CHAPTER I
INTRODUCTION

The world stands on a threshold of a crisis of an epidemic proportion. More than a million people die in road crashes globally. Every day nearly 3,400 people get killed on the world's roads (World Health Organization, 2013). Road traffic fatalities is the eighth leading cause of death globally and it is estimated to become the fifth leading cause of death by 2030. In 2010, more than one million people lost their lives on world’s roads, which, according to World Health Organization (WHO), is “unacceptably high”, taking “an enormous toll on individuals and communities as well as on national economies” (WHO, 2013, p.V).

In India, the total number of registered vehicles increased fourteen times from 5.3 million in 1981 to 72.8 million by 2004, majority of them being motorized two-wheeled vehicles (71%), followed by 12% of cars, jeeps and taxis, 1% buses and remaining are other vehicles. The total number of registered vehicles is indicative of the overall pattern of motorization (Gururaj, 2008). Thus, the economic development and increased motorization, road networks, and inadequate public transport system, has led to increased personalized vehicles and equally disturbing increase in road crashes.

Ninety percent of road traffic deaths occur in low-income and middle-income countries (WHO, 2009). India having 1% of vehicle population contributes towards 10% of road traffic crashes, which is the seventh leading cause of death (11% of all deaths) in India, with RTIs (Road traffic injuries) making up to 78% of them. If no major action is taken, road traffic crashes are predicted to result in deaths of around 1.9 million people annually by 2020 (WHO, 2013), with 83% rise in road traffic deaths in low-income and middle-income countries with the overall global increase of 67% by 2020 (Mohan, 2002; Paden, 2004).

As per Indian road data, 83.5% of road crashes were found to be due to driver’s fault, and other contributing factors were mechanical defects in vehicles (3%), pedestrian fault (2.3%), fault of passenger (2.4%), bad roads (1.1%), bad weather (0.9%) and several other factors like cattle or fallen trees on the roads (6%), etc. (Aggarwal, Kaur & Dhillon, 2012). The large number of vehicles has given rise to frequent incidents of road rage and unsafe driving leading to road traffic crashes, fatalities and injuries.
Unsafe driving refers to an act of driving on roads that jeopardizes one’s own or the other road user’s life. Consequences of unsafe driving are road crashes, fatalities and injuries leading to acute hospitalization, trauma, financial loss, etc. Unsafe driving can be considered as an intentional act of driving where an individual puts himself and others at greater risk. Aggressive and risky driving behaviour increases the risk of a road crash which can have several consequences including the immediate consequence of a crash, resulting in injuries to people and damage to the vehicle. There are societal consequences involving, traffic challan/traffic tickets, increased insurance rates, and lawsuits notwithstanding the economic consequences like medical and hospitalization cost, long period of absence from work in case of injuries, man-hour losses and economic loss in case of death.

Professor Ivers in her study on over 20,000 drivers deemed to be the Australia's largest study on young drivers observed, "if young drivers engage in a range of risky or unsafe driving behaviours, regardless of their perceptions, their crash risk escalates significantly. Risky driving behaviours include speeding, carrying multiple passengers (more than the permissible limits), listening to loud music, using mobile or text messaging while driving. The research evidence shows that these behaviours are significant contributors to road crashes, particularly among young drivers who are still building their road skills in the first year of driving" (George research, 2009, p.1).

A traffic scenario has three most essential components i.e. the human/road user, the vehicle and the road environment. In majority of traffic related crashes, human error has been cited as major causal factor which makes it imperative to study driving behaviour of people. Road safety researchers have tried to enlist certain contributory factors to road traffic crashes and have classified them into behavioural, environmental and vehicular failures (Sabey & Taylor, 1980). Based on a study of 2041 road crashes, human factors were enlisted as the major contributory factor (Sabey & Taylor, 1980), therefore behavioural failure as being commonly reported factor contributing to death and injury on the roads (Department for Transport, 2008).

Over 70 years ago, the study of driver's behaviour in context of automobile crashes was held imperative (Ross, 1940). Researchers have tried to find the relationship between driver's behaviour and road safety and it has been found that driver's behaviour varies as a function of attitudes, subjective norms and perceived behavioural control. It has also been observed in earlier studies (Arthur & Graziano, 1996; Dahlen & White, 2006; Jonah, 1997; Lajunen & Parker, 2001)
that driver’s personality is a good predictor of dangerous driving behaviour (Arthur & Graziano, 1996; Blanchard, Barton, & Malta, 2000). Driving behaviour has also been found to be a reflection of the underlying personality, attitudinal, and motivational characteristics of the driver (Stradling, Meadows, & Beatty, 2000). According to Santos (1995), psychological variables are associated with high levels of inter-individual variability, which can have a significant impact on driving behaviour. Driver has been considered as the main factor contributing to death and injury on the roads (Sabey & Taylor, 1980). In majority of road crashes, human error has been found to be a major cause that makes it imperative to study the driving behaviour of people.

Looking into the driver behaviour, specifically the driver’s personality which has long been recognized as a significant predictor of unsafe driving (Arthur, Barret, & Alexander, 1991; Fine, 1963; Tillman & Hobbs, 1949), this study was designed to understand human behaviour on roads which falls under the domain of ‘Traffic Psychology’. In the west, there have been quite a number of studies that emphasized on personality variables in a driving environment while not much data on this aspect is available in India. As put forth by Rothengatter (1997), since not much progress has been done on research in road user behaviour, the need to study it from the behavioural perspective becomes all the more important. For the purpose of this study, driving anger, vengeance, boredom proneness, sensation-seeking and impulsiveness were selected to check the propensity towards unsafe driving.

Driving is a complex task including multiple cognitive and motor tasks (Groeger, 2000), evoking a range of emotions from joy to frustration and fear to anger, etc. Anger while driving has been found to be one of the most influential predictors of aggressive and unsafe driving behaviour (Dahlen & Ragan, 2004b). Since anger is one of the most commonly experienced emotions, it was considered quintessential for this study and hence was included in this research. Anger while driving has found to correlate positively with traffic violation and aggressive incidents (Deffenbacher, Lynch, Oetting, & Yingling, 2001; Deffenbacher, Oetting, & Lynch, 1994; Lajunen, Parker, & Stradling, 1998a, Underwood, Chapman, Wright, & Crundall, 1999). It has been found that proportion of population do display more anger behind the wheel than elsewhere (Byrne, 2000), anger being more likely to occur while driving as compared to other daily activities. Anger in a driving context is much researched upon in the West, as it is relatively common to experience this emotional state while driving (Deffenbacher, Lynch, Oetting, & Swaim, 2002).
Another closely related variable to anger is vengeance. In a driving context, vengeance is defined as “the infliction of harm in response to perceived injustice from other drivers’” (Hennessy, 2000, p. 11). For some drivers, this desire is fulfilled through acts of personal aggression and violence (Hennessy & Wiesenthal, 2001). In another words, “vengeance” denotes a tendency to exert power and control and/or provide emotional relief by purposeful retaliatory harm in response to a perceived injustice. Tillman and Hobb's classic study (1949) had found that accident-prone drivers were “readily annoyed at other motorists on the road, often criticizing their own mistakes in others.” Such narcissistic responses to other's behaviour may also have great relevance to road violence, hence, was undertaken to be studied in this research.

Boredom is another contributory factor which was probed in this research. Boredom felt by an individual while driving can be defined as “a state of relatively low arousal and dissatisfaction, which is attributed to an inadequately stimulating situation” (Mikulas & Vodanovich, 1993). Boredom being a low-arousal-mood state has been associated with under-stimulating, an uninteresting and a familiar environment (Davies & Parasuraman, 1982). A bored individual or a driver is prone to search for stimulation while driving, which may compromise one’s safety margins on roads. There is, however a relative dearth of literature on determining the role of boredom proneness in driving research (Heslop, 2012).

The present investigation also studied sensation-seeking among individuals. Sensation-seeking which is considered as a constitutional characteristic of an individual (Zuckerman, 1979) is found to be positively related with speeding where individuals high on sensation-seeking are more likely to speed, overtake and use more shortcuts while driving (Jonah, 1997). Sensation-seeking is one of the personality dimensions quite significantly and positively related with risky driving practices among youngsters (Jonah, 1997).

Lastly, impulsiveness as a significant behaviour pattern was included in this research to study unsafe driving. Impulsiveness is a multi-factorial construct (Evenden, 1999) that involves a tendency to act on a whim, displaying behaviour characterized by little or no forethought, reflection, or consideration of the consequences (VandenBos, 2007). Impulsive actions are often risky and taken at a spur of the moment which can result in undesirable consequences. This tendency has also been associated with drunken driving, refraining from the use of seat belt, impaired behaviour, reduced ability to perceive traffic signs, and dangerous driving (Hansen, 1988; Loo, 1978; Stanford, Greve, Boudreaux, Mathias, & Brumbelow, 1996). Moreover,
impulsiveness is thought to be associated with the type of impulsive aggression that characterizes itself in most aggressive driving behaviour and has been associated with general anger, aggression (Stanford & Barratt, 1992) and driving anger as well (Deffenbacher, Deffenbacher, Lynch, & Richards, 2003).

This research which aims to study the road user behaviour from psychological perspective is among the very few studies in India. The present study not only intended to understand the role of various psychological variables in propensity towards unsafe driving but also took into consideration various groups of drivers. The sample was categorised into groups of male and female drivers, traffic offenders and non-offenders, and those drivers who either drove a two-wheeler or a four-wheeler vehicle.

As far as gender differentiation is concerned, both male and female in a driving situation are prone to, more or less, react to different external stimulus based on their own individual psychological make-up, depending upon circumstances, geographical placement and their demographic profile. However, the fact remains that the driver being one of the most crucial component of three-way interface of road-user experience, both genders remain significant elements of every study. Hence, in this research too, gender differences were also studied.

There is dearth of comparative research studies on two- and four-wheeler drivers even in the West, considering the fact that most of the western nations lack a variety of vehicles that we have in the eastern part of the world. Vanderbilt (2008) in his book, “Traffic: Why Do We Drive The Way We Do” commenting on the Indian driving scenario, observes, “Delhi has forty-eight modes of transport, each struggling to occupy the same space on the carriageway” (p. 211). This reflects the variety of vehicles Indian roads have. Also, due to heterogeneity of vehicle population in India where most of the young drivers ride two-wheeled or four-wheel vehicles, a comparative study was framed in order to have an idea of the driving trends among the young population. And since, the studies done abroad has mostly focused exclusively on car drivers or motorcyclists separately, this study in the present context was needed.

As per WHO report on Youth and Road Safety (2007), out of 80,400 people who die each year in South-east Asian region from road traffic collisions, majority of them are aged between 15-24 years who mostly use two-wheeled vehicles for commuting. Drivers of 16-20 years of age have been found to have higher crash rates (Arnett, 2002). As per Organisation for Economic Co-operation and Development (OECD, 2006), the increased risk of injury among young drivers
is nested in “a lethal mixture of age, inexperience and gender” (p.1). The youth is also endowed with the propensity to take risk by over speeding leading to road crashes (Elander, West, & French, 1993), tailgating, unsafe accelerations, and rapid lane changes (Jonah, 1986; Preusser, Williams, Ferguson, Ulmer, & Weinstein, 1998) among other factors. Therefore, in the present research, the sample of young drivers was taken into consideration.

Needless to say this study looks at the entire range of its young male and female population including traffic offenders and non-offenders, driving two or four-wheelers, to find out their behaviour patterns and their demographics that need to be addressed. This will help formulate policies to evolve the entire road traffic ecosystem right from determining the psychological predictors, re-engineering the driving licensing system, or bringing about major policy changes for effective execution and enforcement.

This study therefore was designed to assess the role of driving anger, vengeance, boredom proneness, sensation-seeking and also impulsiveness in propensity towards unsafe driving.