being higher than two-wheeler drivers on unsafe driving could be that car has been associated with an instrument, a weapon that symbolizes power (Whitlock, 1971), gives personal space, protection and encourages anonymity making the drivers less restrained (Ellison-Potter et al., 2001; Hennessy and Wiesenthal, 2001; Whitlock, 1971), providing an added advantage over the two-wheeler drivers. As put forth by Arnett (1990), “me in my car” symbolizes extension of one’s identity and a relatively larger territorial space on roads than the two-wheeler drivers, which, when offended in any manner, results in aggressive, risky or unsafe driving. Therefore, driving a four-wheeled vehicle brings forth a feeling of power, an opportunity to obtain gratification and denial of reality (Girão & Oiveria, 2012; Schreer, 2002) which is subdued among two-wheeler drivers. Hence, the benefit of anonymity, territoriality, sense of power and protection, low risk perception and negative attitude of four-wheeler drivers towards two-wheeled vehicle can give a fair idea as to why unsafe driving is relatively higher among four-wheeler than two-wheeler drivers. Therefore, as per the findings of the present study four-wheelers scored higher than the two-wheelers on unsafe driving and the null hypothesis was rejected (H₃³).
The present study also aimed to investigate the interaction effects on unsafe driving. The two-way interaction effect between gender and traffic offenders/non-offenders was found to be significant. The findings revealed male offenders to be scoring higher than the female offenders, male non-offenders and female non-offenders on unsafe driving. The reason for the same could be traced to the self-determination theory (Deci and Ryan, 1985, 1987, 1991). This theory asserts that if one’s basic needs for autonomy, competence, and belongingness are not met, one tends to indulge in anti-social acts. This claim was further validated in a study among male offenders (Hawkins and Novy, 2011). Also, as WHO (2002) observed, "‘Masculinity’ may be hazardous to health. Gender role socialisation and the association of masculinity with risk-taking behaviour, acceptance of risk and a disregard of pain and injury may be factors leading to the hazardous actions on the part of men. These include, for example, excessive consumption of alcohol, drug use, aggressive behaviour, to be in control of situations, and risky driving” (p.3). Masculinity among offenders has also been found as a key determiner of risky acts (Caldwell, 1958; Whitehead, 2005). This observation aptly points out the impact of masculinity and gender role socialization playing a significant role among males specifically male offenders for indulgence in unsafe driving.

Driving Anger

Driving anger which reflects experiencing anger while driving was also assessed in terms of gender differences. The analysis of variance was conducted and hypothesis (H26) was framed which expected no gender differences on driving anger. As per the findings of this study, no difference among males and females on driving anger emerged hence, the hypothesis (H26) was supported.

The studies on gender differences are in line with the findings of the present study where no differences on driving anger among males and females have been found (Campbell, 1997, Deffenbacher et al., 2003; Thomas, 1989). Women have been found experiencing anger while driving as frequently as men (Averill, 1983; Kassinove & Sukhodolsky, 1995). In a study wherein self-reports, driving diaries and simulation method were used to assess anger while driving, it was found that gender effects on anger were quite minimal where no significant difference on frequency and intensity of anger was found among males and females (Deffenbacher et al., 2003). A similar study on gender differences on driving anger among
drivers in the age group of 18-21 years in Chandigarh (India) also revealed non-significant difference showing that females are equally prone to experiencing anger on roads like men (Vinayak & Assi, 2011).

Finding out the reasons for non-significant gender differences on driving anger, social role theory (Eagly, 1987) helps to provide an explanation. The social role theory emphasizes that gender differences in social behaviour are based on gender roles defined as per different cultures. Therefore, the reason for negligible gender differences on driving anger can be due to the changing gender roles in our society (Eagly, 1987; Eagly & Wood, 1991). With significant changes in women's role in urban areas from traditional to the contemporary post-independence India, the 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 (Vinayak & Assi, 2011). In context to this, Bartz and Blume (1996) have observed that “men and women differ minimally in the experience, expression, and control of anger” (p. 243). Averill (1983) also pointed out that “women reported becoming angry as often as men, as intensely, and for much the same reasons” (p. 1152).

Another hypothesis on driving anger in context to traffic offenders and non-offenders was framed and analyzed through analysis of variance, which expected traffic offenders to be higher than non-offenders on driving anger (H28). The present study however, was unable to support the hypothesis as non-significant difference emerged between traffic offenders and non-offenders on driving anger, hence hypothesis (H28) was rejected.

Due to limited research on traffic offenders, studies on general offenders were referred. Some of the studies point out that anger is more prevalent among offenders than the non-offenders (Mills, Kroner, & Forth, 1998; Spielberger, 1991), together with a study on mentally ill offenders who were also found to display anger, become perpetrators of violence, and break prison rules (Sarteschi, 2013).

However, as per the findings of the present study, non-significant difference on driving anger among traffic offenders and non-offenders emerged which suggests that people at large are prone to experiencing anger while driving irrespective of the fact that whether they are offenders or not. Since anger is reportedly the most common emotion experienced while driving (Nesbit, Conger, & Conger, 2007), its experience among non-offenders is not surprising. As per 'frustration-aggression' hypothesis (Dollard et al., 1939), in a driving context where one's driving
is impeded due to several reasons (traffic lights, congestion, right of way to others etc.), these small little thwarting experiences, while driving can be frustrating in nature, leading to anger and aggression. Since anger is a tendency, an attribute common among every road user, even the most sensible individual had lost temper while driving. Therefore, it cannot be said that if a person is a traffic offender, he/she is more likely to experience anger while driving than a non-offender. Hence, since the findings of the present study did not support the hypothesis between traffic offenders and non-offenders on driving anger, the hypothesis (H28) was rejected.

In order to find out whether driving anger significantly differed with regard to the type of vehicle, analysis of variance was applied and hypothesis (H34) was framed, which expected no difference between two-wheeler and four-wheeler drivers on driving anger. As per the finding of this study as well, non-significant difference on driving anger among two-wheeler and four-wheeler drivers were found which reflects that the experience of anger does not depend on the type of vehicle one drives i.e. a two-wheeler or a four-wheeler, therefore supporting the hypothesis (H34).

One related study on driving anger and the type of vehicle was affirmed where no significant association emerged between aggression, perceived vehicle status (i.e. low, medium and high) and the vehicle type (passenger/private versus commercial truck or vehicle with company logo). The drivers of passenger vehicles manifested aggressive behaviour on roads as much as commercial vehicle drivers (Shinar & Compton, 2004). A study on road rage among Canadian drivers, also supported the finding of the present study where the type of vehicle was found to be a non-significant determiner of driving anger (Smart et al., 2004). In a study in Indore (India) among commercial drivers of different type of public transport vehicles found that the driving anger did not vary significantly among different vehicles assessed (Dixit et al., 2011), therefore supporting the findings of the present study.

The findings of the present investigation revealed that men and women are equally prone of experiencing anger on the road if at all, as no significant gender differences were found between the two on driving anger. Similarly, the propensity to get angry behind the wheel does not differ whether the individual is offender or a non-offender and whether he/she particularly drives a two-/four-wheeler.

The two-way and three-way interactions were also performed but two-way interactions came out to be non-significant. However, as per the findings of the three-way interaction, female
offender two-wheeler drivers were found to be more prone of experiencing anger while driving than the other group of drivers studied (i.e. female offender two-wheeler driver, male non-offender two-wheeler driver, female non-offender two-wheeler drivers, male offender two-wheeler driver, male offender four-wheeler driver, female non-offender four-wheeler drivers, female offender four-wheeler driver and male non-offender four-wheeler driver). Several research studies have supported that there are no gender differences on driving anger (Hennessy et al., 2001; Lajunen et al., 1998a; Lawton & Nutter, 2002). However, one study found female drivers having greater impatience, frustration, and anger as compared to their male counterparts (Brewer, 2000). Deffenbacher et al. (1994) also observed females to be higher on driving anger but only for two particular triggers, i.e. illegal behavior of other drivers and traffic obstructions. The reason for the same could be that though male and female drivers are equally probable in experiencing anger while driving, they both might experience anger in different ways to different driving scenarios. As female offenders driving a two-wheeler were found to experience more anger in comparison to other group of drivers, it might be that they are quick to experience anger and are more aggressive than their non-offender counterparts (Dowden & Andrews, 1999; Suter, Byrne, Byrne, Howells, & Day, 2002). The other reason could be that being a two-wheeler driver, they also might feel more vulnerable due to the nature of their vehicle (as it lacks protection and one directly gets hurt on collision with other vehicles), making this group of drivers more susceptible to anger.

Vengeance

Vengeance which is an act of inflicting harm on the perceived injustice by another driver was analyzed in terms of gender differences. The analysis of variance was performed and it was hypothesized that the males will be higher than females on vengeance. However, the results revealed non-significant gender differences on vengeance not supporting the hypothesis (H22).

Vengeance, it was found, gets expressed on roads either in the form of aggression which can range from low to high or as physical violence. Both male and female drivers indulge in mild aggression, as a study among American drivers concluded (Hauber, 1980). This is also supported by the findings of Hennessy and Wiesenthal (1997, 1999), who assert that female drivers are equally prone to exhibiting mild driver aggression in actual driving conditions. A study done in Australia to gauge the "road rage" index revealed female drivers equally demonstrating extreme
forms of aggression as male drivers (Australian associated motor insurers, 1997). Similar studies observed that driving environment is one such naturalistic context where female aggression can be easily noticed (Hennessy & Wiesenthal, 2001). Driving environment provides room for anonymity (i.e. the state of being unknown) to all the drivers (Hennessy, 1999; Wiesenthal & Janovjak, 1992) with general aggressive tendencies found to increase with perceptions of anonymity and deindividuation (which is loss of self-awareness and individuality) (Rehm, Steinleitner & Lilli 1987; Rogers & Ketchen 1979; Yamaguchi 1980). Anonymity helps in reduction of identification and reprimand for aggressive behaviour (Freedman, 1982; Zimbardo, 1969). Therefore, female drivers also feel protected with no fear of being identified which helps in reducing the restraints in behaving aggressively towards other drivers (Lightdale & Prentice, 1994; Mann, Newton, & Innes, 1982). Anonymity also provides an opportunity to breach traditional gender roles, the established gender role socialization that seemingly puts restraint on women against showing their anger and other negative emotions (Eagly & Steffen, 1986; Greenglass & Noguchi, 1996). Therefore, driving environment provides a perfect context where automobile represents a convenient means of escape and a legitimate weapon (Marsh & Collett, 1987). It also empowers women to be as aggressive as males, since vehicle is a powerful and dangerous weapon that all the drivers possess (Marsh & Collett, 1987) and it brings them at par to aggress their vengeful feelings.

Apart from anonymity to female drivers is low probability of repeated interactions or contact with other drivers. This provides them with an opportunity to defy restraints against harming others (Novaco, 1991). Thus, likelihood of personal repercussions is considerably reduced with anonymity leading to a sense of control, a feeling of power over other drivers and a potential for anti-normative behaviour (Lightdale & Prentice, 1994). Experiencing anger while driving which sometimes act as a predecessor to vengeance was also found to be non-significant among males and females in the present study (H26) as further supporting the non-significant gender differences on vengeance.

Hence, driving context per se helps us to understand the non-significant gender differences on vengeance among the sample of drivers assessed, therefore rejecting the hypothesis (H22).

Vengeance was also analyzed in terms of driver's offence status and hypothesis (H29) was framed which expected differences with traffic offenders being higher than non-offenders on
vengeance. The results of the present findings revealed significant difference on the main effect of driver’s offence status, with traffic offenders being higher on vengeance than the non-offenders, hence supporting the hypothesis (H29).

In reference to the studies done on vengeance among traffic offenders and non-offenders, it has been found that violence in a driving context is an extremely dangerous phenomena (Novaco, 1991) and violent driving behaviour as a characteristic feature of vengeful drivers, who were identified as chronic violators (Hennessy & Wiesenthal, 2002). Repeated offenders who frequently break traffic rules may also be willing to engage in unsafe driving behaviour in their daily driving routine (Parker et al., 1995; Reason et al., 1990). Therefore, these drivers who chronically commit violations are expressing their underlying character than those who sporadically violate traffic rules (Hennessy, 2000; Stradling et al., 2000).

In order to explain vengeance among traffic offenders, it might be that young drivers may feel the need to protect their driving space and in absence of traffic police are likely to take the responsibility of punishing the perceived transgressor (Cvetkovich & Earle, 1990; Rumar, 1990). In addition to this, an explanation was given by Rothe (1994), where driving environment is represented by a context in which certain distinct rules need to be followed by every road user and if these rules are openly violated, other drivers feel angry with a strong need of punishing them swiftly (Oldenquist, 1988). This tendency of retaliation is more prevalent and evident among traffic offenders which justify the findings of the present study in contrast to the non-offenders.

Vengeance was also analyzed in terms of group differences with regard to the type of vehicle. Due to paucity of literature on comparison between two-wheeler and four-wheeler drivers on vengeance, the null hypothesis was framed. As per the hypothesis (H35), no significant difference between two-wheeler and four-wheeler drivers was expected. The present investigation however found two-wheelers drivers to be higher than the four-wheeler drivers on vengeance, therefore rejecting the hypothesis (H35).

Inadequate literature on vengeance and its comparison among two-wheeler and four-wheeler drivers limits us to quote any studies on the same. However, on similar lines, a study was conducted among motorcyclists, wherein their reasons for riding and risk perception was observed and it was found that two-wheeler drivers blamed the car culture (Bellaby & Lawrenson, 2001) for they being at the receiving end in terms of road crashes and fatalities.
Hence in order to explain the findings of the present investigation, the concept of 'vulnerability' among two-wheeler drivers was taken into account. The two-wheeler drivers in India are considered to be vulnerable road users (Gururaj, 2008) and are affected in majority of road crashes (Gururaj, 2008; Menon, Pai, & Rajeev, 2008; Robyn & Stephen, 2004; Singh, Dewan, Pandey, and Tyagi, 2003). Since two-wheeler drivers come in direct contact with the impacting vehicle or obstacle during a collision resulting in severe injuries and fatality (Gururaj, 2008), they may feel vulnerable on roads and hence react strongly with vengeance. This might help explain the sense of vulnerability and insecurity among two-wheeler drivers. This again supports the claim that vengeance is a part of the innate survival mechanism among social species (Bloom, 2001) and vengeance is bound to occur if one's survival is threatened. Therefore, when seemingly two-wheeler drivers feel threatened by the car driver he/she retaliates with a vengeful attitude. Other reason could be that as cars are seen as status symbol especially in Northern India, the inflated egos of youngsters who flaunt their vehicles might in a way demean those riding a low status or a two-wheeled vehicle. Therefore, as present investigation found two-wheeler drivers to be higher than four-wheelers drivers on vengeance, the hypothesis (H35) was rejected.

Vengeance as a psychological variable was found to be significant in determining differences among traffic offenders and non-offenders, and among the two-wheeler and a four-wheeler driver. This study found traffic offenders to be higher than non-offenders and two-wheeler than the four-wheeler drivers.

Significant two-way interaction was observed between gender and the type of vehicle one drives. The results revealed female two-wheeler drivers to be higher on vengeance than the male four-wheeler drivers, male two-wheeler drivers and female four-wheeler drivers. The reason for the same could be that the driving environment provides a perfect context for females to express their feelings, given the fact that the present study also did not find any gender differences on vengeance, hence they are as equally likely to indulge in vengeful act as men. Female drivers specifically driving a two-wheeled vehicle are more prone to vengeance due to feeling of vulnerability. This vulnerability might emerge due to, as what Brown (2002) observed, ‘Look But Fail To See’ errors (LBFTS), where car drivers fail to see another road user even though they reported as driving with caution. While LBFTS errors can occur with any other road user, they are most often observed with regard to collisions with motorcycles or a two-wheeled vehicle (Crundall, Crundall, Clarke, & Shahar, 2012). Though these are unintentional errors that occur
sometimes, but they are more bound to be labeled as intentional or negligent by the victim i.e. the two-wheeler. This also may be another reason why certain unintentional errors made by four-wheeler might be perceived as intentional by the two-wheeler and hence resulting in vengeance.

*Boredom Proneness*

In order to find out whether boredom propensity differs with regard to gender differences, the analysis of variance was carried out and hypothesis (H23) was framed which expected gender differences with males being higher than females on boredom proneness. The findings of the present study also found men scoring higher than women on boredom proneness thus supporting hypothesis (H23).

The studies on boredom and gender differences have found males as reportedly being higher than females on boredom proneness (Sundberg, Latkin, Farmer, & Saound, 1991; Tolor, 1989; Vodanovich & Kass, 1990a; Watt & Ewing, 1996). Cross-cultural comparisons among college students also revealed the same with males scoring significantly higher than females on boredom (Sundberg et al., 1991). Observing further, men were more likely to suffer from boredom due to their need to seek variety (Vodanovich & Kass, 1990b) and the perceived inability to amuse themselves (Vodanovich, Wallace, & Kass, 2005).

There could be several reasons for males being higher on boredom than females. In an article on "Timepass and boredom in Modern India" (Fuller, 2010), the author observes several reasons among youth specifically males for being higher on boredom. One reason among males was attributed to males not knowing as what to do with surplus time. Jeffrey (2010), has observed that Indian males were 'surrounded by an expanse of featureless time' (p. 76) which somehow had to be killed with distractions. Probably, that could also be the reason why men are more involved in distracted driving (i.e. talking or texting on phone while driving) than females (Bone & Mowen, 2006). Another reason could be the 'stimulus hunger' i.e. arousal-seeking tendency (Apter, 1982; Csikszentmihalyi 2002; Hebb, 1955) or craving for pleasurable stimulus which gives rise to boredom (Fenichel, 1951). Therefore, boredom is regarded as a state of drive-tension, where drive-aim is missing (Fenichel, 1951).

Another probable reason for males being higher on boredom than the females could be the unfulfilling educational environment as perceived by Indian males, and due to this the Indian males are found to engage mostly in 'timepass' or leisure activities to kill boredom. On this,
Rajagopal (2001) observes, timepass is ‘a refuge from and a measure of boredom’ (p.135). Many recreational forms of timepass are enjoyable and harmless, but there are others as Jeffrey points out, 'are expressions of a soul-destroying boredom now afflicting millions of educated, unemployed young men in India today' (Fuller, 2010). Hence, as per the findings of the present study men were found as scoring higher than women on boredom proneness supporting the hypothesis (H23).

Boredom proneness was also studied in terms of group differences among traffic offenders and non-offenders. The hypothesis (H30) was framed which suggested traffic offenders to be higher than the non-offenders on boredom proneness. The results however, revealed non-significant difference between traffic offender and non-offender on boredom proneness, hence the hypothesis (H30) was rejected.

Due to dearth of studies on boredom among traffic offenders, studies on general offenders were referred. Studies among juvenile offenders found them as higher on boredom propensity alongwith negative orientation towards life and future (Berman & Paisey, 1984; Newberry & Duncan, 2001). Another study observed these juveniles to be engaging in drug abuse due to higher boredom propensity (Daderman & Lidberg, 1999). Several studies done among criminal offenders validate their indulgence in criminal offences due to boredom susceptibility (Herrero & Colom, 2008; Howard & Zibert, 1990). The offenders were predominantly found to engage in gambling, seeing it as an opportunity to socialize, excitement and taking risk (Williams & Liz Hinton, 2006).

Analysis of variance was also carried out on boredom proneness with regard to the type of vehicle and hypothesis (H36) was framed. Due to paucity of literature on boredom proneness and the type of vehicle one drives, null hypothesis was framed which expected no difference among two-wheeler and four-wheeler drivers on boredom proneness. The findings of the present study also revealed non-significant difference among two-wheeler and four-wheeler drivers, thus supporting the hypothesis (H36).

The explanation for this finding could be that boredom is a state of relatively low arousal and dissatisfaction due to inadequately stimulating environment (Csikszentmihalyi, 2002; Mikulas & Vodanovich, 1993; Roth, Hammelstein & Brahler, 2007; Yerkes & Dodson, 1908), therefore, it might be that boredom is contextual based and transitory in nature (Csikszentmihalyi, 1975). This low arousal state can vary from individual to individual and is
expected to be minimally affected by the type of vehicle one drives as per the findings of the present study and hence the non-significant findings. However, had present investigation studied high-powered vehicles, probably the results would have been different.

The boredom proneness among the sample assessed in the present study was found to be significant among gender where males were found to be higher on this variable than the females. The interactions performed i.e. the two-way and the three-way interaction on boredom proneness was also found to be non-significant.

*Sensation-seeking*

Sensation-seeking, a tendency for a strong need for varied and novel experiences is quite prevalent among youngsters, supported by studies done worldwide (Zuckerman, 1994). In order to find out whether there are any gender differences on sensation-seeking, the analysis of variance was performed and hypothesis \( H_24 \) was framed which expected males to be higher on sensation-seeking than females. The findings of the present study also supported this hypothesis \( H_24 \) with males being higher than females on sensation-seeking which is in line with several studies (Eysenck & Eysenck, 1978; Hur & Bouchard, 1997; Schalling et al., 1983; Zuckerman, 1994). In another research study on sensation-seeking on a US sample, males scored significantly higher than females on sensation-seeking which is in line with several studies (Zuckerman, Kuhlman, Thornquist, & Kiers, 1991) and a similar study conducted in Australia, Canada and Spain also found the same results (Zuckerman, 1994). Other studies (Arnett, 1994; Begg, Langley & Williams, 1999; Burger & Caldwell, 2000; Franken, 1988, Watson, Clark, McIntyre, & Hamaker, 1992; Stanford et al., 1996; Ulleberg, 2002; Zuckerman, 1979) also reported that males tend to engage themselves more in sensation-seeking behaviour than females. Zuckerman and Kuhlman (2000), observed that as far as gender differences are concerned, sensation-seeking is more pronounced among males than females. On this, Jackson and Wilson (1993) also added that some features are more apparent in men, with sensation-seeking being a prime example.

Probing as to why sensation-seeking is higher among men, certain biological factors came to the fore. Several studies refer to positive correlation between sensation-seeking, risk-taking and male testosterone levels (Dabb & Morris, 1990; Daitzman, Zuckerman, Sammelwitz, & Ganjam, 1978; Daitzman & Zuckerman, 1980; Gerra et al., 1999). Testosterone (which is a steroid hormone from the androgen group and is found in humans and other vertebrates), has
been strongly associated with sensation-seeking tendency. Females, on an average, have 40 nanograms of testorenone in each decilitres of blood while males have 300-1000 nanograms per decilitres of blood. Hence, higher the testorenone level, higher is the probability of engaging in sensation-seeking and risk-taking tendency.

Other reason for sensation-seeking being high among males than females could be traced to the social role theory (Eagly, 1987). The ‘social role theory’ provides a framework of some social norms which are more likely than others to emerge and remain stable over time (Wood & Eagly, 2002) and contends that physical differences between the sexes, such as gestation and muscle mass, and early differences in infant temperament (Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006), increase the likelihood that females and males will adopt certain roles and behavioural characteristics (Wood & Eagly, 2002). Males tend to challenge social conventions than female, because norms relating to gender differences in sensation-seeking might persist (Cross, Cyrenne, & Brown, 2013). This justifies the reason why males are higher on sensation-seeking than females, thus supporting the hypothesis (H24).

In order to find out differences on sensation-seeking tendency among traffic offenders and non-offenders, hypothesis (H31) was framed which expected significant difference with traffic offenders being higher than non-offenders on sensation-seeking. The finding of this study also supported this hypothesis (H31), with traffic offenders scoring higher than non-offenders on sensation-seeking.

The findings of the present investigation are in line with several studies where traffic offenders caught for drunken driving offence were found to be higher on sensation-seeking than the non-offenders (Donovan et al., 1980, 1985). Another study where first time offenders for driving under the influence (DUI) were compared with multiple DUI offenders, the results showed the latter scoring considerably higher on sensation-seeking than the former (Mc Millen et al.,1991, 1992)

Elaborating on the reasons for traffic offenders being higher than the non-offenders on sensation-seeking, it has been found that traffic offenders are higher on risk-taking propensity. Risk-taking and sensation-seeking are closely related, as the tendency to seek out varied, novel experiences also makes them vulnerable towards activities which are risky and unsafe in nature. This is also reflected with one's desire to take physical, social, legal, and financial risks for the sake of such sensations and experiences (Zuckerman, 1994). Traffic offenders are also found to
have lower risk perception (Heino, Van der Molen, & Wilde, 1992; Horvath & Zuckerman, 1993; Yu & Williford, 1993) and a tendency to underestimate the consequences which also motivates them towards sensation-seeking activities. Another probable reason for higher sensation-seeking among traffic offenders could be the high need for arousal (Trimpop & Kirkcaldy, 1997), which also makes them indulge in sensation-seeking and risk-taking activities.

Another hypothesis (H37) in reference to sensation-seeking and the type of vehicle was postulated which expected no difference among two-wheeler and four-wheeler drivers on sensation-seeking. As per the findings of this study, the results supported the hypothesis (H37) which revealed non-significant difference on sensation-seeking between two-wheeler and four-wheeler drivers.

Overall, sensation-seeking was found displaying gender difference and differences among traffic offenders and non-offenders. However, non-significant difference among two-wheeler and four-wheeler drivers was observed. The results on two and three-way interaction on sensation-seeking among the sample of drivers was also found to be non-significant. Therefore, on the whole, while sensation-seeking tendency differed among male and females, and also among traffic offender and non-offenders, their tendency to seek varied and novel experience, did not differ with the type of vehicle they drove.

**Impulsiveness**

Impulsiveness is defined as the lack of ability to clearly think about one's actions before performing them (Hinslie & Shatzky, 1940). Therefore, to find out the gender differences on impulsiveness, hypothesis (H25) were framed which expected males to be higher on impulsiveness than the females. However, in this study no significant difference on impulsiveness between males and females was found, hence the hypothesis (H25) was rejected.

The findings of the present study revealed non-significant gender difference on impulsiveness among drivers which is also in line with a study done by Steinberg et al. (2008). Several other studies show inconsistent differences between men and women on impulsiveness (Feingold, 1994; Patton et al., 1995; Reynolds et al., 2006).

Probing into the reasons for non-significant gender differences on impulsiveness, a study based on data retrieved from National Longitudinal Survey of Youth suggested biological, structural and familial predictors of impulsiveness (Chapple & Johnson, 2014). Therefore,
narrowing down on some biological factors, some researchers assert a strong link between impulsiveness and MAOA-H genotype in both healthy males and females (Cerasa et al., 2008; Manuck, Flory, Ferrell, Mann, & Muldoon, 2000; Passamonti et al., 2006). MAOA is a catabolic enzyme of serotonin, noradrenalin, and dopamine neurotransmitters, MAOA-H being its high variant and MAOA-L, the low variant (Hariri et al, 2005). Therefore, since MAOA genotypic variation is related to impulsiveness and is present both among both males and females, the non-significant gender difference can also be attributed to this factor. Other predictors for impulsiveness could be the familial factors such as socialization and upbringing, where an individual learns self-control (Gottfredson & Hirschi, 1990). The Indian society is changing in terms of structure and functions with nuclear family set up having working parents and functions of family being outsourced. In such a scenario, parents who are unwilling or unable to invest time in their children or take on the parenting responsibilities fail to instill self-control in children, hence inception of impulsiveness (DeLisi et al., 2010).

Hypothesis (H32) was framed which expected differences with traffic offenders being higher than the non-offenders on impulsiveness. The results supported this hypothesis where traffic offenders were found to be highly impulsive than the non-offenders.

Impulsiveness has been considered as a reliable measure differentiating offenders from non-offenders (Pallone & Hennessy, 1996). Studies dating back to the 19th century have revealed a strong association between impulsiveness and delinquent behaviour (Binder, 1988). Impulsiveness has been observed to be a consistent predictor of antisocial behaviour (Loeber, 1990). Strong association between impulsiveness and antisocial behaviour has also been confirmed by several researchers (Beauchaine & Neuhaus, 2008; Carrasco, Rothhammer, Moraga, Henriquez, Chakraborty, Aboitiz, & Rothhammer, 2006; Maurico, Little, Chassin, Knight, Piquero, Losoya, & Vargas-Chanes, 2009; Neumann, Koot, Barker, & Maughan, 2010). A study based on self-reports and behavioural tasks examined the relationship between impulsiveness, response inhibition, and risk-taking behaviour on risky driving decisions among motorcycle traffic offenders and also found traffic offenders to be higher on impulsiveness than the non-offenders (Cheng, Ng, & Lee, 2012). An epidemiological study on serious traffic offenders, determining their mental health and personality revealed offenders to be higher on impulsiveness and lower in social conscience than the control group (Williams, Henderson & Mills, 1974).
The influential General Theory of Crime (Gottfredson and Hirschi, 1990) suggests offending as a function of opportunity and impulsiveness i.e. tendency to seek novelty, quick processing of information, and inability to delay gratification (Baratt, 1985). Biological basis of impulsiveness has also been accounted for differentiating offenders from non-offenders where 2D:4D digit ratio (the ratio of the second finger over the fourth ring finger length, indicates the prenatal androgens exposure) was examined which ascertained the relationship between biological basis and impulsiveness among offenders (Manning, Scutt & Lewisjones, 1998; Manning, Bundred, Newton, Flanagan, 2003). Although the present investigation did not study the biological basis, it is one of the major causal factor determined by aforementioned studies differentiating offenders from non-offenders.

Determining the differences with regard to the type of vehicle one drives and impulsiveness, hypothesis (H38) was framed which expected no differences between two-wheeler and four-wheeler drivers on impulsiveness. The findings of the present study revealed non-significant results, therefore, supporting the hypothesis (H38).

In a study when motorcyclists traffic offenders (Cheng, Ng, & Lee, 2012) were assessed for their risk-taking behaviour, it was found that impulsive decision-making, willingness to take risks, poor response inhibition and lack of inhibitory control played a significant role. Prior research has also confirmed that one's self-control or lack of it, is reflected in impulsiveness, which is a personality construct (DeLisi, 2010). Therefore, as decision-making, poor inhibition and poor self-control is more related to an individual's personality than the type of vehicle, it can be concluded that the vehicle one drives does not significantly act as a determinant for impulsiveness. Hence, the reason for non-significant difference with regard to two-wheeler or four-wheeler driver on impulsiveness could be that maneuvering both type of vehicles can be done impulsively hence both type of drivers are equally probable indulging in the same.

The two-way and three-way interactions were also performed and the results found the two-way interaction for gender and traffic offenders/non-offenders as significant with male offenders scoring higher than the female offenders, male non-offenders and female non-offender. Male offenders were also found to be higher as compared to other groups on unsafe driving. There is a probability that this particular group might be the 'notorious one' as it scored higher on Unsafe driving and impulsiveness. The reason for the same could be traced to the self-determination theory (Deci & Ryan, 1985, 1987, 1991) which asserts a strong link between
individual differences in their general motivational orientations due to different exposure of autonomy-supportive versus controlling environments during their upbringing. This theory has found support for delinquency among male offenders as well (Hawkins & Novy, 2011). Other reasons for male offenders being higher on impulsiveness could be the incapacity among offenders to postpone gratification and limit impulses (Moffitt et al., 2001), the prevalence of 'impulsivity gene' among violent offenders (Coghlan, 2010), and the combination of acting without thinking, and lack of concern for consequences (Snoyman & Aicken, 2011). Hence, impulsiveness was found to be significant among traffic offenders and non-offenders whereas non-significant difference among males and females, two-wheeler and four-wheeler drivers emerged.

Summing up, the present study aimed to assess the role of driving anger, vengeance, boredom proneness and sensation-seeking in propensity towards unsafe driving. The present investigation also studied the role of impulsiveness in relation to unsafe driving and all the other variables on the sample of four-hundred drivers. This study helped to provide a comprehensive picture on the role of psychological variables and its influence on unsafe driving behaviour. The present investigation studied the relationship of various variables with unsafe driving and found positive correlation among all the variables assessed. The inter-correlations between different variables were also studied which presented a mixed picture of some variables being positively correlated while some not supporting correlation with one another. This research also found impulsiveness and sensation-seeking as the major predictors of unsafe driving among majority of drivers. Vengeance and driving anger also proved to be significant predictors of unsafe driving among most of the groups while boredom proneness predicted unsafe driving only among one group of driver. The present study also investigated gender and group (traffic offenders/non-offenders and two-wheeler/four-wheeler drivers) differences and found that female drivers were increasingly similar to attitudes and behaviours of male drivers with diminishing gender gap. The traffic offenders outweighed non-offenders on some aspects of study variables but the difference was not highly adverse or large between them. This could be due to the fact that habitual traffic offenders were not studied who might have shown larger differences. Four-wheeler drivers outweighed the two-wheeler drivers in terms of unsafe driving whereas vengeance was found to be reflected among the two-wheeler drivers as per the results of the present study. All the other variables did not show difference among two-wheeler and four-wheeler drivers.
CHAPTER VIII
SUMMARY

The aim of present investigation was to study the role of driving anger, vengeance, boredom proneness, sensation-seeking in propensity towards unsafe driving. Additionally, the role of impulsiveness on unsafe driving and other variables was also assessed. The sample for this study was taken from the tricity area comprising of Chandigarh, Panchkula and Mohali (India) and included a data from 823 participants from which 400 vehicle users were chosen who met the inclusion criteria. The final sample included 200 traffic offenders and 200 non-offenders in the age range of 18-23 years. Traffic offenders with more than two challans/tickets for moving violations (any traffic violation when the vehicle is in motion) were selected. Whereas, non-offenders referred to those drivers who had not received any challan/ticket for any of the traffic offences so far. This sample was also divided into male and female drivers and further sub-divided into two-wheeler and four-wheeler driver categories in equal numbers. The two-wheeler drivers referred to those drivers who exclusively used a two-wheeler vehicle for commuting similarly four-wheeler drivers included those drivers who only drove a four-wheeler vehicle. The sample comprised of students who were financially dependent on parents. This sample was administered the driving anger scale (Deffenbacher et al., 1994), driving vengeance questionnaire (Wiesenthal et al., 2000), sensation-seeking scale (Indian adaptation) (Basu et al., 1993), Dula dangerous driving index (DDDI) (Dula & Ballard, 2003) and Baratt’s Impulsiveness Scale (BIS-11) (Patton et al., 1995), to evaluate their propensity to unsafe driving against various psychological parameters.

The sample was classified on three broad categories namely traffic offenders and non-offenders, gender (males and females) and two-wheeler and four-wheeler drivers. On the basis of aforementioned categories, a set of twenty-six groups emerged viz. males, females, traffic offenders, non-offenders, two-wheeler drivers, four-wheeler drivers, male offender, female offender, male non-offender, female non-offender, male two-wheeler drivers, female two-wheeler drivers, male four-wheeler drivers, female four-wheeler drivers, offender two-wheeler drivers, offender four-wheeler drivers, non-offender two-wheeler drivers, non-offender four-wheeler drivers, male offender two-wheeler drivers, female offender two-wheeler drivers, male offender four-wheeler drivers, female offender four-wheeler drivers, male non-offender two-
wheeler drivers, female non-offender two-wheeler drivers, male non-offender four-wheeler drivers and female non-offender four-wheeler drivers. All these groups were assessed on the variables of unsafe driving, driving anger, vengeance, boredom proneness, sensation-seeking and impulsiveness. The results obtained on different variables were analyzed using appropriate statistical analysis viz. descriptive statistics, correlation, step-wise multiple regression analysis, analysis of variance (ANOVA), and t-test analysis.

Correlation analysis was applied to assess the relationship of unsafe driving with all the variables under study and the inter-correlation analysis was also conducted between driving anger, vengeance, boredom proneness, sensation-seeking and impulsiveness. Regression analysis delineated the significant predictors for criterion variable viz. unsafe driving. Analysis of variance was also conducted to explore the gender differences and differences among traffic offenders and non-offenders and among two-wheeler and four-wheeler drivers on unsafe driving, driving anger, vengeance, boredom proneness, sensation-seeking and impulsiveness. The 2 x 2 x 2 analysis of variance on the subjects categorized by traffic offenders and non-offenders, gender (males or females), and two-wheeler drivers or four-wheeler drivers, was conducted. The t-test was applied as a post–hoc analysis to find out the significance of difference between various groups.

**Findings:**

1. A positive relationship was expected between unsafe driving and driving anger among all groups of drivers. The present study supported positive correlation between unsafe driving and driving anger on the total sample and among groups of males (viz. male offenders, male four-wheelers drivers, male offender two-wheeler drivers, male offender four-wheeler drivers), traffic offenders (viz. offender four-wheeler drivers) and four-wheeler drivers. However, results of all the other remaining group of drivers revealed non-significant correlation.

2. For Unsafe driving and vengeance, a positive correlation was expected and findings of the present study corroborated it in several groups of male drivers (viz. male offender, male non-offender, male two-wheeler driver, male four-wheeler driver, male offender two-wheeler driver, male non-offender two-wheeler driver), female drivers (viz. female offender, female non-offender, female two-wheeler driver, female four-wheeler driver, female offender two-wheeler driver, female non-offender two-wheeler driver, female
offender four-wheeler driver, female non-offender four-wheeler driver), traffic offenders, non-offenders and its groups (viz. offender two-wheeler driver, non-offender two-wheeler driver, offender four-wheeler driver, non-offender four-wheeler driver) and two-wheeler and four-wheeler drivers. Results of remaining groups of drivers on correlation between Unsafe driving and vengeance however were non-significant.

3. A positive relationship was expected between unsafe driving and boredom proneness in all groups of drivers. Findings of the present study revealed positive relationship between unsafe driving and boredom proneness on the total sample, males and its groups (viz. male offender, male non-offender, male two-wheeler driver, male non-offender two-wheeler driver, male offender four-wheeler driver), female and its groups (viz. female offender, female non-offender, female four-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver), traffic offender and its group of offender four-wheeler driver, non-offender and its group (viz. non-offender two-wheeler driver, non-offender four-wheeler driver), two-wheeler driver and four-wheeler drivers. While the results of other remaining group of drivers revealed non-significant correlation between Unsafe driving and boredom proneness.

4. A positive correlation between unsafe driving and sensation-seeking in all the group of drivers was expected. Results of the present study found positive correlation between unsafe driving and sensation-seeking in all the group of drivers except two groups i.e. female offender two-wheeler driver and female offender four-wheeler driver.

5. A positive relationship was expected between unsafe driving and impulsiveness in all groups of drivers. Findings of the present study revealed positive correlation among all the group of drivers except two groups i.e. female offender four-wheeler drivers and female non-offender two-wheeler drivers.

6. A positive relationship was expected between driving anger and vengeance in all groups of drivers. The findings of the present study found positive correlation on total sample, males and its groups (viz. male, male offender, male non-offender, male two-wheeler driver, male four-wheeler driver, male offender two-wheeler driver, male offender four-wheeler driver), traffic offender and its groups (viz. offender two-wheeler driver, offender four-wheeler driver), non-offenders, two-wheeler driver and four-wheeler drivers. The remaining groups of drivers failed to reach the significance level.
7. A positive correlation was expected between driving anger and boredom proneness in all the group of drivers. However, the results revealed non-significant correlation among all groups of drivers.

8. A positive correlation was expected between driving anger and sensation-seeking among all the group of drivers. However, the results of the present study revealed non-significant correlation between driving anger and sensation-seeking amongst the entire groups of drivers.

9. A positive correlation was expected between driving anger and impulsiveness but the groups revealed non-significant correlation between driving anger and impulsiveness except two group of drivers i.e. four-wheeler drivers and more particularly the male four-wheeler drivers.

10. A positive correlation between vengeance and sensation-seeking was expected among all the group of drivers. The findings of this study revealed male and its groups (viz. male offender, male two-wheeler driver, male offender two-wheeler driver, male non-offender two-wheeler driver), female and its groups (viz. female non-offender, female two-wheeler driver, female offender two-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver), traffic offender and its group (viz. offender two-wheeler driver), non-offender and its group (viz. non-offender two-wheeler driver), two-wheeler driver and four-wheeler driver as positively correlated on vengeance and sensation-seeking. However, rest of the groups failed to reach the significance level.

11. A positive correlation between the vengeance and impulsiveness in all groups of drivers was expected. Findings of the present study found positive correlation between vengeance and impulsiveness on the total sample, males and its groups (viz. male offender, male non-offender, male two-wheeler driver, male offender two-wheeler driver, male non-offender two-wheeler driver), female and its groups (viz. female non-offender, female two-wheeler driver), traffic offender and its groups (viz. offender two-wheeler driver), non-offender and its groups (viz. non-offender two-wheeler driver), two-wheeler and four-wheeler drivers.

12. A positive correlation between boredom proneness and sensation-seeking was expected. The findings of the present study revealed all the groups of drivers as positively correlated on boredom proneness and sensation-seeking.

13. The relationship between boredom and impulsiveness was also assessed. Findings revealed that majority of the groups are positively correlated on boredom proneness and
impulsiveness except groups of male non-offender, male offender two-wheeler driver, male non-offender two-wheeler driver, male non-offender four-wheeler driver, female offender two-wheeler driver and female non-offender four-wheeler driver as showing a significant positive correlation between boredom proneness and impulsiveness.

14. A positive correlation between sensation-seeking and impulsiveness was expected. The findings of the present study revealed majority of group of drivers as positively correlated on sensation-seeking and impulsiveness except the groups of female offender, female offender two-wheeler driver, female offender four-wheeler driver, female non-offender four-wheeler driver, male non-offender two-wheeler and male non-offender four-wheeler drivers.

15. A non-significant correlation between vengeance and boredom proneness was expected. The results also found majority of the groups as not significantly correlated on vengeance and boredom proneness except two-wheeler drivers, male two-wheeler drivers, male offender two-wheeler drivers and offender two-wheeler drivers.

16. Driving anger was expected to emerge as a predictor of unsafe driving in all the group of drivers. The groups in which driving anger emerged as a significant predictor of unsafe driving was the total sample, traffic offender and its group of offender four-wheeler driver, group of males (viz. male offender, male offender two-wheeler driver and male offender four-wheeler driver) and female non-offender. However, the results of the other remaining groups did not find driving anger as a predictor of unsafe driving.

17. Vengeance was also entered as a predictor in multiple step-wise regression analysis and it was expected that unsafe driving will be predicted by vengeance in all the group of drivers. As per findings of the present study, the groups in which vengeance emerged as a predictor of unsafe driving was the total sample, males and its groups (viz. male offender, male two-wheeler driver, male four-wheeler driver, male offender two-wheeler driver), female and its group of female four-wheeler driver, traffic offender and its groups (viz. offender two-wheeler driver, offender four-wheeler driver), non-offender and non-offender two-wheeler driver, two-wheeler driver and four-wheeler driver. However, the results of the rest of the groups did not find vengeance as a predictor of unsafe driving.

18. Boredom proneness was too assessed in terms of a significant predictor for unsafe driving. However, the findings of this study revealed only one group of driver i.e. female offender four-wheeler revealing boredom as a predictor for unsafe driving. All other group of drivers did not find boredom proneness as a predictor of unsafe driving.
19. Sensation-seeking was also expected to be a predictor of unsafe driving among all groups of drivers. The present investigation revealed sensation-seeking as a predictor of unsafe driving among majority of group of drivers except five groups i.e. except offender two-wheeler driver, male non-offender four-wheeler driver, male offender two-wheeler driver, female offender two-wheeler driver and female offender four-wheeler driver.

20. Impulsiveness was expected to emerge as a predictor of unsafe driving in all the group of drivers. The results of the present study revealed majority of the groups showing impulsiveness as a major predictor of unsafe driving except groups of non-offender two-wheeler driver, male offender four-wheeler driver, female non-offender two-wheeler driver and female offender four-wheeler driver.

21. Gender differences were expected on unsafe driving and the findings of the present study also revealed males scoring higher than females on unsafe driving.

22. Gender differences were expected on vengeance with males scoring higher than the female drivers. The results however revealed non-significant gender differences on vengeance.

23. Gender differences were expected on boredom proneness with males being higher than the female drivers. The findings of the present study also found men scoring higher than women on boredom proneness.

24. Gender differences were expected on sensation-seeking with males to be higher than the female drivers and results also corroborated the present study.

25. Gender differences were expected with males being higher than females on impulsiveness. However, the results found no significant difference on impulsiveness between males and females.

26. Driving anger was also assessed in terms of gender differences and no difference was expected on the same. As per the findings of this study also no difference among males and females on driving anger emerged.

27. It was expected that there would be differences among traffic offenders and non-offender on unsafe driving. The results of the present study also revealed traffic offenders scoring higher than non-offenders on unsafe driving.

28. Traffic offenders were expected to differ from non-offenders on driving anger. The findings of the present study however found non-significant difference on the same.
Vengeance was also analyzed in terms of differences among traffic offenders and non-offenders. The results of the present study revealed traffic offenders to be higher on vengeance than the non-offenders.

Traffic offenders were expected to score higher on boredom proneness than the non-offenders. The results however, revealed non-significant difference between traffic offender and non-offender on boredom proneness.

Differences among traffic offenders and non-offenders on sensation-seeking were also assessed. The finding of this study also found traffic offenders scoring higher than the non-offenders on sensation-seeking.

Traffic offenders and non-offenders were also expected to differ on impulsiveness. The results also found traffic offenders to be more impulsive than the non-offenders.

Differences with regard to the type of vehicle on unsafe driving were also framed where non-significant difference was expected. The results however, revealed four-wheeler drivers to be higher than the two-wheeler drivers on unsafe driving.

No difference between two-wheeler and four-wheeler drivers was expected on driving anger. As per the finding of this study as well, non-significant difference emerged.

No difference among two-wheeler and four-wheeler drivers on vengeance was expected. The present investigation however found two-wheeler drivers to be higher than four-wheelers on vengeance.

It was expected that there would be no difference among two-wheeler and four-wheeler drivers on boredom proneness and the present study too revealed non-significant difference among two-wheeler and four-wheeler drivers.

No difference was expected among two-wheeler and four-wheeler drivers on sensation-seeking. As per the findings of this study, the results also found non-significant difference on sensation-seeking between two-wheeler and four-wheeler drivers.

It was expected that there would be no differences between two-wheeler and four-wheeler drivers on impulsiveness. The findings of the present study also revealed non-significant results.