Driving Behaviors of Young Adults: Role of Risk Perception, Aggressive Tendencies and Emotional Regulation Strategies

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KHADIJA-TUL-KUBRA

Dr. Muhammad Ajmal

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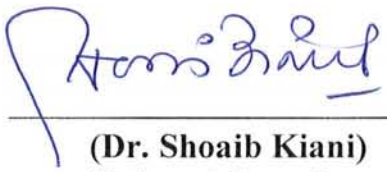
Khadija-Tul-Kubra

Approved By

(Dr. Sobia Masood)
Supervisor



(Dr. Shoaib Kiani)
External Examiner

(Prof. Dr. Anila Kamal)
Director, NIP

Certificate

Certified that MSc. Dissertation titled "**Driving behaviors of young adults: The role of risk perception, aggressive tendencies and emotional regulation strategies**" prepared by **Khadija-tul-Kubra** has been approved for submission to the National Institute of Psychology, Quaid-i-Azam University, Islamabad.

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(Supervisor)

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Abstract

The present study was undertaken to investigate the predictive role of aggressive tendencies and risk perception with risky driving behaviors. The research also examined the moderating role of emotional regulation strategies including cognitive reappraisal and expressive suppression in the relationship of study variables. Buss and Perry Aggression Questionnaire (Buss & Perry, 1992), Risk Taking Attitude Scale (Rundmo & Ulleberg, 2003), Emotion Regulation Questionnaire (Gross & John, 2003) and Manchester Driver Behavior Questionnaire (Reason et al., 1990) were used. The research was conducted in two phases. Phase 1 was a pilot study on 60 young drivers which showed satisfactory psychometric properties of all measures. In phase II, the main study carried out on a sample of 400 young drivers, but cleaned data consisted of 353 drivers (136 women & 217 men). The findings indicated that there is significant positive relationship of aggressive tendencies with risky driving behavior. Risk perception were found to be significantly negatively related to risky driving behavior. Emotion regulation strategies (cognitive reappraisal) were significantly negatively related to risky driving behavior. And significant differences were found between men and women drivers on variables, risky driving behavior, aggressive tendencies, risk perception, and emotion regulation strategies. Limitations and implications of the study have also been discussed.

INTRODUCTION

Chapter 1

Introduction

Traffic accidents constitute a worldwide social and economic issue; a huge number of individuals pass on in car crashes each year. According to World Health Organization, traffic accidents are the ninth reason for deaths globally (WHO, 2009). The issue is all the more intense because the casualties are overwhelmingly youthful and healthy preceding their accidents. It is commonly recognized that human factors may add to accident involvement in traffic (Grayson & Maycock, 1988). This indicates that driving behavior of a person is an important factor to study. In view of an investigation of 2041 auto collisions, Sabey and Taylor (1980) presumed that human factors were contributing components in 95% of the accidents. Specifically, driving conduct was distinguished as the most focal of these elements. As per the annual report on road safety by Nugent and Rhinard (2015) more than 90% of the car crashes were caused by human blunders including over-speeding, risky driving, non-utilization of safety belts, and driving affected by liquor or drugs were the three causes representing around 80% of auto collisions and deaths in Europe.

Driving safety has also become a concern for developing countries as a result of globalization and with increase in trade. This calls social scientist to identify and focus on driver attitudes and conduct towards traffic safety. Driving safety is affected by various factors which together concentrate the level of traffic security or risk. Such factors incorporate driver qualities, road format, the design of the vehicle and the surrounding conditions. However, risky driving behavior also known as road rage behaviors or maladaptive driving, has been particularly attributed for road safety hazards (Gras & Sullman, 2006). Though, people of all ages are involved in risky driving behavior, young people especially men, throughout the world, are considered an important group to be involved in highest crash rate (Shope & Bingham, 2008). Bingham Aggressive vehicle offenses and distractions are the huge elements influencing the involvement of young drivers in accidents or traffic violations between the ages of 16 and 17 years, attitudes towards speeding and distractions in the age of 18 to 24 years (McKnight & McKnight, 2003). McNally and Bradley (2014) highlighted the need to research into the nature and predictors for reckless driving, especially in young people. Hence, the present study focused on the driving behavior of young people.

Empirical research now is focusing on identifying factors that lead to risky driving behaviors. The driver being is one of the main characters who add to the event of an auto mobile collision. His/her personality factors, attitudes, risk perception can lead to risky driving behavior which ultimately can cause a road accidents. It has been found that attitudes and personality factors i.e., sensation seeking, normlessness, anger and hostility have contributed to noteworthy indicators of risky driver behavior in developed countries and, in addition, have been identified as affecting car accidents (Iverson & Rundmo, 2004; Rakauskas, Ward & Gerberich, 2009). However, Lund and Rundmo (2009) found that people in low-income countries reported more risk-taking both in road traffic and in other general circumstances. The perception of risk also relates to the driving behavior. Numerous studies have discovered that risk perception is negatively related with dangerous driving behavior (Cohn, Macfarlane, Yanez, & Imai, 1995), which implies that drivers who perceive more risks for a specific behavior have less tendency to take part in that conduct. However, there is some debate about the impact of risk perception. Some researchers are of the view that risk perception might be a result, not a reason, of behavior (Horvath, & Zuckerman, 1993), whereas others view risk perception as a contributing factor for risky driving behavior (Ulleberg & Rundmo, 2003).

Personality factors such as aggressive tendencies and difficulties in emotional regulation have also been associated with driving behaviors. For example, Donovan and Marlatt (1982) have found aggressiveness to be associated with dangerous driving and accidents, and they propose that together with sensation seeking characteristic, aggressiveness shapes some portion of the motivational reason for reckless driving. Based on their findings they argued that hazardous driving is the expression of outrage and hostility (Arnett, Offer & Fine, 1997). Similarly, one important cause of the maladaptive driving behavior is the presence of the strong emotions of the drivers (Dula, 2003; Nesbit, Conger & Conger, 2007). Feelings and emotions make a motivational inclination (and in this manner an expanded likelihood) to perform a set of behaviors. This could be hazardous for all road users when, for instance, aggressive driving happens in circumstances like heavy city traffic or sharp bends on a country road (Roidl, Frehse & Hoger, 2014). Difficulties in emotional regulation has been associated with anxious and risky driving. However, the relationship of these personality predictors with risky driving behavior still needs to be explored.

The aim of the present study examines the relationship of an individual's aggressive tendencies and risk perception with risky driving behavior. In addition, the existing literature on this topic lacks a complete conceptualization regarding the role of emotion regulation strategies between aggressive tendencies of the person and hazardous driving behavior.

Driving Behavior

Driving is the special phenomenon that includes the adjusted undertaking of a driver to differential conditions with reference to specific driving track, moving vehicles, and objects (Fuller, 2011). According to Elander, West and French (1993), driving behavior is the way driver actually drives including the driving style; speed, consideration, and separation from other vehicles. Driving behavior is made out of two separate components including driving skills and style (Elander, West & French, 1993). Driving skills concern states of mind or attitudes and characteristics of the driver; consequently, personality characteristics could be potential determinants of driving behavior. Driving style concerns the way a driver drives, that is his individual driving habits; as an outcome, different drivers have different driving styles (Chen, Fang, & Tien, 2013). According to Ozkan, Lajunen, Parker, Sumer and Summala (2010), it refers to how the individual rides on the roads every day, it can be assessed through the decision of speed, distance from other vehicles on the road, obedience to the traffic rules and the other deliberate practices which they know. They highlighted that with experience and exposure to the road, the information processing and the motor skills of drivers become almost automatic and they are less involved in crashes while for young and inexperienced drivers, driving behavior is a very important concern.

The term "human error" has been used rather inaccurately to cover almost all types in which people can contribute to accidents through insecure actions. However, recent researches have shown that unsafe acts (that is, potentially hazardous acts carried out under dangerous conditions) can be divided into two distinct behavioral classes: errors and violations (Reason, Manstead, Stradling, Baxter & Campbell, 1990). Errors were defined in several ways (Sender & Moray, 1991), but all definitions contain an element of deviation. In the present context, an error is defined as the failure of planned actions to achieve the desired result without the intervention

of a random or unpredictable agency. Two different types of errors are possible. Actions may deviate from a perfectly adequate plan (loopholes and mistakes); or the actions may correspond to a level that deviates from an appropriate path to the intended objective (error). Violations, on the other hand, can be defined as a deliberate violation of a regulated or socially acceptable code of conduct. From the point of view of accident causation, errors, lapses and violations are the class of great interest (Parker, Reason, Manstead & Stradling, 2002).

Road rage behavior has remained the focus of media and the general population since long. Significant numbers of drivers on US roads feel that they have encountered unfriendly, perilous or aggressive follows up by other drivers, National Highway Traffic Safety Administration (as cited in Parker, Reason, Manstead & Stradling, 2002). However, it has also become a great concern for social scientists as there is no unified definition of what constitutes road rage or anger in road traffic, and nor is there minimal deliberate data about road rage as a phenomenon different from dangerous driving and general aggression (Beirness, 1993; Lajunen, Parker & Summala, 1999). There is broad agreement that accident risk is related with unsafe driving practices and aggressive propensities. As opposed to general ideas of unsafe or high risk driving, the idea of road rage infers particular occurrences of anger and hostility deliberately or intentionally directed to another driver, vehicle, or object (Elander, West & French, 1993; Selzer & Vinokur, 1974).

The major forms of road rage which are occurrences that frequently catch media attention, include direct physical attacks with the vehicle or a weapon, or face to face showdown with another driver or traveler with the goal of damage or real damage. Road rage might be communicated by intentional involvement in dangerous driving practices that are known to build the risk of a crash. Cases of such unsafe acts include intentionally closely following or cutting another driver off of the road because one is furious with the other driver. Road rage may also include provoking different drivers, for example, utilization of inappropriate gestures. (Parker, Reason, Manstead & Stradling, 2002). Milder types of rage may include verbally communicating anger, for example, shouting through a closed window, whining to oneself or to different travelers in the vehicle or utilizing vehicle signals, for example, the lights to express anger or frustration. Such mild types of driver hostility happen in everyday traffic interactions in rush hour (Hennessy & Wiesenthal, 1997). Moderately minor levels of dissatisfaction that might be usually communicated in tense rush hour

could adequately disturb the driver's attention to build risk of accidents (Deffenbacher, Oetting & Lynch, 1994).

The effect of age, gender and attitudes on risky driving behavior were explored by researchers (Gwyther & Holland, 2012). Age was significantly negatively correlated with risky driving styles including high-risk, furious and high-speed driving styles and was significantly positively correlated with a patient behaviors in both genders. Among men drivers significant relationships between age and careful driving were found (Hennessy & Wiesenthal, 1997).

Drivers who have considerable driving experience report that they have a much higher level of instrumental attitude than those with less driving experience, suggesting that their car is more important to them. In addition, low driving experience was significantly associated with higher negative effects, suggesting that participants with limited driving experience had greater errors, and worries about driving. The accident history was significantly negatively correlated with the self-regulatory behaviors (Gwyther & Holland, 2012).

In Pakistan, it has been argued that traffic problems are intensified and pose a threat to road safety as a result of poor driving and the ever increasing number of vehicles on the country's roads. Batool and Carsten (2016) explored the attitudinal determinants of aberrant driving behaviors in Pakistan. In this research pre-crash phenomenon and human factors in road traffic accidents were examined. The results of the study showed that driving behavior could be interpreted in terms of drivers' attitudes and were partly influenced by the socio-demographic characteristics of the drivers. The attitude to enforce and comply with the rules seemed to have the strongest impact on the behavior of Pakistani drivers. In particular, the results show that being student, affluent and a female have negatively affected driving behavior.

Another study aimed to measure seat belt usage rates among Pakistani vehicle occupants. It was to be investigated which factors influence the compliance behavior of safety belts among drivers and also to assess the enforcement of the seat belt laws and their effectiveness in Pakistan (Batool & Carsten, 2016; Klair & Arfan, 2014).

Issues in driving behavior. Car crashes are quite uncommon occasions that happen when a few etiological elements work synergistically, for example, road conditions, the climate, vehicle productiveness and human elements. Drivers' conduct contributes essentially to 90– 95% of accidents (Evans, 1993). Human factors

for example, affected by fatigue, to which adolescents are more vulnerable (Shope, 2006).

Moreover, youngsters need driving knowledge because they are also learners, a factor that predicts a lot of variance in accident participation, regardless of age (Michiels & Schneider, 1984). This implies that the driving task is more complex and less automated and makes considerable demands on attentional assets (Gregersen & Bjijrulf, 1996). Under conditions that differ from the much experienced driver, young drivers may have difficulty making the correct choices rapidly (Deery, 1999). The types of accidents in which young drivers are involved are different from the types of accidents in which more seasoned, and more experienced drivers are involved. Young amateur drivers have generally more single-vehicle crashes (for the most part because of loss of control) and head-on impacts. Novice drivers are additionally over-represented in accidents on crossing points. They share this over-portrayal of accidents on crossing points with drivers of 70 years old and older (Clarke, Ward, Bartle, & Truman, 2006). Some of the studies claim that accidents including young amateur drivers are for the most part caused by inexperience, for example, absence of danger recognition, unintended driving too fast for the conditions or circumstances (Curry, Pfeifer, Durbin & Elliott, 2015; McKnight & McKnight, 2003) and different studies conclude after a police analysis report that a large portion of the accidents including young drivers are caused by deliberate risk taking (the age factor, for example, intentional speeding and drunk driving (Clarke, Ward, Bartle, & Truman, 2006).

Underlying factors influencing youngsters' risky driving behavior. Young drivers' high crash rates are mainly result from immaturity, lack of experience, ailments, and ways of life related with their age and their gender. Young fellows specifically are careless about their driving abilities (OECD, 2006).

Biological research demonstrates that at 18 years of age, regions of the human cerebrum which are in charge of the incorporation of data and motivation control, are as yet developing. Youngsters are still developing in physiological terms, as well as in social terms. One example is to break away from the influence of parents and increasing more autonomy. As a major aspect of this procedure peers turn out to be progressively essential, especially in terms of life related decisions. Young drivers drive in high-risk hours and in high-risk circumstances. For example night rides,

speeding, carrying travelers and a lesser usage of safety belts and driving more older vehicles with less safety features (Deery, 1999).

Figuring out how to drive requires a great deal of training before becoming an expert. In contrast, vehicle handling abilities are moderately simple to learn, people gain knowledge of handling the vehicle in a couple of hours, but other skills like handling the complex situations or potentially hazardous situations on the road require long periods of training. The driving task is partly controlled by the requirement of the road condition, for example, road design, the nearness and moves of other road users and the traffic rules (OECD, 2006).

Notwithstanding, the multifaceted nature of the driving task is especially under the driver's control, due to personal decisions of driving rates, following distances. These decisions may prompt either lower or higher wellbeing or safety margins, and depend on self-assessments of capacity to deal with these traffic conditions. In particular, inexperienced drivers must strive for high safety margins to compensate for their lack of experience. As a general rule, unpracticed drivers have a tendency to pick security margins which are too small. This phenomenon is because of the reason that people in this age group, specifically men, tend to overestimate their abilities and to underestimate the multifaceted nature of the traffic conditions (Norris, Matthews & Riad, 2000).

Theoretically, personality traits are thought to impact the person's perception and evaluation of the environment (Costa & McCrae, 1995). Researches support this assumption (Matthews & Desmond, 1998). It is believed that such appraisals later affect behavior. A comparative perspective was included in social cognitive models that recognize the personality characteristics may influence behavior in an indirect method through affecting the attitudinal or normative determinants of behavior (Ajzen, 1991). Such indirect effects of personality variables are still rarely investigated. For example, how the aggressive tendencies of a person or the propensity to become aggressive effect the driving behavior of a person. And these are the gaps in the literature, this is probably because of the fact that the dominant part of the studies conducted to identify the determinants of behavior that is believed to be most open to change. Personality traits are considered less open to change than social-cognitive variables, and therefore of negligible interest in such studies.

There are strong research evidences that risky and problematic drivers tend to exaggerate hostility or aggressive tendencies and that aggressive drivers have a tendency to be associated with more accidents. As the result of broad meetings and detailed interviews with ten high-accident and ten low-accident subjects, Conger et al. (as cited in Beirness, 1993) reasoned that one factor responsible for the involvement of the crash is a diminished ability to cope or control hostility. Beirness (1993) observed that the largest number of auto mobile collisions were disclosed by a subgroup characterized by aggressive tendencies. Tsuang, Boor and Fleming (1985) additionally led an extensive review of the literature, and furthermore stated that those associated with crashes generally showed less control of hostility and outrage. The purpose of the present study is to investigate the relative importance of aggressive tendencies as a personality factor and risk perception in terms of driving behavior. A central goal is to investigate whether aggressive tendencies and risk perception have a direct impact on behavior or not.

Aggressive Tendencies

Aggressive tendencies have been defined as "a general tendency to take part in expression of physical and verbal aggression, a predisposition to anger, and a tendency to show hostile convictions about other individuals across different circumstances" (Baron & Richardson, 2004; Bushman & Anderson, 2001; Buss & Perry, 1992). Aggression has been defined as "behavior directed at another person that is carried out with immediate plan to cause harm or to hurt the person" (Huesmann, Titus, Podolski & Eron, 2003). However, aggression does not only mean unipolar behavior but may include more extensive classifications and categories of behavior, intention, and affect that is comparable to hostility (Huesmann, Titus, Podolski & Eron, 2003).

Aggression consists of several phenomena that may be similar in appearance, but have different genetic and neural control mechanisms, show different phenomenological manifestations, have different functions and preconditions and are triggered by different external circumstances. Early work by Buss (1961), who think in terms of the way this is done, distinguished three, not entirely independent, but overlapping dimensions (Yudofsky, Silver, Jackson, Endicott & William, 1986) on which One could categorize types of aggression: physical-verbal, active-passive and

direct-indirect. The physical verbal dimension distinguishes between the question of using physical means or words to harm another person (Berkowitz, 1994; Bjorkqvist, 1994). The active passive dimension refers to the extent to which the aggressor actively intervenes in a behavior that aims to hurt someone, with passive aggression referring to causing harm by not doing something.

The direct-indirect dimension is also relevant (Bjorkqvist, 1994; Buss 1961). Direct aggression involves a direct confrontation between aggressor and target. It is defined as any behavior that aims at harming another being (Baron & Richardson, 2004). For example, direct aggression may include shouting or hitting another person. Indirect aggression is defined as any behavior that aims at the purpose of damaging another creature even if it is intended to hurt someone (Richardson & Green, 2003). It is a kind of aggression that avoids a counterattack. It can include "all around" aggression (the hated person is not attacked directly), as well as "undirected" aggression (which has negative effects on no one in particular) (Buss, 1961).

Buss (1961) characterized aggressive behavior as a "reaction that conveys noxious stimuli to another organism," and hostility or hostile aggression can be characterized as the activity of aggressive behavior expects to hurt the target by emotional response, when an individual in in anger (Buss & Durkee, 1957). Regarding driving, the NHTSA (as cited in Shiner & Compton, 2004) characterized aggressive driving behavior as "a more "deliberate" and "threatening" motor vehicle operational behavior that risks street users as compared with other dangerous driving behaviors." From both definitions, it can be seen that aggression is emotion related and frequently refers to "driving anger" or "road rage" (Tasca, 2000).

Aggression is triggered by environmental factors, biological instincts, social-cultural norms, emotions (e.g., fear, anger), impulsivity, attachment style, confidence, critical thinking aptitudes, ruminative idea, and cognitive distortion Rice et al., (as cited in Shiner & Compton, 2004). The type of situations experienced and other socio-ecological factors, for example, obscurity and the presence of hostile messages absolutely impact whether outrage is activated or triggered at all and the measure of outrage experienced (Deffenbacher, Deffenbacher, Lynch & Richards, 2003). However, other studies suggest that factors such as the individual's tendency to

become angry during driving may add to the level of outrage and aggression (Arnett, Offer & Fine, 1997).

Dula (2003) outlined driver aggression from 19 studies into behavioral classifications that incorporate driving speed, running stop signs, horn blaring, shouting, and tailgating can be viewed as aggressive driving behaviors.

A recent study by Mizell, Joint and Connell (1997) estimated that 56% of fatal accidents between 2003 and 2007 included potentially aggressive driving behavior, with speed the most potentially aggressive offense at 31% from total deadly crashes. For example, aggressive driving behavior is particularly hazardous to young people from the point of view of impact safety. This may be because young people, while risk takers, are also inexperienced in driving and do not know how to respond if they reduce the severity of injury when an accident develops. This situation is an example of how the aggressive driving behavior is moderated by the observed feature of being young (Oppenheim & Shiner, 2012).

The driver's aggression can also be caused by personal factors as well as by the traffic conditions. Traffic conditions include traffic jams, delay in red light, or other violations that cause pathetic or irritating situations. Similarly the absence of direct correspondence opportunities have contributed to drivers' aggression (Ellison, Govern, Petri & Figler, 1995). Several studies demonstrate that anger and aggressive behavior in intercourse decline with age, and these studies also demonstrate that men show more aggressive physical behavior than women, and that the individuals who have a tendency to get irate also become aggressive on road during driving hours (Mesken, Hagenzieker & Rothengatter, 2007). In addition, people with an obsessive passion for driving often show more aggressive driving behavior (Philippe, Lecours & Pelletier, 2009).

Drivers were more likely to report anger when traffic congestion was present then when it was not (Underwood, Chapman, Wright & Crundall, 1999). Shinar (1998) observed that the chances of running red lights increased with increasing congestion. On the one hand, there are isolated indications that some drivers actually perceive congestion as a relief from work (Sipress, 2000).

Aggressive driving is age and gender related. Men and young drivers are more aggressive than women and elderly drivers, and the ranks are strongest in the rarest and most extreme aggressive driving: cutting across multiple lanes and continuing on shoulders. Therefore, the gender differences are greater for more aggressive behaviors and riskier than for less aggressive behaviors and riskier. These results are consistent with the fact that women can be as aggressive as men as long as aggressive behaviors are relatively mild (Hyde, 1984; Shinar, 1998).

The presence of passengers was associated with a reduction in the tendency of the driver to honk or cut on a single track. Passengers, however, do not seem to be affected by the more severe behavior of cutting across multiple lanes or overshooting shoulders. Since we were unable to assess the characteristics of the passengers and their relationship with the drivers, it is difficult to interpret this effect. On the one hand, people drive slower in the presence of other family members (Shinar & Compton, 2004). While, young male drivers increase speeding in the presence of passengers (Baxter et al., 1990). Rush hour also trigger the aggressive tendencies, during rush hour traffic restricted the ability to drive right through the lanes, and people were honking their horns, so that the horn's probability was more affected by the observation time (Shiner, 2004).

Risk Perception

Risk perception refers to individuals' subjective judgments about the probability of negative events, for example, damage, sickness, ailment, and death. At the point when a situation is vague, erratic, or probabilistic, interpretations and other subjective assessments about dangers or risks are known as risk perception (Slovic, 2000). The perceived risk concerns how an individual comprehends and encounters the situation. Numerous components may impact risk perception, for example, familiarity with the cause of hazard (Ittelson, 1978), control over the circumstance, and the dramatic role of the phenomenon, rare striking events tend to be overestimated, while frequency of common situations tend to be underestimated (Slovic, 2000). For example, although the actual risk of being involved in a plane crash is very low, numerous individuals are still hesitant to fly.

In modern world risk is perceived and followed up on in two essential ways. Risk as sentiments refers to our natural and instinctive responses to threat. Risk as

analysis and investigation brings logic, reason, and scientific considerations to risk assessment and decision-making. In early risk perception studies, there was evidence of risk as feelings (Fischhoff, Slovic, Lichtenstein, Read & Combs, 1978).

The perception of the risk of an accident while driving is subjective in that one individual's point of view of threat while the other person perceives of caution. The risk perception can be subdivided into the total perceived risk of accident participation during the journey and the perceived risk of specific driver behavior or driving situations. In addition, risk perception may relate to an apparent probability of the happening of an event (e.g., an accident while driving) or the probability that the event will result in adverse consequences (e.g., injury or death). In terms of driving behavior, risk perception refers to "the subjective experience of risks associated with potential traffic hazards or risk hours" (Deery, 1999). Risk perception is therefore considered a precursor to actual driving behavior.

Since young drivers are more likely to underestimate the occurrence of specific risks due to traffic situations, when contrasted with other age groups (Brown & Groeger, 1988; Deery, 1999), they likewise have a tendency to see the dangers in rush hour gridlock less comprehensively (Deery, 1999; Milech, Glencross & Hartley, 1989), and overestimate their own driving aptitudes (Brown & Groeger, 1988).

The risk of a lethal mishap or accident is additionally more harmful for the 16 to 19 year old but the general age relationship was curvilinear since drivers 65+ also had an increased risk, in spite of the fact that not as high as the younger drivers 16-24. Accident involvement of younger drivers were higher than the older ones but once older drivers face the mishap or accident, their recovery is difficult, they were less likely to survive it, probably because of their weaker physical conditions, Fell (as cited in Jonah, 1986). Risks can be taken while driving with or without familiarity with what one is doing. For instance, a driver may drive too firmly behind another vehicle not perceiving the risk that would be made if the driver in the forward vehicle needed to brake abruptly. Another driver may be driving back on an expressway aware of the associated risk, but be prepared to take the risk to avoid other drivers driving in front of him. These cases outline the contrast between risk perception and hazard acknowledgment or utility (Jonah, 1986).

Various observational and self-report studies have analyzed the connection among age and driver risk taking. Michiels and Schreider (1984) reported that young Swiss drivers (18-22) were well on the way to confer violations because they drove too fast for the prevailing conditions and / or lost control of the vehicle. These studies support the concept that young drivers take greater risk by driving fast, not using seat belts, and in crossing overs than the older ones. The non-utilization of safety belts is probably not going to cause mishaps and consequently isn't entirely a driver risk taking conduct. So, the inability to wear a safety belt places the driver and the other road users at higher risk of being involved in an accident and damage. In addition, Evansm, Wasielewski and Buseck (1982) have demonstrated that drivers who don't wear safety belts have a bigger number of mishaps and violations than safety belt users. In this way, non-wearer of safety belts seems to be more serious daring individuals and risk takers than wearers. There is increasing evidence that the same individuals who perform one hazardous driving conduct additionally performs other dangerous practices and that risk-taking is linked to accident involvement Evansm, Wasielewski and Buseck (1982) found that drivers who do not wear seatbelt will probably drive excessively near the vehicle that is in front of them. Deutsch, Sameth and Akinyemi (1980) reported that drivers who ran yellow lights at crossing points were less inclined to wear safety belts.

Cultural differences were examined in risk perception and approaches to road safety and risk behavior in Ghana and Norway. Young drivers were found to be at high risk in both countries compared to older adults (Lund & Rundmo, 2009). Another study was conducted to identify the differences in the perceived risks of traffic accidents in different countries, comparing the perceived risk of traffic accidents in Japan and a North American sample. The results showed that participants in the Japanese sample predicted a higher risk of traffic accidents than participants in the North American sample (Hayakawa, Fischbeck & Fischbeck, 2000).

The road safety factors of young drivers responsible for accidents have been noted, such as distraction, aggressive and violent behavior and inattention (Lee, Victor & Regan, 2013). The consistency and, conversely, the differences in the behavior of young drivers and the factors that cause the accident risk may vary due to situation-specific factors. The young driver, who is characterized by the normlessness, is widespread among adolescents in adolescence, leading them to have more antisocial behaviors and attitudes (Machin & Sankey, 2008).

Young drivers are five to ten times more likely to be victims of traffic accidents when compared with the drivers of the more experienced groups. At the local level, research needs to be conducted to develop traffic accident control strategies. In Pakistan few studies have shown the driver's behavior in road safety (Klair & Arfan, 2014).

Emotion Regulation Strategies

It is said that emotions represent the "wisdom of the ages" (Lazarus, 1991) and provide long-proven answers to recurrent adaptive problems. This idea was developed through functionalist points of view that shed light to the key features of emotions, prepare emotions for proven behavioral responses (Petersen, Sznycer, Cosmides & Tooby, 2012), enhance decision-making for personally relevant events (Adolphs et al., 1999), improve memory for occasions that are critical to recall (Philippe, Lecours & Pelletier, 2009), and encourage relational associations (Keltner & Kring, 1998).

Emotions are not all the time accommodating, sometimes they can conflict with us (Parrott, Zeichner & Stephens, 2003). This can happen when an emotion is of the wrong kind, or in the event that it happens at the wrong time, or with a force that might be strange. In such circumstances, we might be propelled to direct our emotions and feelings. Emotion regulation refers to the forms that influence what emotions we possess, when we experience them, and how we perceive and elicit these emotions (Gross, 1998). Emotion regulation is characterized by the initiation of an objective to change the emotion generative process, and includes the inclination of at least one procedure to impact emotion generation (Gross & Munoz, 1995).

According to Gross (1998), a series of processes which may involve conscious or unconscious, automatic or controlled constructs generally describes emotion regulation. Essentially, emotion regulation, as defined by Gross (1998), refers to the procedures by which people shape the feelings they practice regarding which feelings they encounter, when they encounter them and how they express them. Thomson (1994) extends this definition by emphasizing the goal-oriented, functional nature of emotion regulation in terms of getting desired emotional outcomes and broader objectives. He additionally describe that emotion regulation processes can be both internal (e.g., reinterpretation of events) and external (e.g., sympathy from others) for the individual, and stipulates that the individual must first possess the ability to have effective emotion regulation to precisely access his feelings and rate them.

Emotion regulation should not be viewed essentially as an issue of expanding the experience or eliciting positive-valued emotions or reducing the experience or eliciting the negative-valent emotions (Cole, Michel, & Teti, 1994). Control of both positively and negatively valence feelings may prompt changes in various parts of emotional experience, for example, inactivity, magnitude, duration, articulation and behavioral reactions (Gross, 1998). The term Emotion regulation for the most part is used to depict an individual's capacity to adequately oversee and react to an excited experience. Unconsciously people use emotion-regulating strategies to tackle difficult situations several times a day. Two key emotion regulation methodologies that have been especially considered are cognitive reappraisal and expressive suppression (Gross & John, 1998). Specifically, cognitive reappraisal is characterized as the endeavor to reinterpret an emotion-triggering circumstance in a way that adjusts its meaning and changes its emotional effect (Gross & John, 2003). Expressive suppression is characterized as the endeavor to cover up, restrain or diminish progressive emotion-expressive conduct (Gross & John, 2003; Gross, 1998).

Since the aggression of the driver can be triggered by (negative) emotions, the concept of emotion is also explained in more detail. Emotion is a wide marvel and hard to characterize, additionally there are diverse perspectives of it. Emotions can cause thoughts or themselves be caused by thoughts. Moreover, emotions are associated with a tendency to take action or not, depending on what is in interests (Zeelenberg, 1999). This can lead to avoidance behavior or approach behavior (Gray, 2001). Avoidance behavior happens with negative feelings, (for example, outrage) and approach behavior primarily happens with positive feelings, (for example, bliss).

In addition, recent studies have shown how emotions affect the attitudes and behaviors of drivers. For example, anxiety was significantly associated with arousal and risky driving (Oltedal & Rundmo, 2006). In addition, drivers' anger was significantly linked to speeding (Begg & Langley, 2004; Deffenbacher, Deffenbacher, Lynch, & Richards, 2003). Moreover, negative emotions during driving were associated with increased risk perception, while positive ones were associated with lower risk perception (Hu, Xie & Li, 2013). Finally, Chan and Singhal (2013) showed that emotions shift the attention of drivers and reorient it away from driving to emotional stimuli, resulting in reduced attention and information processing critical to

driving performance. These results suggest that emotions can be harmful to safe driving because it is necessary to regulate them.

For effective human functioning emotion regulation is essential (Gross, 1998; Koole, 2009). Moreover, difficulties or problems in emotion regulation are related with poorer self-regulation which leads to aberrant behaviors, for example, binge eating, risk-taking tendencies, and substance abuse (Cooper, Shaver & Collins,1998). In terms of driving behavior, these findings may indicate that emotions in emotion regulation may affect maladaptive driving (e. g., aggressive, risky), and conversely, the ability to regulate emotions may be associated with more appropriate driving behavior (e. g., careful). In accordance with these assumptions, Feldman, Greeson, Renna, and Monteith (2011) found that difficulties in emotion regulation are related with a greater frequency of text messages while driving. Emotion regulation skills are negatively related to risky driving behaviors such as alcohol and drug use, risk taking, distraction and fatigue, and speeding (Gross, 1998; Koole, 2009).

Research demonstrates that few emotions are more continuous than others. Outrage, joy, and nervousness appear to happen generally frequently (Mesken, Hagenzieker, Rothengatter & Waard, 2007). The strategy that is utilized to decide the commonness of emotions in rush hour gridlock has been shown to influence the type and frequency of reported emotions. Anxiety was more frequently found in interrogations while driving (Roidl, Frehse & Hoger, 2014).

Theoretical Framework

Protection motivation theory (PMT) was founded by Rogers (1975) so as to better comprehend fear appeal and how individuals adapt to them. As indicated by this theory, individuals will probably secure themselves when they face negative outcomes, want to maintain a strategic distance from them and avoid them by taking preventive measures. In general, PMT hypothesizes that there is a connection between risk perception and injuries or accidents occurrences, and that individuals make defensive move when they perceive harmful situation. Improving the components of hazard evaluation, (for example, risk perception and recognize severity) has a joined positive outcome on changing intentions and behavior toward wellbeing or safety (Sheeran, Gollwitzer & Bargh, 2013). When an individual faces negative emotions,

such as anger and hostility during the rush driving hours or in congested traffic conditions, they want to avoid them and take immediate preventive measures. They use emotion regulation strategies to cope with the situation, these are either suppression of certain emotion or reconsideration of the event. Hence, we can say that emotion regulation strategies plays an important role in handling certain situations and it may moderate the link between aggression and risky driving behavior. So this is also an important phenomenon to study. A fundamental postulate is that protective motivation arises from the cognitive appraisal of an event presented is harmful and the belief that prescribed coping strategy may effectively prevent the onset of the aversive event. If an event is not classified as serious, it is likely to occur, or if there is no hope about the event, no strategy can be used, then no protection motivation would be triggered and therefore the behavioral intentions would not change (Dejoy, 1996).

Conceptual Model of the Study

The present study aimed at investigating the relationship of aggressive tendencies, risk perception, and emotion regulation strategies (cognitive reappraisal, expressive suppression) with the risky driving behavior. The conceptual model of the study is presented below:

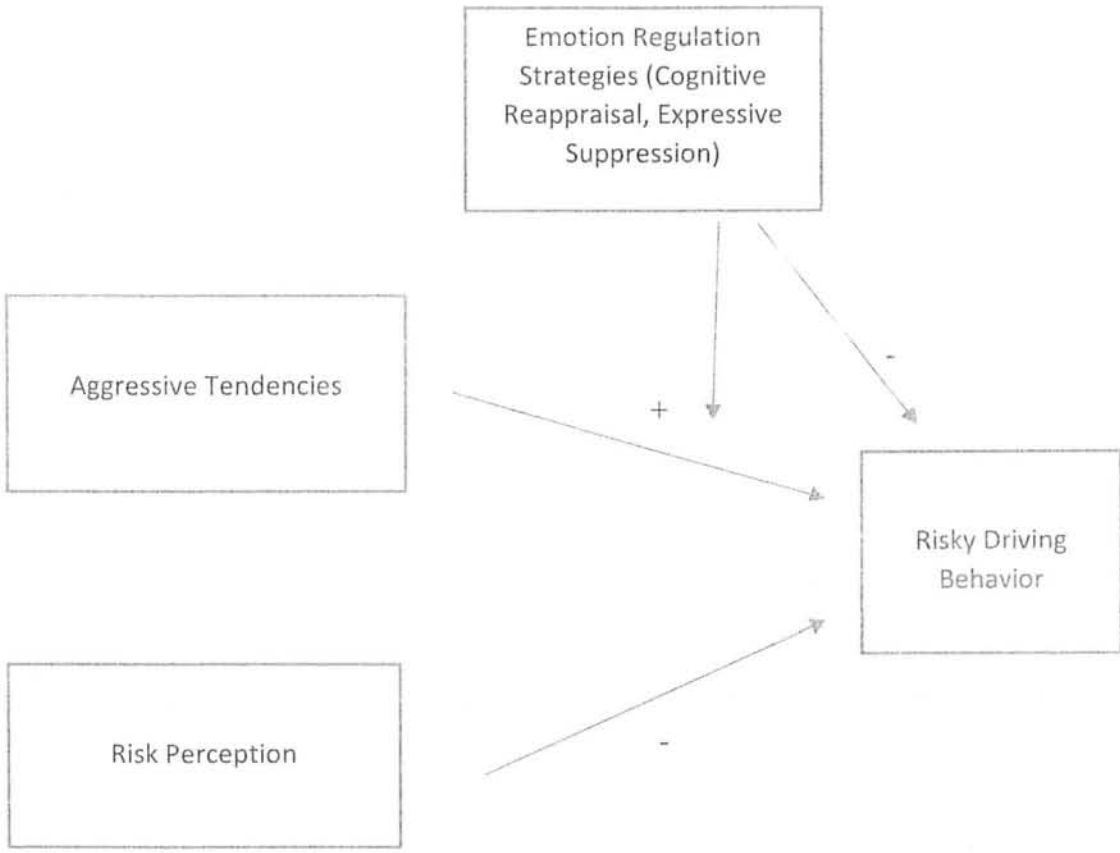

Figure 1. Conceptual Model of the study

Figure 1 shows the conceptual model of the present study. It shows the relationship of aggressive tendencies, risk perception with the moderating role of emotion regulation strategies (cognitive reappraisal & expressive suppression) and risky driving behavior. According to the figure aggressive tendencies has positive relationship with the risky driving behavior and emotion regulation strategies moderate the link between these variables. Risk perception and emotion regulation strategies including cognitive reappraisal and expressive suppression has negative relationship with risky driving behavior.

Rationale of the Study

The aim of the present study was to analyze the predictive role of aggressive tendencies and risk perception for driving behaviors of young adults and also to examine the buffering role of emotional regulation strategies, which is a relatively less explored area and is more applicable in Pakistani society, because in Pakistan, almost 9,000 people have died from traffic accidents each year since 2011, Pakistan Bureau of Statistics (as cited in Batool & Carsten, 2016). Negative traffic safety attitudes and deviant behavior of drivers are prevalent in Pakistan (Batool & Carsten, 2016).

This research can also fulfil the gaps in the existing literature regarding risky driving behavior among young adults. Apart from that, by examining the impacts of aggressive tendencies and risk-taking attitudes on driving behavior of youngsters, the research can help relevant authorities in deriving strategies for safety of the young adults. This can help concerned authorities in coming up with measures to resolve the issue. In addition to that, the existing literature lacks a complete conceptualization on this topic. This research intends to come up with a narrow conceptualization of the issue, based on aggressive tendencies as the major independent variable. As a result, the research under consideration can add to existing literature on the topic. Moreover, it can also prove to be helpful for other researchers studying this topic in the future.

With the growing number of vehicles, ratio of accidents and injuries also increases day by day. As per the measurement of 2010, reckless driving, over speeding and wrong turning has brought about 332 deaths and 27, 264 injuries in less than a year (Hassan, Bashir & Shah, 2010). The National Injury Survey of Pakistan (as cited in Ghaffar, Rajput, Masud, Naru & Amjad, 2001) shows that most injuries occurred in people between the ages of 16 and 45 years (Ghaffar, Rajput, Masud, Naru & Amjad, 2001), as casualties increase, it is urgent to overcome this problem.

Young car drivers are five to ten times more prone to be victims of road accidents when contrasted with drivers among the more experienced groups. At the local level, research needs to be done to develop traffic accident control strategies. Only few studies have shown the driver's behavior in terms of traffic safety issues (Klair & Arfan, 2014; Batool & Carsten, 2012) in our country.

Bhatti, Ajaib, Masud and Ali (2008) found that the main cause of injury in the Pakistani hospitals is road traffic accidents. Their report demonstrated that 1,244 (6.8%) reported cases are in hospitals of road traffic accidents.

A study demonstrated that personality traits (sensation seeking, normlessness, anxiety and anger) are positively related to risky driving behavior and there is a negative relationship between safety attitude and risky driving behavior (Shah, 2010). Another study was conducted to explore the impact of impulsivity, sensation seeking, and driving anger expression on driving performance and behavior among drivers. Results suggested that positive relationship exists between these variables (Sadia, Kamal & Jami, 2015). These studies were mainly focused on personality traits (normlessness, sensation seeking, anxiety, impulsivity and anger) and driving performance and risky driving behaviors. These researches didn't include risk perception as a predictor of driving behavior. And also they didn't predict the role of emotional regulation strategies on driving behavior. It is important to study emotion regulation strategies in relation to driving behavior to educate drivers, how to regulate their emotions by using emotion regulation strategies (expressive suppression, cognitive reappraisal) to ensure road safety. These variables will give a future direction in intervention programs for traffic violation control and will help to minimize the motor vehicle crashes.

Chapter 2

Method

Objectives

The objectives of the present study are as under:

1. To investigate the predictive role of aggressive tendencies and risk perception for risky driving behaviors (e.g., ordinary violations, errors, & lapses) of young adults.
2. To examine the moderating role of emotional regulation strategies in the relationship of aggressive tendencies and risk perception with risky driving behaviors.
3. To explore the differences based on socio-demographic variables (e.g., gender, education, driving training, driving experience etc.) on study variables.

Hypotheses

1. Aggressive tendencies will positively predict the risky driving behavior of young adults.
2. Risk perception will negatively predict the risky driving behavior of young adults.
3. Emotional regulation strategies, including; cognitive reappraisal and expressive suppression will negatively predict risky driving behavior.
4. Emotional regulation strategies including cognitive reappraisal and expressive suppression will moderate the link between aggressive tendencies and risky driving behavior.
5. Men drivers will perceive less risk as compared to women drivers.

Operational Definitions of Variables

Driving Behavior. Reason, Manstead, Stradling, Baxter and Campbell (1990) defined three areas of risky driving behavior as: (1) Violations, a deliberate departure from behaviors that are believed to be safe driving practices; (2) Errors, a failure of planned actions to accomplish their adjusted results; (3) Lapses, distracted behavior, which normally pose no danger to road users. Manchester Driving Behavior

Questionnaire (DBQ) developed by Reason et al. (1990) was used to measure the risky driving behavior. High values on each of the domains represent high trends, while low values represent fewer violations, errors, and lapses.

Risk Perception. Ulleberg and Rundmo (2002) defined risk perception as an objective risk that is independent of the individual's knowledge and concern about the source of the risk. In the present research it was measured through Risk Taking Attitude Scale by Ulleberg and Rundmo (2002, 2003). High score on the scale means individual perceive higher risk, while low score represents lower risk perception.

Aggressive Tendencies. Aggressive tendencies have been defined as "a general tendency to take part in demonstrations of physical and verbal animosity, an inclination to outrage, and an inclination to hold unfriendly convictions about other individuals in different situations" (Buss & Perry, 1992). It was measured through Buss and Perry Aggression Questionnaire developed by Buss and Perry (1992). High score on the scale represent greater aggressive tendencies, while low score means person possess lower aggressive tendencies.

Emotional Regulation Strategies. Gross and John (2003) defined two noteworthy emotion regulation strategies, cognitive reappraisal and expressive suppression. Cognitive reappraisal is characterized as the endeavor to reinterpret an emotion eliciting in a way that adjusts its meaning and changes its emotional effect (Gross & John, 2003; Lazarus, 1991). Expressive suppression is characterized as the endeavor to hide, repress or reduce the progressing emotion expressive conduct (Gross & John, 2003). It was measured through the Emotion Regulation Questionnaire (ERQ) developed by Gross and John (2003). High score on the scale represent person has high use of respective emotion regulation strategies.

Instruments

Manchester Driver Behavior Questionnaire (DBQ). This is the extended version of DBQ originally developed by Reason, Manstead, Stradling, Baxter and Campbell (1990). The original DBQ only focused on two distinct behaviors named Errors and Violations (Reason, Manstead, Stradling, Baxter & Campbell, 1990) the scale has been continually modified and now includes Slips and Lapses (Lajumen, Parker & Summala, 2002), as well as the greater level of distinction between ordinary

and deliberate violations that are now identified as Highway Code Violation and Interpersonal Aggressive Violations. Individual who score high on respective subscales have that particular driving behavior and vice versa. The DBQ includes 24 items on which the respondents are required to indicate on a 6 point scale (0 =*Never* to 6 = *Nearly all the time*) about how often they commit each of the errors while driving. Lajumen, Parker & Summala, (2002) in a cross cultural study reported the reliability of extended DBQ, Cronbach's alpha range from .69 to .87, with Aggressive violations (item no. 6, 16, & 24) .73, Ordinary violations (item no. 9, 10, 17, 19, 20, 22, 23, & 27) .79, Errors (item no. 4, 5, 7, 8, 12, 13, 15, & 26) .73 and Lapses (item no. 1, 2, 3, 11, 14, 18, 21, & 25).

Risk Taking Attitude Scale. It consists of 15 items, and a 5-point Likert type response option ranging from "*strongly disagree* (1)" to "*strongly agree* (5)" adapted from Ulleberg and Rundmo (2002, 2003). The Risk Taking Attitude Scale is structured by three dimensions namely, Traffic Flow vs. Rule Obedience (item no. 1, 2, 3, 4, 5, 6, 7), Speeding (item no. 8, 9, 10, 11, 12), and Fun-riding (item no. 13, 14, 15). Cronbach alpha reliability of the subscales is ranging from 0.62 to 0.64 (Ulleberg & Rundmo, 2003).

Buss and Perry Aggression Questionnaire. The Aggression scale consists of 4 factors, Physical Aggression (item no. 1, 2, 3, 4, 5, 6, 7, 8, 9), Verbal Aggression (item no. 10, 11, 12, 13, 14), Anger (item no. 15, 16, 17, 18, 19, 20, 21) and Hostility (item no. 22, 23, 24, 25, 26, 27, 28, 29). The total score for Aggression is the sum of the factor scores. It consists of 10 items, 5-point Likert type response options ranging from *"extremely uncharacteristic of me* (1)" to "*extremely characteristic of me* (5)" adapted from (Buss & Perry, 1992). Item number 7 and 18 are reversed scored items. The reliability of the scale is 0.78 which is reported by Buss and Perry (1992).

The Emotion Regulation Questionnaire (ERQ). The Emotion Regulation Questionnaire (Gross & John, 2003) is a self-report questionnaire designed to measure the use of two emotion regulation strategies: Cognitive Reappraisal and Expressive Suppression. Cognitive reappraisal is a form of antecedent-focused emotion regulation whereby the individual modifies his or her thoughts about a potential emotion-eliciting situation in order to alter its emotional impact (e.g., item 7: When I

want to feel more positive emotion [such as joy or amusement], I change the way I'm thinking about the situation).

Expressive suppression is a form of response focused emotion regulation whereby the individual inhibits his or her emotional expression once the emotion has been elicited (e.g., item 9 When I am feeling negative emotions, I make sure not to express them). Gross and John (2003) reported satisfactory internal reliability of the scales (cognitive reappraisal = 0.79 and for expressive suppression = 0.73). This scale consists of 10 items. Respondents answer each item on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Research Design

The present research makes use of quantitative research method. It was conducted in two phases. First phase involved pilot study of variables. The aim of the pilot study was to find out the direction of relationship among study variables and to check the reliability of the scales. The other purpose of the pilot study was the evaluation of the questionnaire as well as research method, and to assess the errors in the questionnaire and remove any irrelevant questions so that improve the quality of data collection. Second phase is the main study and involved hypothesis testing.

Pilot Study

Upon finalization of the instruments, a pilot study was conducted with 60 participants, of whom 30 were men and 30 women. The presence of both men and women allowed for equal representation of both genders thereby preventing any bias in the pilot study. Participants were also asked to give their feedback on the questionnaire booklet and to highlight if they had problems in understanding the items. Later, the data was analyzed through the Statistical Software Package (SPSS) 21 version.

Objectives. Objective of the pilot study was to predict the direction of relationship between the study variables.

Sample. Sample of the pilot study consisted of 60 participants, in which 30 were men and 30 were women drivers. Participants were selected through purposive sampling technique from Rawalpindi and Islamabad. All the drivers were taken on the criteria of driving 6 hours per week with minimum age of 18 years because of the

license criteria of driving according to the Government of Pakistan. Their age ranged from 18 to 25 years. Sample characteristics of participants are given in Table 1.

Table 1

Descriptive Characteristics of Pilot Study Sample (N = 60)

Variables	*M*	*SD*	*f*	%
Age in years	22.8	1.99		
Gender				
Women			30	50
Men			30	50
Driving License				
No			20	33.3
Learner License			11	18.3
Valid License			29	48.3
Driving Experience in years	4.37	2.82		
Car Type				
Personal			32	53.3
Parents/Others			28	46.7
Car Insurance				
Yes			12	20.0
No			48	80.0
Driving duration per week in hours	7.47	7.38		
Fine History				
Yes			28	46.7
No			32	53.3
Accident History				
Yes			28	46.7
No			32	53.3

Results and Discussion of the pilot study

The pilot study was completed without major problems. It has not revealed any significant problems in the present research methods or data collection techniques. Some minor problems related to the complexity of the questionnaire were identified and corrected. Table 1 indicates the sample characteristics with reference to different demographic variables.

Table 2

Alpha Reliabilities Coefficients for Measures in Pilot Study (N = 60)

Scales	No. of Items	α
Driving Behavior	24	.88
Aggressive Tendencies	29	.88
Risk Perception	15	.84
Expressive Suppression	4	.68
Cognitive Reappraisal	6	.71

Table 2 shows the Cronbach alpha reliabilities of the study variables. Table indicates all measures exhibit satisfactory reliabilities.

Table 3

Correlation between Driving Behavior Questionnaire, Risk Taking Attitude Scale, Aggression Questionnaire, and Emotion Regulation Questionnaire among young Adults (N=60)

Variables	1	2	3	4	5
1 DB	-	.34**	-.10	-.06	.30*
2 AT		-	-.34**	.26*	.70**
3 RP			-	.14	-.21
4 ES				-	.03
5 CR					-

Note. DB = Driving Behavior; AT = Aggressive Tendencies; RP = Risk Perception; ES = Expressive Suppression; CR = Cognitive Reappraisal.

*$p < .05$; **$p < .01$

Table 3 shows correlation between study variables. Findings reveal a significant positive correlation between risky driving behavior and aggressive tendencies. Cognitive reappraisal significantly positively correlated with risky driving behavior.

Overall, the findings of the pilot study were in proposed direction. Though, for some variables, the relationship appeared to be nonsignificant, however, it was attributed to the small sample size. There was no issues in the study protocol, so it was decided to proceed for the main study.

Main Study

Sample. Sample consisted of young drivers (men = 217, women = 136) using vehicles for at least 5-6 hours per week, and the participants who can use vehicles on highways /motorways without supervision. Data was collected from Islamabad and Rawalpindi through purposive and convenience sampling method. Participants 'age ranged from 18 to 25years.Detailed description of the sample is given in Table 4.

Table 4

Demographic Profile of the Study Variables (N = 353)

Variables	*M*	*SD*	*f*	%
Age in years	22.38	2.06		
Gender				
Women			136	38.5
Men			217	61.5
Driving License				
No			100	83.3
Learner License			94	26.6
Valid License			159	45
Driving Experience(in years)	4.54	2.8		
Car Type				
Personal			196	55.5
Parents/Others			155	43.9
Missing Values			1	
Car Insurance				
Yes			79	22.4
No			273	77.3
Missing Values			1	
Driving duration per week(in hours)	9.72	7.6		
Fine History				
Yes			163	46.2
No			186	52.7
Missing Values			4	
Accident History				
Yes			159	45.0
No			193	54.7
Missing Values			1	

Procedure

A booklet consisting of informed consent, demographic data sheet and study instruments was used to collect the data from the participants. Before presenting the questionnaire, they were informed of the research and its purpose and instructed that how to complete the questionnaire. They were assured of the anonymity of their answers and the confidentiality of their data. They were asked to complete the questionnaires according to their personal experience and true feelings during driving. After giving the instructions, the participants signed the consent form and responded to the booklet.

Questionnaire were distributed among 400 men/women drivers. A total of 353 questionnaire were returned. In the end, the participants were appreciated for their time and their responses. Later, the data was analyzed through the Statistical Software Package (SPSS) 21 version.

Chapter 3

Results

The aim of the study was to investigate the predictive role of aggressive tendencies and risk perception for driving behaviors of young adults. Moreover, it aimed to examine the moderating role of emotional regulation strategies in the above mentioned relationship. Appropriate statistical procedures were used to analyze the data. Reliability coefficients were calculated to examine the internal consistency of the scales. Descriptive statistics of the scales mean, standard deviation, skewness, kurtosis, and potential and actual values were calculated. Bivariate correlation was used to determine the relationship between study variables. Independent sample *t*-test and One-way ANOVA was used to determine the mean differences between the demographic variables. Process Marco by Andrew F. Hayes was used for the moderation analysis. To find out the predictive role of the study variables regression analysis was used. The results are tabulated as follows:

Table 5

Cronbach's Alpha Reliabilities Coefficients, Mean, Standard Deviation, Skewness and Kurtosis of the Scales used in the Study (N = 353)

Measures	Items				Range			
		α	*M*	*SD*	Potential	Actual	Skewness	Kurtosis
DB	24	.87	46.1	13.3	0-144	27-88	.90	.07
OV	8	.72	14.4	5.16	0-48	8-37	1.26	2.02
Err	8	.72	12.95	4.26	0-48	8-28	1.24	1.36
Lap	8	.60	13.2	3.91	0-48	8-26	.85	.37
AT	29	.86	67.6	17.5	29-145	32-121	.27	-.50
PA	9	.80	19.3	6.9	9-45	9-42	.77	.03
VA	5	.70	7.9	2.7	5-25	5-18	1.26	1.47
A	7	.66	11.5	4.18	7-35	7-29	1.28	1.29
H	8	.80	17.9	6.16	8-40	8-37	.26	-.68
RP	15	.82	50.0	9.97	15-75	24-72	-.09	-.59
RO	7	.70	22.8	5.13	7-35	7-34	-.07	-.58
S	5	.80	16.6	4.3	5-25	5-25	-.06	-.55
FR	3	.71	10.6	3.01	3-15	3-15	-.36	-.69
ES	4	.60	18.5	4.42	4-28	6-28	-.31	-.30
CR	6	.66	29.4	5.52	6-42	13-42	-.21	.017

Note. DB = driving behavior; OV = Ordinary Violations; Err = Errors; Lap = Lapses; AT = Aggressive Tendencies; PA = Physical Aggression; VA = Verbal Aggression; A = Anger; H = Hostility; RP = Risk Perception; RO = Rule Obedience; S = Speeding; FR = Fun Riding; ER = Emotional Regulation; ES = Expressive Suppression; CR = Cognitive Reappraisal; M = Mean; SD = Standard Deviation.

Table 5 shows the alpha reliabilities, means, standard deviation, range (actual and potential) skewness and kurtosis for all the variables of the study. The reliability coefficients for all scales and subscales range from acceptable to satisfactory. The mean score of DB is 46.1 showing that less risky driving behavior is reported by the participants. The values of skewness and kurtosis are ranging between -2 to +2 that are statistically acceptable.

Table 6 shows that all the relationships are significant and in the proposed directions. Risky driving behaviors positively related with aggressive tendencies while it is negatively related with risk perception. Results also reveal negative relationship of risky driving behavior with cognitive reappraisal strategy for emotion regulation. Aggressive tendencies are negatively related to risk perception and its subscales as well as cognitive reappraisal strategy for emotion regulation. Results also show a significant positive inter subscale and subscale to total scale correlation proving the construct validity for all the measures used in the present study.

Table 6

Correlation between Risky Driving Behavior, Risk Perception, Aggressive Tendencies, and Emotion Regulation among Young Adults (N = 353)

	Var.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	DB	-	.88**	.85**	.81**	.40**	.34**	.72**	.88**	.32**	-.15**	-.12*	-.10	-.12*	-.09	-.14**
2	OV		-	.59**	.61**	.37**	.35**	.62**	.85**	.31**	-.18**	-.14**	-.16**	-.14**	-.11*	-.13*
3	E			-	.70**	.34**	.25**	.66**	.69**	.29**	-.07	-.04	-.04	-.12*	-.03	-.17**
4	Lap				-	.46**	.32**	.69**	.71**	.47**	-.12*	-.15**	-.08	-.05	-.05	-.13*
5	AT					-	.81**	.23**	.34**	.74**	-.39**	-.35**	-.24**	-.33**	-.08	-.15**
6	PA						-	.27**	.27**	.38**	-.28**	-.28**	-.19**	-.17**	-.10*	-.22**
7	VA							-	.59**	.19**	-.06	-.06	-.06	-.03	-.09	-.21**
8	A								-	.29**	-.13*	-.11*	-.09	-.11*	-.06	-.11*
9	H									-	-.33**	-.26**	-.24**	-.31**	-.07	-.08
10	RP										-	.85**	.81**	.72**	.13*	.08
11	RO											-	.47**	.44**	.13*	.06
12	S												-	.44**	.09	.06
13	FR													-	.08	.07
14	ES														-	.33**
15	CR															-

Note. DB = driving behavior; OV = Ordinary Violations; Err = Errors; Lap = Lapses; AT = Aggressive Tendencies; PA = Physical Aggression; VA = Verbal Aggression; A = Anger; H = Hostility; RP = Risk Perception; RO = Rule Obedience; S = Speeding; FR = Fun Riding; ES = Expressive Suppression; CR = Cognitive Reappraisal; Var. = Variables.

*$p < .05$; ** $p < .01$

To check the strongest predictor for risky driving behavior among Aggressive Tendencies, Risk Perception, Expressive Suppression, and Cognitive Reappraisal multiple regression analyses were performed. Results are shown in Table 7.

Table 7

Multiple Linear Regression Showing the Effects of Aggressive Tendencies, Risk Perception, Expressive Suppression and Cognitive Reappraisal on Driving Behavior (N = 353)

				Driving Behavior	
				CI (95%)	
Predictor	*B*	*β*	*p*	*LL*	*UL*
Constant	32.5			19.4	45.4
Aggressive Tendencies	.29	.39	.000	.21	.37
Risk Perception	.02	.02	.74	-.11	.16
Expressive Suppression	-.11	-.03	.47	-.42	.19
Cognitive Reappraisal	-.18	-.07	.13	-.43	.06
R^2	.17				
F	17.8				

Note. CI = Confidence Interval; LL = Lower Limit; UP = Upper Limit; *β* = Beta value.

In the Table 7 multiple linear regression was used with to check the strongest predictor for risky driving behavior among all predictors including aggressive tendencies, risk perception, and emotion regulation strategies. Findings reveal that aggressive tendencies appear to be the only significant positive predictor for the risky driving behavior in combined role. Results indicate that 17% of variance in the outcome variable can be accounted by all variables ($F = 17.8$).

To check the strongest predictor for risky driving behavior among Subscales of Aggressive Tendencies (physical aggression, verbal aggression, anger, and hostility) multiple linear regression was done. Results were shown in the Table 8.

Table 8

Multiple Linear Regression Showing the Effects of Subscales Aggressive Tendencies on Driving Behavior (N = 353)

				Driving Behavior	
				CI (95%)	
Predictor	*B*	*β*	*p*	*LL*	*UL*
Constant	5.47			3.24	7.69
Physical Aggression	.10	.05	.02	.01	.18
Verbal Aggression	1.50	.30	.000	1.25	1.75
Anger	2.16	.68	.000	2.00	2.32
Hostility	.09	.04	.04	.001	.19
R^2	.85				
F	524.3				

Note. CI = Confidence Interval; LL = Lower Limit; UP = Upper Limit; *β* = Beta value.

In the Table 8 multiple linear regression analysis was used with subscales of aggressive tendencies as predictor and driving behavior as the outcome variable. Findings reveal that all subscales of aggressive tendencies significantly positively predict risky driving behavior, however, Anger is the strong predictor of risky driving behavior while Hostility is the weakest predictor. The results indicate that 85% of the variance in the outcome variable can be accounted by all predictors *(F* = 524.3).

Table 9

Multiple Linear Regression Showing the Effects of Subscales Risk Perception on Driving Behavior (N = 353)

				Driving Behavior	
				CI (95%)	
Predictor	*B*	*β*	*p*	*LL*	*UL*
Constant	55.84			48.76	62.9
Rule Obedience	-.21	-.08	.18	-.534	.106
Speeding	-.08	-.03	.64	-.47	.295
Fun Riding	-.32	-.07	.24	-.85	.217
R^2	.022				
F	2.64				

Note. CI = Confidence Interval; LL = Lower Limit; UP = Upper Limit; β = Beta value.

In the Table 9 multiple linear regression analysis was used with subscales of risk perception as predictor variables and driving behavior as the outcome variable. Subscales of the Risk perception have not significantly predicted the risky driving behavior. The results of the regression analysis indicated that 2% of the variance in the outcome variable can be accounted by the risky driving behavior ($F = 2.64$).

For examining the moderating role of Emotion Regulation Strategies (expressive suppression & cognitive reappraisal) between study variables Process Macro was used. Results of the analysis shows expressive suppression and cognitive reappraisal not moderate the link between aggressive tendencies and risky driving behavior.

To see the differences of study variables based on demographics (gender, car ownership status, and car insurance) *t*-test analysis were performed.

Table 10

Gender based Differences on Study Variables (N = 353)

	Women (n = 136)		Men (n= 217)				CI(95%)		
Variables	*M*	*SD*	*M*	*SD*	*t*	*p*	*LL*	*UL*	Cohen's *d*
DB	43.3	14.0	47.8	12.5	-3.11	.00	.7.47	-1.6	0.33
OV	13.6	5.4	14.9	4.9	-2.27	.02	-2.43	-.177	0.25
Err	12.1	4.2	13.4	4.2	-2.88	.00	-2.23	-.42	0.30
Lap	12.5	4.1	13.6	3.8	-2.67	.00	-2.0	-.32	0.27
AT	63.6	17.1	70.1	17.4	-3.45	.00	-10.2	-2.79	0.37
PA	17.9	6.7	20.2	6.8	-3.22	.00	-3.83	-.92	0.34
VA	7.7	2.8	8.1	2.5	-1.26	.21	-.94	.205	-
A	10.9	4.4	11.9	4.0	-1.97	.05	-1.82	-.003	0.23
H	17.0	5.7	18.4	6.3	-1.96	.06	-2.6	.001	-
RP	51.8	11.2	48.9	8.9	2.4	.01	.58	5.07	0.28
RO	23.8	5.5	22.2	4.8	2.84	.00	.500	2.74	0.30
S	16.8	4.4	16.4	4.1	.77	.43	-.57	1.30	-
FR	11.1	3.3	10.2	2.7	2.45	.01	.16	1.51	0.29
ES	18.8	4.9	18.2	4.1	6.92	.48	.617	1.28	-
CR	31.6	4.7	28.1	5.6	6.4	.00	2.44	4.61	0.67

Note. DB = Driving Behavior; OV = Ordinary Violations; Err = Errors; Lap = Lapses AT = Aggressive Tendencies; PA = Physical Aggression; VA = Verbal Aggression; A = Anger; H = Hostility; RP = Risk Perception; RO = Rule Obedience; S = Speeding; FR = Fun Riding; ES = Expressive Suppression; CR = Cognitive Reappraisal; M = Mean; SD = Standard Deviation; LL = Lower Limit; UL = Upper Limit.

Table 10 shows significant differences based on gender for risky driving behavior, aggressive tendencies and risk perception. The findings reveal that men score higher on risky driving behavior measure and its subscales as compared to women drivers. Similarly, men show more aggressive tendencies as compared to women. Overall, women score higher on risk perception measure along its subscale except one subscale 'Speeding', the differences are nonsignificant. Women also score high on Cognitive Reappraisal strategy for emotional regulation than men. Cohen's d shows small to medium effect size for all study variables.

Table 11

Difference in Participants based on Car Ownership on Study Variables (N = 352)

	Personal vehicle (n = 196)		Others' vehicle (n = 155)				*CI(95%)*		
Variables	*M*	*SD*	*M*	*SD*	*t*	*p*	*LL*	*UL*	Cohen's d
DB	45.5	12.6	46.9	14.1	-1.00	.31	-4.24	1.37	-
OV	14.0	4.8	14.9	5.5	-1.58	.11	-1.97	.210	-
Err	12.8	4.1	13.1	4.3	-.58	.56	-1.17	.63	-
Lap	45.5	3.6	13.6	4.17	-1.95	.04	-1.67	.004	8.18
RP	51.8	11.2	48.9	8.9	2.4	.00	.58	5.07	0.28
RO	23.3	4.8	22.3	5.4	1.90	.05	-.034	2.15	0.19
S	77.1	3.9	15.7	4.5	2.91	.00	.43	2.25	14.5
FR	10.7	2.8	10.4	3.2	.910	.36	-.342	.93	-

Note. DB = driving behavior; OV = Ordinary Violations; Err = Errors; Lap = Lapses AT = Aggressive Tendencies; PA = Physical Aggression; VA = Verbal Aggression; A = Anger; H = Hostility; M = Mean; SD = Standard Deviation; LL = Lower Limit; UL = Upper Limit.

Table 11 shows nonsignificant difference between group using personal vehicles and those who use others' vehicles on risky driving behavior except 'Lapses' subscales. Results also show significant difference on risk perception except the subscale "fun riding". Participants who are having their personal vehicle score more on risk perception as compared to the participants having others' vehicle.

Table 12

Mean Differences on Study Variables based on Car Insurance Status (N = 352)

	Yes (n = 79)		No (n = 273)				*CI*(95%)		
Variables	*M*	*S*	*M*	*SD*	*t*	*p*	*LL*	*UL*	Cohen's *d*
DB	45.4	12.6	46.3	13.4	-.50	.61	-4.20	2.48	-
OV	13.9	5.0	14.5	5.2	-.98	.32	-1.95	.648	-
Err	12.9	4.12	12.9	4.3	.04	.96	-1.95	1.09	-
Lap	12.8	3.4	13.3	4.0	-.88	.38	-1.04	.543	-
RP	51.8	11.2	48.9	8.9	2.4	.00	.58	5.07	0.28
RO	23.3	4.1	22.7	5.4	.92	.35	-.67	1.89	-
S	15.6	4.2	16.8	4.2	-2.21	.03	.2.28	.31	-
FR	10.9	2.9	10.5	3.03	1.03	.30	-.36	1.15	-

Note. DB = driving behavior ; AT = Aggressive Tendencies ; RP = Risk Perception ; ER = Emotion Regulation Strategies ; OV = Ordinary Violations ; Err = Errors ; Lap = Lapses ; PA = Physical Aggression ; VA = Verbal Aggression ; A = Anger ; H = Hostility ; RO = Rule Obedience ; S = Speeding ; FR = Fun Riding ; ES = Expressive Suppression ; CR = Cognitive Reappraisal; M = Mean; SD = Standard Deviation; LL = Lower Limit; UL = Upper Limit.

Table 12 shows nonsignificant differences on risky driving behavior between participants having car insurance and those who do not have their cars insured. Results also show that participants who are having their cars insured score more on risk perception as compared to their counterparts.

Table 13

To check the strongest predictor for risky driving behavior among demographic variables, multiple regression analyses was performed. Results are shown in Table 13.

Multiple Linear Regression Showing the Effects of Demographics on Driving Behavior (N = 353)

				Driving Behavior	
				CI (95%)	
Predictor	*B*	*β*	*p*	*LL*	*UL*
Constant	67.9			49.06	86.9
Age	-.83	-.13	.03	-1.61	-.06
Gender	4.70	.17	.002	1.74	7.67
Driving License	-3.65	-.23	.000	-5.49	-1.81
Driving Experience	.05	.01	.86	-.53	.63
Car Insurance	-.18	-.006	.91	-3.54	3.18
Driving Duration	.25	.14	.01	.05	.44
Fine History	-2.08	-.07	.16	-4.99	.82
Accident History	-1.09	-.04	.43	-3.87	1.67
R^2	.10				
F	4.77				

Note. CI = Confidence Interval; *LL* = Lower Limit; *UP* = Upper Limit; *β* = Beta value.

In the Table 13 multiple linear regression analysis was used with demographic variables of the study as predictor and driving behavior as the outcome variable. Findings reveal that age, gender, driving license, and driving duration are significantly positively predict risky driving behavior, however, driving license is the strong predictor of risky driving behavior followed by gender and driving duration while age is the weakest predictor. The results indicate that 10% of the variance in the outcome variable can be accounted by all predictors *(F* = 4.77).

Chapter 4

Discussion

The objective of the present study was to examine the relationship of aggressive tendencies and risk perception with risky driving behavior along with the moderating role of emotion regulation strategies (cognitive reappraisal & expressive suppression) in this relationship. The study also aimed at investigating the role of demographic variables (age, gender, driving license, and driving experience, driving duration, car ownership status, car insurance, fine history, and accident history) in the relationship among study variables (risky driving behavior, aggressive tendencies, risk perception, and emotion regulation strategies).

The study was conducted in two phases. The first phase was pilot study which was conducted on the sample of 60 young drivers (30 were men & 30 women). The sample was taken from Islamabad and Rawalpindi. Inclusion criteria was set before approaching the sample as explained above in the method section. The main aim of the pilot study was to conduct a tryout of the finalized instruments and to get feedback from the sample and to check the reliabilities of the scale being used in the study and, finally, to check relationships among study variables. Alpha reliabilities of the scale were obtained. All the reliability coefficient were in acceptable range suggesting that the scales were appropriate to use. Pearson's Product Moment Correlation was computed to check the direction of relationships and all the relationships were in the proposed directions.

The second and final phase was the main study which was conducted on the larger sample to have an in depth understanding of the nature of the relationships among the study variables. For this purpose, a sample of 400 young drivers was selected using convenient and purposive sampling. The primary purpose of this study was to explore the relationship among the study variables. For this purpose, correlation were computed using Pearson's Product Moment Correlation. Results showed significant correlations and in the proposed directions. The first hypothesis of the present study "Aggressive tendencies will positively predict the risky driving behavior of young adults" was supported by the findings. Table 6 indicated that aggressive tendencies were significantly positively related to risky driving behaviors. The results were consistent with the previous studies on aggressive tendencies and risky driving behavior which stated that aggressive tendencies positively correlated

with risky driving behavior (Beirness, 1993; Philippe, Lecours & Pelletier 2009; Hassan, Bashir & Shah, 2010). Other studies also supported the results that the individual's tendency to become angry during driving may add to the level of outrage and aggression which leads to the risky driving behavior (Arnett, Offer & Fine, 1997). One's propensity to experience angry feelings while driving predicted lapses in concentration while driving, minor loses of vehicular control, aggressive driving, risky driving, physically aggressive driving behavior, verbally aggressive driving behavior, and use of the vehicle to express anger (Deffenbacher, Deffenbacher, Lynch & Richards 2003; Lajunen, Parker, & Summala, 2002). Moreover, aggressive tendencies showed significant negative relationship with risk perception which means higher the aggressive tendencies, lower will be the risk perception (drivers perceive less risk) and hence greater the risky driving behavior.

Second hypothesis of the present research was "Risk perception will negatively predict risky driving behavior of young adults". Table 6 indicated that risk perception was significantly negatively correlated with risky driving behavior ($p <$ .01). It has been highlighted in the previous researches that risk perception and risky driving behavior are negatively correlated to each other (Jonah, 1986). Another research also indicated that risk perception is negatively related to risky driving behavior (Cohn, Macfarlane, Yanez, & Imai, 1995). That is, if the level of perceived risk for a particular behavior is higher then there is a lower chance that an individual would involve in that behavior. Previous research has shown that young, inexperienced drivers, who tend to be involved in higher speeds during their driving, also underestimated the potential risk of driving situations and overestimated their driving skills (Castella & Perez, 2004; Deery, 1999).

Third hypothesis "Emotional regulation strategies, including, cognitive reappraisal and expressive suppression will negatively predict risky driving behavior" has also been supported by the results that cognitive reappraisal negatively predict the risky driving behavior. As cited above, emotions can cause thoughts or themselves be caused by thoughts. Moreover, emotions are associated with a tendency to take action or not, depending on what is in interests (Aarts & Schagan, 2006; Zeelenberg, 1999). This can lead to avoidance behavior or approach behavior (Gray, 2001). Avoidance behavior happens with negative feelings, (for example, outrage) and approach behavior primarily happens with positive feelings, (for example, bliss). The present

research indicates that individual who are higher in emotion regulation strategies (cognitive reappraisal) are less apparent to risky driving behavior. Fourth hypothesis was that emotional regulation strategies including cognitive reappraisal and expressive suppression will moderate the link between aggressive tendencies and risky driving behavior. Moderation analysis was performed to check the hypothesis. Results of the present study showed that emotion regulation strategies (expressive suppression & cognitive reappraisal) not moderate the link between aggressive tendencies and risky driving behavior. This may be because of slightly lesser alpha reliability coefficient of the subscales of emotion regulation strategies (expressive suppression .60 & cognitive reappraisal .66).

Another hypothesis of the present study was "Men drivers will perceive less risk as compared to women drivers". Our findings supported the hypothesis. Independent sample *t*-test was applied to see gender differences on driving behavior, aggressive tendencies, risk perception, and emotion regulation strategies. In the present research significant differences were found between men and women drivers among the variables, risky driving behavior and its subscales, aggressive tendencies and its subscales except verbal aggression and hostility. Similarly, significant differences were found between men and women drivers among variables, risk perception and its subscales, emotion regulation strategies and its subscales except speeding, and expressive suppression (see Table 9). Men and women exhibit different driving behaviors that affect their attitudes, safety and risk. Men are high on risk behaviors and possess higher aggressive tendencies than women. Many factors underpin these differences, including neurochemical structures and hormonal processes, and global socialization practices. Each plays a part in explaining why men and women drivers have very different records in relation to accidents and risky driving. Previous research supported this finding (Iversen & Rundmo, 2004; Williams, Leaf, Simon & Hartos, 2006).

Multiple regression analysis was applied to point out the most important predictor of the risky driving behavior from the independent variables. The results indicated that aggressive tendencies significantly positively predicted the risky driving behavior. Among the subscales of the aggressive tendencies, anger (B = .683) was the most important predictor of the risky driving behavior (see Table 7). The second important predictor was verbal aggression (B = .302), other predictors was physical aggression (B = .05), and hostility (B = .04). Previous studies support these

results, the most commonly studied negative emotion in driving research was anger (Hennessy, 2011). Behavior that drives anger can be conceptualized as a "general tendency of the person to get angry frequently and intensely while driving" (Deffenbacher, Deffenbacher, Lynch & Richards, 2003).The tendency of the driver to become angry while driving affects the perception of the negative actions of others, which in turn can be very important for the prediction of accidents (Ozkan, Lajunen, Parker, Sumer & Summala, 2010).

Regression analysis was also performed on another independent variable 'risk perception'. Non-significant results were found on its subscales (rule obedience, speeding, & fun riding), this suggests that risk perception is a poor predictor of adolescent risk behavior. Similar results were found in studies by Ulleberg and Rundmo (2000) who found that risk perception does not affect behavior when other factors (e.g., attitudes) are controlled. Horvarth and Zuckerman (1993) have also suggested that risk perception is a consequence of behavior rather than the cause. Hence this is the weak predictor of driving behavior.

Independent sample *t*- test on family system revealed non-significant differences on the subscales of driving behavior, aggressive tendencies and risk perception, and emotion regulation strategies, indicated that there was no impact of family system on physical aggression, verbal aggression, anger, and hostility. And also there was no impact of family system on rule obedience, speeding and fun riding. Independent sample *t*-test on the car type, car insurance, fine history, and accident history was applied to see if there is differences existed. Non-significant differences were reported on car insurance among driving behavior and subscales of the risk perception, and emotion regulation strategies. Similarly, non-significant differences were found on fine history except errors, and accident history except lapses and fun riding. There were significant differences existed on car ownership status among the subscale of driving behavior (lapses), and subscales of risk perception (rule obedience & speeding). Previous researches support these results (Evansm, Wasielewski & Buseck, 1982; Michiels & Schreider, 1984). For further exploring the predictive role of demographic variables (age, gender, driving license, driving experience, driving duration, car insurance, fine history, and accident history) multiple linear regression was used. Results shows that age, gender, driving license, and driving duration are the significant predictors of driving behavior. Driving license have been found to be the strongest predictor of risky driving behavior among all these variables.

Limitations and Suggestions

Current study was conducted mainly to understand the basis of the traffic culture of Pakistan. Sample was taken mainly from Islamabad and Rawalpindi, there may be sampling constraints, and the highway or motorway violations in Islamabad are not as higher as in other cities of Pakistan. Along with this driving culture is slightly smooth because of smooth and wide road. The traffic police is active in Capital; violations are slightly less, for example, speed limit and usage of seat belt is ensured by traffic police. So, it can be said that the results may vary from other cities of Pakistan. So, in future, data from different cities can be combined to check the inter-cities traffic culture.

In the components of traffic system, pedestrian, driver and passengers all form a complete culture of traffic. In Pakistan, it is a common trait that pedestrian does not use bridge or crossing over to cross the road, they try to cross the hasty road from the main stream of traffic resulting in more injuries. This aspect of traffic and road safety was also ignored in the present study. A combined approach can be used for further implementation of laws and awareness with the help of traffic signs and pamphlets. Furthermore, this study overlooked the accident involvement of motorcyclists. Young and male motorcyclists have a stronger propensity to involve in risky behaviors. And this is associated with increased accident risks. So, there is also a dire need to conduct studies on motorbike riders.

Traffic psychology is clearly a new domain particularly in Pakistan. With the growing need to establish particular laws, Pakistan Highway Code was last updated 20 years back. The incompleteness and totally out of context for technology make it totally unreliable (Ahmed, 2007; Ghaffar, Rajput, Masud, Naru & Amjad, 2001). Therefore there is a need to update it by focusing on the new technologies, emerging factors of road and safety.

Implications

The implications of the present study is based on the model of the research explained in chapter 1. Awareness programs can be initiated through NGO's, media channels and trainings and workshops arranged by the traffic police in collaboration with traffic behaviors experts. Anger management can be a part of traffic training workshops. Anger management trainings can be helpful in decreasing road rage and the growing number of accidents. Traffic training modules can be developed by psychologists on the basis of anger management and emotion regulation of individuals. Managing one's emotions during driving can be helpful in avoiding crashes and violations at personal level. The implications provide a guideline for traffic police while licensing the drivers during driving tests to check for aggression level of drivers and their personality traits and suggesting accordingly.

Conclusion

It is concluded from the findings of the present study that aggressive tendencies are the important predictor of the risky driving behavior. Anger is the important predictor of risky driving behavior, the more the tendency of a person to become angry, the more chances of that person to be involved in risky behavior. It is also concluded that men drivers perceive less risk as compared to women drivers and thus more involved in accidents. And if the person control their emotions easily or use emotion regulation strategies (cognitive reappraisal) to control his emotions during driving hours then there is a less risk associated with driving. Demographic variables (car ownership status, driving license) has impact on driving behavior. The study provides the useful information about the driving behaviors so that this can be used for the development of drivers and training programs. The findings of this study contribute to the understanding of risky driving behaviors and add to the work done in this area.

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APPENDICES

Appendix A

Informed Consent

میں قومی ادارہ نفسیات" قائداعظم یونیورسٹی "اسلام آباد میں ایم ایس سی کی طالبہ ہوں۔ میری یہ تحقیق ایم ایس سی پروگرام کا حصہ ہے۔ یہ تحقیق
کے دوران ہمارے رویوں اور کردار کے بارے میں جاننے سے متعلق ہے۔ اس کا مقصد یہ معلوم کرنا ہے کہ ہماری شخصیت کے مختلف پہلو کس طرح سے
ڈرائیونگ کے طریقوں پر اثر انداز ہوتے ہیں۔

اس ریسرچ میں صرف وہ لوگ حصہ لے سکتے ہیں جو جی ٹی روڈ/موٹروے پر گاڑی چلانے کا تجربہ رکھتے ہوں۔ اور ذاتی مقاصد کے لیے گاڑی
ہوں۔ اگر آپ اس ریسرچ میں حصہ لینا چاہتے ہیں تو آپ کو چار سوالنامے دیئے جائیں گے۔ جس میں سے دو اُردو میں اور دو انگریزی میں ہیں۔ ہر سوالنامے
ہدایات کے مطابق آپ کو پُر کرنا ہوگا۔ اس میں تقریباً 15 سے 20 منٹ درکار ہوں گے۔ ان سوالناموں کو آپ نے اپنا نام لکھے بغیر مکمل کرنا ہوگا۔

آپ کو سوالنامہ پُر کرتے وقت کچھ پوچھنا ہو تو آپ بلا جھجک پوچھ سکتے ہیں۔ ہمارے لیے یہ بہت اہم ہے کہ ڈرائیونگ کے وقت آپ کے جو
بالکل وہی بیان کریں۔ آپ کی معلومات سے انفرادی بلکہ مجموعی نتائج اخز کئے جائیں گئے۔

اس سے پہلے کہ آپ یہ فیصلہ کریں کہ آپ اس ریسرچ میں حصہ لینا چاہتے ہیں یا نہیں۔ آپکو گارنٹی دی جاتی ہے کہ حصہ لینے کی صورت میں:

1- آپ سے آپ کا نام یا شناخت بالکل نہیں پوچھی جائے گی۔
2- آپ کو یہ حق حاصل ہوگا کہ جس وقت چاہیں چھوڑ کر چلے جائیں۔
3- آپ سے حاصل کردہ معلومات کو مکمل صیغہ راز میں رکھا جائے گا اور صرف ریسرچ کے مقاصد کے لیے ہی استعمال کیا جائے گا۔

آپ کے وقت اور تعاون کا بہت شکریہ۔

دستخط _____

Appendix B

ذاتی کوائف

عمر: _____ سال _____

جنس: لڑکی _____ لڑکا _____

خاندانی نظام: انفرادی (Nuclear) _____ مخلوط (Joint) _____

ڈرائیونگ لائسنس: نہیں ہے _____

ہے مگر (Learner Liscence) ہے _____

Valid Liscence ہے _____

ڈرائیونگ کا تجربہ: _____ سال

گاڑی کی نوعیت: ذاتی _____ والدین کی/بہن بھائیوں کی _____ دفتر کی _____

گاڑی کی انشورنس: ہاں _____ نہیں _____

ہفتے میں اُسطاً گاڑی چلاتے ہیں: _____ گھنٹے _____

کیا آپ موٹروے یا جی ٹی روڈ پر گاڑی چلاتے ہیں: ہاں _____ نہیں _____

ہفتے میں کتنے دن: _____

کیا آپ کا کبھی چالان ہوا؟ اگر ہاں تو کتنی مرتبہ: _____

چالان کیوں ہوا؟ _____

چالان کتنا ہوا؟

کیا آپ کو ڈرائیونگ کرتے کبھی کوئی حادثہ پیش آیا: ہاں _____ نہیں _____

Appendix C

Manchester Driving Behavior Questionnaire

ہدایات:

آپ سے گزارش ہے کہ ذیل میں دیئے گئے بیانات پر اس بات کی نشاندہی کریں کہ آپ اکثر کتنی دفعہ ڈرائیونگ کے دوران درج ذیل غلطیاں اور ٹریفک ورزیاں کرتے ہیں۔ ہر بیان کو پڑھنے کے بعد اس کے سامنے دیئے گئے نمبر پر اس کی نشاندہی کریں۔

کبھی نہیں	بہت کم	کبھی کبھار	اکثر اوقات	بہت زیادہ	ہمیشہ
1	2	3	4	5	6

میں یہ کرتا/کرتی ہوں کہ:

نمبر شمار	سوالات	کبھی نہیں	بہت کم	کبھی کبھار	اکثر اوقات	بہت زیادہ
1	میں گاڑی پیچھے کی طرف ریورس کرتے ہوئے کسی ایسی چیز کو ٹکر مار دیتا/دیتی ہوں، جسے میں نے نوٹس نہ کیا ہو۔					
2	اگرچہ میں اپنے خیال میں منزل "A" کی جانب گامزن ہوتا/ہوتی ہوں۔ جبکہ کچھ دیر بعد مجھے ہوش آتا ہے کہ میں دراصل منزل "B" کی طرف جانے والی سڑک پر ڈرائیو کر رہا/رہی ہوں۔					
3	میں کسی چوک یا گول چکر میں جاتے ہوئے غلط لین میں داخل ہو جاتا/جاتی ہوں۔					
4	میں مین روڈ پر گاڑی کو بائیں جانب لے جاتے ہوئے پیچھے سے آنے والی گاڑیوں پر اتنی زیادہ توجہ دیتا/دیتی ہوں کہ آگے موجود گاڑی سے تقریباً ٹکر ہونے لگتی ہے۔					
5	میں مین روڈ سے اندر کی طرف آتے ہوئے پیدل سڑک کراس کرنے والوں کو توجہ دینے میں ناکام ہو جاتا/جاتی ہوں۔					
6	میں دوسرے سڑک استعمال کرنے والوں کو ہارن بجا کر اپنی ناراضگی کا اظہار کرتا/کرتی ہوں۔					
7	میں گاڑی کا دروازہ کھولتے ہوئے یا لین تبدیل کرتے ہوئے گاڑی کے عقبی منظر کو دکھانے والے شیشے میں دیکھنا بھول جاتا/جاتی ہوں۔					
8	میں پھسلنے والی روڈ پر فوری بریک لگا دیتا/دیتی ہوں یا پھسلنے کی صورت میں گاڑی غلط طرف موڑ دیتا/دیتی ہوں۔					
9	میں کسی چوک پر گاڑی اتنا آگے لے آتا/آتی ہوں کہ دوسرا ڈرائیور جس کا پہلے نکلنے کا حق ہے اُسے اپنی گاڑی روک کر مجھے راستہ دینا پڑتا ہے۔					

نمبر شمار	سوالات	کبھی نہیں	بہت کم	کبھی کبھار	اکثر اوقات	بہت زیادہ
10	میں رہائشی روڈ پر رفتار کی متعین حد کو نظر انداز کر دیتا/ دیتی ہوں۔					
11	میں کسی اور چیز کو چلا دیتا/ دیتی ہوں، جیسے کے گاڑی کی ہیڈ لائٹس، جبکہ میں کسی اور چیز کو چلانا چاہتا/ چاہتی تھی، جیسے کہ گاڑی کے وائپرز۔					
12	میں بائیں جانب (گاڑی کو) موڑتے ہوئے پیچھے سے آنے والے سائیکل سوار سے تقریباً ٹکرا جاتا/ جاتی ہوں۔					
13	میں "راستہ دو" کے اشارے کو سمجھ نہیں پاتا/ پاتی اور صحیح راستے پر چلنے والی ٹریفک سے ٹکراتے ٹکراتے بچتا/ بچتی ہوں۔					
14	میں ٹریفک لائٹس کو تیسرے گیئر میں کراس کرنے کی کوشش کرتا/ کرتی ہوں۔					
15	میں ایسی گاڑی کو اوورٹیک کرنے کی کوشش کرتا/ کرتی ہوں، جس نے پہلے ہی دائیں طرف مڑنے کا اشارہ کیا ہوتا ہے اور میں نے اس کو نوٹس نہ کیا ہو۔					
16	میں دوسرے ڈرائیور پر برہم ہو کر اپنے غصے کے اظہار کے لیے اس کا پیچھا کرتا/ کرتی ہوں۔					
17	میں موٹروے کی اس لین میں آخر تک رہتا/ رہتی ہوں۔ جس کے بارے میں مجھے پتا ہوتا ہے کہ وہ آگے سے بند ہے، اور آخری لمحے میں خود کو دوسری لین میں دھکیلنے کی کوشش کرتا /کرتی ہوں					
18	میں بھول جاتا/ جاتی ہوں کہ کار پارک میں (گاڑی) کار کس جگہ کھڑی کی ہے۔					
19	میں آہستہ جانے والی گاڑی کو بائیں جانب (اندر کی طرف) سے اوورٹیک کرتا/ کرتی ہوں۔					
20	میں کسی دوسرے ڈرائیور سے آگے نکلنے کی کوشش میں سگنل تو رد دیتا/ دیتی ہوں۔					
21	میں ٹریفک کے سائن غلط پڑھ کر گول چکر سے غلط سڑک پر نکل آتا/ آتی ہوں۔					
22	میں اگلی گاڑی میں اتنا کم فاصلہ رکھتا/ رکھتی ہوں کہ ایمرجنسی کی صورت میں گاڑی روکنا مشکل ہو جاتا ہے۔					
23	میں کسی چوک وغیرہ کو ٹریفک سگنل بند ہونے کے باوجود کراس کر لیتا/ لیتی ہوں۔					
24	میں کسی مخصوص قسم کے ڈرائیور سے برہم ہو کر اپنے غصے کا اظہار کسی بھی ممکنہ طریقے سے کرتا/ کرتی ہوں۔					

نمبر شمار	سوالات	کبھی نہیں	بہت کم	کبھی کبھار	اکثر اوقات	بہت زیادہ
25	مجھے اس بات کا اندازہ ہو جاتا ہے کہ جس سڑک پر میں سفر کر رہا/رہی ہوں۔ وہ مجھے ٹھیک سے یاد ہی نہیں۔					
26	میں اوورٹیک کرنے کے دوران پیچھے سے آنے والی گاڑی کی رفتار کا غلط اندازہ لگا دیتا / لیتی ہوں۔					
27	میں موڑ وے پر رفتار کی حد کو نظر انداز کر دیتا/دیتی ہوں۔					

Appendix D

Aggression Questionnaire

ہدایات:

ذیل میں چند سوالات دیئے گئے ہیں آپ سے گزارش ہے کہ ہر بیان کو غور سے پڑھ کر یہ بتایئے کہ یہ بیان آپ کی شخصیت کے بارے میں کس حد تک صحیح ہے۔ ہ
کر ہر بیان کے سامنے دیئے گئے ممکنہ جوابات میں سے کسی ایک جواب پر (✓) کا نشان لگائیں۔ جو آپ کی شخصیت کی قریب ترین ہو۔ آپ کے جواب صرف تحقیق
استعمال کیے جائیں گے۔

نمبر شمار	بیانات	بالکل غلط	کسی حد تک غلط	معلوم نہیں	کسی حد تک صحیح	با
1	کبھی کبھار میں کسی دوسرے شخص کو مارنے کی خواہش پر قابو نہیں رکھ سکتی/سکتا۔					
2	بہت تنگ کرنے پر میں کسی شخص کو تھپڑ بھی مار سکتی/سکتا ہوں۔					
3	اگر کوئی شخص مجھے مارے تو میں بھی اُسے مارتی/مارتا ہوں۔					
4	میں ایک عام شخص کی نسبت زیادہ جھگڑا کرتی/کرتا ہوں۔					
5	اپنے حق کے لیے اگر مجھے تشدد پر اُتر نا پڑے تو میں اُتر آؤں گی/گا۔					
6	کچھ لوگوں نے مجھے اتنا غصہ دلایا کہ میں ان کے ساتھ مار کٹائی پر اُتر آئی/آیا۔					
7	میں کبھی بھی کسی کی پٹائی کرنے کو جائز نہیں سمجھ سکتی/سکتا۔					
8	بعض اوقات میں غصے میں اتنا/اتنی پاگل ہوئی/ہوا کہ میں نے چیزیں توڑ پھوڑ دیں۔					
9	بعض اوقات میں نے اپنے جاننے والوں کو دھمکایا۔					
10	جب میں اپنے دوستوں کی باتوں سے اتفاق نہیں کرتی/کرتا تو انہیں کھل کر بتا دیتی/دیتا ہوں۔					
11	میں اکثر لوگوں کی باتوں سے اتفاق نہیں کرتی/کرتا۔					
12	جب لوگ مجھے غصہ دلاتے ہیں تو میں انہیں بتا بھی سکتی/سکتا ہوں کہ میں ان کے بارے میں کیا سوچتی/سوچتا ہوں۔					
13	جب لوگ مجھ سے اختلاف کرتے ہیں تو میں بحث کرنے سے بعض نہیں رہ سکتی/سکتا۔					
14	میرے دوست کہتے ہیں کہ میں بحث کرنے کی/کا عادی ہوں۔					
15	میں جلد غصے میں آجاتی/جاتا ہوں لیکن جلد اس پر قابو پالیتی/لیتا ہوں۔					
16	جب میں مایوسی اور بے بسی کا سامنا کرتا/کرتی ہوں تو اپنی جھنجھلاہٹ کا اظہار کر دیتی/دیتا ہوں۔					
17	مجھے کبھی کبھار محسوس ہوتا ہے کہ میں بارود ہوں جو کسی بھی وقت پھٹ سکتا ہے۔					

نمبر شمار	بیانات	بالکل غلط	کسی حد تک غلط	معلوم نہیں	کسی حد تک صحیح	ب
18	میں ایک متعدد (درمیانے) مزاج کا شخص ہوں۔					
19	میرے کچھ دوستوں کا خیال ہے کہ میں گرم مزاج ہوں۔					
20	کبھی کبھار میں بغیر کسی وجہ کے آپے سے باہر ہو جاتی / جاتا ہوں۔					
21	مجھے اپنے غصے کو قابو کرنے میں مشکل پیش آتی ہے۔					
22	کبھی کبھار میں شدید حسد کا شکار ہو جاتی / جاتا ہوں۔					
23	میں بعض اوقات محسوس کرتی / کرتا ہوں کہ زندگی میں مجھ سے زیادتی ہوئی ہے۔					
24	میری نسبت دوسرے لوگ زیادہ خوش قسمت ہیں۔					
25	بعض اوقات میں سوچتی / سوچتا ہوں کہ زندگی کے بارے میں میں اتنا تلخ کیوں محسوس کرتی / کرتا ہوں۔					
26	مجھے معلوم ہے کہ میرے دوست میری پیٹھ پیچھے میرے بارے میں باتیں کرتے ہیں۔					
27	میں حد سے زیادہ دوستانہ رویہ رکھنے والے اجنبیوں پر شک کرتی / کرتا ہوں۔					
28	مجھے کبھی کبھار محسوس ہوتا ہے کہ لوگ مجھ پر ہنس رہے ہیں۔					
29	جب لوگ اچھا برتاؤ کرتے ہیں تو میں سوچتا / سوچتی ہوں کہ ان کو مجھ سے کیا کام ہے۔					

Appendix E

Risk Taking Attitude Scale

Instructions:

Listed below are the statements that represent attitude towards driving. Please indicate the degree of your agreement or disagreement with each statement by selecting the option that best represents your point of view. Please note that no option is right or wrong.

Strongly Disagree: SD; Disagree: DS; Neutral: N; Agree: A; Strongly Agree: SA

NO.	Statement	SD	D	N	A	SA
1	There are many traffic rules which cannot be obeyed in order to keep up the traffic flow.					
2	Sometimes it is necessary to bend the rules to keep traffic going.					
3	It is more important to keep up the traffic flow rather than always follow the traffic rules.					
4	Sometimes it is necessary to break the traffic rules in order to get ahead.					
5	Sometimes it is necessary to take chances in the traffic.					
6	Sometimes it is necessary to bend the traffic rules to arrive in time.					
7	A person who take chances and violate some traffic rules is not necessary a less safe driver.					
8	If you have good skills, speeding is OK.					
9	I think it is OK to speed if the traffic conditions allow you to do so.					
10	Driving 5 or 10 miles above the speed limit is OK because everyone does it.					
11	If you are a safe driver, it is acceptable to exceed the speed limit by 10 km/h.					
12	If you are a safe driver, it is acceptable to exceed the speed limit by 20 km/h.					
13	Adolescents have a need for fun and excitement in traffic.					
14	Speeding and excitement belong together when you are driving.					

15	Driving is more than transportation, it is also speeding and fun.					

Appendix F

Emotion Regulation Questionnaire

Instructions:

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree

No.	Statement	1	2	3	4	5	6
1	When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.						
2	I keep my emotions to myself.						
3	When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.						
4	When I am feeling positive emotions, I am careful not to express them.						
5	When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.						
6	I control my emotions by not expressing them.						
7	When I want to feel more positive emotion, I change the way I'm thinking about the situation.						
8	I control my emotions by changing the way I think about the situation I'm in.						
9	When I am feeling negative emotions, I make sure not to express them.						
10	When I want to feel less negative emotion, I change the way I'm thinking about the situation.						

Gmail Khadija Aslam <aslamkhadija3@gmail.co

ission to use Risk Taking Attitude Scale

ages

a Aslam <aslamkhadija3@gmail.com> Wed, Apr 18, 2018 at 10:02 F
Ulleberg <pal.ulleberg@psykologi.uio.no>

Professor Ulleberg,

you are well. My name is Khadija Tul Kubra and I am a student of MSc. Psychology at National Institute of hology,Quaid-i-Azam University Islamabad, Pakistan. As part of my MSc. I am conducting a research on ing Behaviors of young Adults: Role of Risk Perception, Aggressive Tendencies and Emotional Regulation egies".

nnection with this research, I hope to use Risk Taking Attitude Scale (Ulleberg & Rundmo, 2002). Pakistan g a developing country, it is difficult to access reliable psychological tests and scales, therefore, I request your ission to use your well-established scale for the purpose of my study. You are the original author so firstly, I the permission from you.

ld appreciate your kind support if you permit to use above mentioned scale at the earliest possible enience enabling me complete my project in a timely manner. It is worth mentioning that I may not be able rchase this scale being a student of a developing country as all of the expenses are borne by the students selves in our country.

sidering your significant contributions to the concept of Driving Behaviors of young Adults, if you could share e information, suggestions or guidance relevant to my research topic, as well as provide me with information regarding your scale, I would be very grateful. I look forward for a favorable response from your

rely,

ja tul kubra
Psychology

ıal Institute of Psychology

-e-Azam University, Islamabad Pakistan

berg <pal.ulleberg@psykologi.uio.no> Thu, Apr 19, 2018 at 1:45 AM
lija Aslam <aslamkhadija3@gmail.com>

Khadija,

ssion to use the scale. As I have been working within other fields of research during s, I have not updated my knowledge within this area of research. Thus, I can not uggestions for developments within this field

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m <aslamkhadija3@gmail.com>
07:02

n to use Risk Taking Attitude Scale

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mkhadija3@gmail.com> Thu, Apr 19, 2018 at 8:08 AM
ulleberg@psykologi.uio.no>

sir.