THE MODERATING ROLES OF PEER PRESSURE AND TRAFFIC CLIMATE ON THE RELATIONSHIP BETWEEN FAMILY CLIMATE FOR ROAD SAFETY AND RISKY DRIVING BEHAVIORS AMONG YOUNG DRIVERS

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ABSTRACT

THE MODERATING ROLES OF PEER PRESSURE AND TRAFFIC CLIMATE ON THE RELATIONSHIP BETWEEN FAMILY CLIMATE FOR ROAD SAFETY AND RISKY DRIVING BEHAVIORS AMONG YOUNG DRIVERS

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Young drivers' risk-taking driving behaviors can be evaluated as the product of who they are and what is their environment. The first aim of the present study is to investigate the effect of of family climate, peer pressure, and traffic climate on risky-taking behaviors of young drivers. The main aim of the present study is to investigating the moderating roles of peer pressure (primary moderator) and traffic climate (secondary moderator) on the relationship between family climate for road safety (for mothers and fathers, and only fathers) and risk-taking behaviors of young drivers in the scope of socio-ecological perspective. In the present study, 400 participants (182 female, 218 male) completed the questionnaire package including Family Climate for Road Safety Scale (the FCRSS), Peer Pressure Scale (the PPS),

Traffic Climate Scale (the TCS), and Risk-taking Behavioral Scales (the RTBS), respectively. Demographic statistics, the Principal Component Analyses (the PCA), correlation analyses, hierarchical regression analyses, and moderated moderation analyses were conducted. The results of the moderated moderation analyses indicated that the magnitude of moderation by peer pressure of the effect of dimensions of the FCRSS on risk-taking behaviors depended on dimesions of the TCS. The present study suggested that in order to decrease risk-taking behaviors among young drivers, interventions can be applied for both interpersonal factors and cultural factors in the scope of socio-ecological model.

Keywords: family climate, peer pressure, risk-taking driving, young drivers, socio-ecological model

ÖZ

GENÇ SÜRÜCÜLER ARASINDA AİLE İKLİMİ KAPSAMINDA YOL GÜVENLİĞİ VE RİSKLİ SÜRÜŞ DAVRANIŞI ARASINDAKİ İLİŞKİDE AKRAN BASKISI VE TRAFİK İKLİMİNİN DÜZENLEYECİ ROLÜ

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Genç sürücülerin riskli sürüş davranışı kim oldukları ve çevrelerinin ürünü olarak değerlendirilebilir. Bu çalışmanın ilk amacı aile ikliminin, akran baskısının ve trafik ikliminin genç sürücülerin risk alma davranışı üzerindeki tekil katkılarını incelemektir. Çalışmanın esas amacı ise genç sürücüler arasında aile iklimi kapsamında yol güvenliği ve riskli sürüş davranışı arasındaki ilişkide akran baskısı (birincil düzenleyici) ve trafik ikliminin (ikincil düzenleyici) düzenleyeci rolünü

sosyo-ekolojik bakış açısı kapsamında incelemektir. Çalışmada 400 katılımcı (182 kadın, 218 erkek) sırasıyla Aile İklimi Kapsamında Yol Güvenliği Ölçeği, Akran Baskısı Ölçeği, Trafik İklimi Ölçeği ve Risk Alma Davranışları Ölçeğini içeren anket paketini doldurmuşlardır. Demografik istatistikler, Temel Bileşen Analizleri, korelasyon analizleri, hiyerarşik regresyon analizleri ve düzenleyici düzenleme analizleri uygulanmıştır. Düzenleyici düzenleme analiz bulgularına göre aile iklimi ve risk alma davranışı arasındaki ilişkide akran baskısının düzenleyici rolünün büyüklüğü trafik iklimine bağlıdır. Bu çalışma, genç sürücüler arasında risk alma davranışının azalması için sosyo-ekolojik model kapsamında kişiler arası ve kültürel faktörlerle müdaheleler uygulanabileceğini önermektedir.

Anathar Kelimeler: aile iklimi, akran baskısı, risk alma davranışı, genç sürücüler, sosyo-ekolojik model

To mom and dad

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CHAPTER 1

INTRODUCTION

According to the World Health Organization's (WHO) Global Status on Road Safety Report (2018), 1.35 million road traffic deaths occurred in 2016. Road traffic accidents are evaluated as the main cause of death among young people aged between 15-29 years. Furthermore, road traffic injuries has become the eighth leading cause of death across all age groups around the world. National Highway Traffic Safety Administration (NHTSA, 1991) indicated that the highest rate of automobile-related accidents, injuries, and fatalities occured among young people between the ages of 15 and 24. Furthermore, people younger than 21 years old were included in 78% of total fatalities (NHTSA, 2007). NHTSA (2010) indicated that motor vehicle accidents are the leading cause of death among teenage people in the United States. Drivers between the ages of 16 and 20 years were involved in fatal accident 2 times more than other age groups. In addition, Lee and Schofer (2003) pointed out that 20% of drivers in the United States were younger than 25 years and they involved in accidents more than three to four times than expected. Clarke, Ward and Truman (2002) indicated that young drivers involved accidents 2.5 times higher than older drivers. According to Bureau of Infrastructure, Transport and Regional Economics (2012), although people between the ages of 17 and 25 consisted of 12.9% of total population of Australia, they involved in 21.9% of road crah fatalities. Traffic Department of General Directorate of Public Security stated that 428 311 accidents occured in Turkey in 2018 and 6675 people died and 307 701 people were injured in total due to traffic accidents. TurkStat's Traffic Accident Statistics Report (2018) categorized drivers involved in traffic accidents, killed and injured based on their age groups. There were 369 death people between the ages of 18 and 20, and 490 death people between the ages of 21 and 24 in 2018 due to traffic accidents. Furthermore,

there were 25 995 injured people between the ages of 18 and 20 years, and 32 515 injured people between the ages of 21 and 24.

Williams (2003) stated that the highest rate to get involved fatal accidents at age 16, and drivers between the ages of 16 and 19 were involved fatal and nonfatal accidents more than older drivers. Similarly, Alver, Demirel, and Mutlu (2014) indicated that young drivers violate the traffic rules and are involved traffic accidents more than older drivers. For example, Chliaoutakis, Gnardellis, Drakou, Darviri, and Sboukis (2000) found that age was a significant factor for seat belt usage which means young adults between the ages of 18 and 24 use seat belt less than other age groups. Morrissey and Mello (2014) mentioned that there were key factors related to high rates of fatalities when young drivers were involved accidents. These factors consist of lack of driving experience, using a vehicle after alcohol consumption, any distractive situation like using cell phone or existance of passengers in the car, or not using seat belt. Therefore, these factors play role fatality rates among young driver. Moreover, Vassallo, Smart, Sanson, Cockfield, Harris, McIntyre, and Harrison (2008) mentioned that alcohol consumption and marijuana use were related to risky driving among adolescents. These factors consist of lack of experience, inattention, poor risk/hazard perception, personality related factors like thrill-seeking, sensation seeking, and risky driving behaviors (Begg & Langley, 2001; Jonah, 1986; Willams 1998). In the study of Alver, Demirel and Mutlu (2014) traffic rule violatations of young drivers investigated with regard to four violations which were red light violation, seatbelt violaion, speed limit violation and driving under the influence of alcohol. According to their results, it was found that age was the significant factor to use seat belt less among younger adults. Furhtermore, excessing the speed limit to impress friends was found as a significant factor on speed violations. Finally, driver distraction like using mobile phone was found significant reason for traffic accidents. Their study showed paralled foundings with Jonah's (1986) hypothesis which was younger drivers' risky driving could be meaningful to express independence, defying authority, impressing the friends, and satisfying their excitement needs.

Young drivers' risk-taking driving behaviors can be evaluated as the product of who they are and what is their environment (OECD, 2006). Hence, influence of parents and peer pressure might be the external factors with regard to risk-taking behaviors

of young drivers in traffic context (OECD, 2006). Özkan and Lajunen (2011) stated that the extend of external factors influence internal factors directly or indirectly and determine a road users' level of safety. Moreover, the authors pointed out that these factors are interactive and occur in daily life. Hence, young drivers' tendency to show risk-taking behaviors could be examined via the interaction between external factors (i.e., parental factors, peer pressure, and traffic climate) in the scope of socio-ecological model (Bronfenbrenner, 1979) in traffic context.

1.1. Interpersonal and Cultural Factors Related to Risk-Taking Behaviors of Young Drivers based on Socio-Ecological Perspective

von Bertalanfyy (1968) defined a system as "a set of elements standing in interaction". Özkan and Lajunen (2015) stated that a "system" consisted of grouping anything with any kind of relationship if there is a possibility to group things and this clusturing can be evaluated as a "system". Systems might be small or large and can include sub-systems with their own boundires. The '*imaginary lines*' of the boundires permits the elements to stay inside and outside of the system (Özkan & Lajunen, 2015). The framework of the boundry in the system could be "open" or "closed". In closed systems, there was an isolation with the environment and the activity will contunie as all the required elements are provided. In our world, completely closed systems such as industrial companies are relatively few (Özkan & Lajunen, 2015). On othe other hand, Özkan and Lajunen (2015) highlighted that traffic is one of the most open systems in human life since traffic system includes several elements related to active and passive interactions between road users.

System environments can be defined in various forms in the scope of relevant theories and Social-ecological theory of Bronfenbrenner (1979) is one them. Bronfenbrenner (1979) stated that the ecological environment was designed as a "set of nested structures" and each system was inside of other such as "Russion dolls". Bronfenbrenner (1979) claimed that the interaction between human organism and environment are the key elements of human development. He defined the ecology of human development as:

> The ecology of human development involves the scientific study of the progressive, mutual accommodation between an active, growing human being and the changing properties of the immediate settings in which the developing

> person lives, as this process is affected by relations between these settings, and by the larger contexts in which the settings are embedded.

Bronfenbrenner (1979) pointed out that the *ecological environment* consists of four systems named as *micro-*, *meso-*, *exo-*, and *macrosystems*. Firstly, *microsystems* was defined in the scope of certain pattern of activities, roles, and interpersonal relations associated with the developing person via certain settings including physical and material elements. Secondly, *mesosystems* include the interrelations between two or more settings and consisting of environments such as relations at home, school, peer group for a child; and family, work, and social life for an adult that required active participation of the developing person. In *exosystems*, there was no need for active participation of the developing person; however, the developing person migh affect or be affected by events in the setting of the system. The *macrosystems* existed or can exist at the subculture or the whole culture levels through consistencies in lower-order-systems (i.e., *micro-*, *meso-*, *and exo-*) including belief systems or ideology. These four systems can be evaluated under the roles of certain factors which were intrapersonal and interpersonal factors, institutional and cultural elements (Özkan & Lajunen, 2015). According to Runyan (2003), developmental and socio-behavioral elements with biologic elements of individuals were associated with intrapersonal factors. Interpersonal factors occured in different setting with the interaction of at least two people, the reflection of multiple organizations such as shcools and workplaces were related to institutional elements. Finally cultural elements were evaluated in a broader sense via social norms and values, and guiding and obligations of governmental policies related to human behaviors or organizations.

Runyan (2003) climaed that health related problems might be decreased by the interactions of multiple factors and the change might occur when these factors show consistency. In traffic context, dangerous driving behaviors might be changed via the interaction of multiple factors. As claimed by Özkan (2006) and Özkan and Lajunen (2011), interactive operation of many *'distal/external'* factors occur on different levels. Several studies indicated that (e.g., Sümer & Özkan, 2002; Öz, Özkan, & Lajunen, 2010) different driver groups in the same country or even in the same city migh show different driving behaviors by following informal rules of their own groups instead of and rather than formal rules. Thus, drivers might

develop different driving behaviors in general and risky styles at different levels of accident risks. In the current study, it is claimed that young drivers' risk-taking behaviors might be influenced by interpersonal factors including family climate for road safety and peer pressure in mesosystems and cultural factors in macrosystems including perceiving traffic climate of the country when these factors interact with each other.

1.2.Risk-Taking Behaviors of Young Drivers

Sümer, Lajunen and Özkan (2005) defined risky driving behavior as "behavior that increases the likelihood of the individual to be involved in the traffic accidents, e.g., dangerous overtaking, passing redlight, over speeding, etc." Jonah (1986) and Williams (1998) added other risky driving behaviors such as close following, driving under the influence of alcohol, and substance use. Moreover, Scott-Parker, Watson, King, and Hyde (2014) evaluated driving whilst tired as risky driving behavior due to reduced hazard perception and slower reaction times.

In order to measure risky driving behaviors of young drivers, Risk-Taking Behavioral Scales was developed by Ulleberg and Rundmo (2000). The scale includes three dimensions with 15 items: self-assertiveness, speeding, and rule violations. The dimension *self-assertiveness* was related to expression of one's own opinions, needs, and importance in driving context. *Speeding* dimension was asociated with speeding behavior in traffic. The dimension named *rule violations* was related to behaviors with regard to violating traffic rules. It was found that when young drivers showed more positive attitudes towards traffic safety, they showed less risky driving behaviors (Ulleberg & Rundmo, 2003). In the present study, Risk-Taking Behavioral Scales are used to investigate risky driving behaviors of young drivers.

The central determinants of the behaviors included several variables like attitudes, perceived risk, social norms and percevided behavioral control. In detail, attitudes towards traffic safety was found to be related with aggressive driving behaviors, driving fastly, accident involvement based on self-report measurements (Parker and Manstead, 1996; West and Hall, 1997; Parker et al., 1998). Furthermore, compared to other age groups, young drivers have a tendency to underestimate possible risks due to traffic situations when considering perceived risks. When young drivers' risky

driving behaviors are considered as a “problem” (Jessor & Jessor, 1977) or “reckless” behaviors (Arnett, 1992, 1995), the underlying reasons should be emphasized. Young drivers engage in problem behaviors such as risky driving since they need to get adult-like status (Jessor & Jessor, 1977). In addition, young drivers have a tendency to percevice the hazards in traffic less holitically (Milech et al., 1989; Deery, 1999), and they have a tendency to overestimate their own driving skills (Moe, 1986).

In the review of Curry, Peek-Asa, Hamann, and Mirman (2015), it is stated that parents have important influence on their children’s development. Parents who were responsive to their children, set appropriate behavioral limit based on developmental process, and avoided strict discipline have positive effect on development of their children. Furthermore, high level of parental monitoring was found related to lower rates of serious accidents (Shope, Waller, Rahhunathan, & Patil, 2001). Another study about parental influence showed that children were less likely to report distracted by friends, less driving aggressively and more applying the traffic rules when their parents had specific rules about riding (Beck, Shattuck, & Raleigh, 2001).

Furthermore, peer influence should be considered with regard to risky driving since young drivers have a motivation to be accepted in their groups. For example, Weston (2016) found that high susceptibility to peer influence (attaining social prestige and peers intervening in decisions) was assocaited with more self-reported risky driving violations. In addition to influence of parents and peer pressure, a behavior become “acceptable” and “normal” via cultural and environmental factors that affect the definition of violations not only legally, but also informally (Manstead, 1998). Understanding external factors related to to road traffic safety can provide information about two important concepts namely risk perception and attitudes towards traffic safety (Nordfjarn, Şimşekoğlu, and Rundmo, 2014). Therefore, how young drivers perceive traffic climate in a broader context might be related to their risk-taking behaviors in traffic.

1.3.Family Climate for Road Safety

In the review of Curry, Peek-Asa, Hamann, and Mirman (2015), authors stated that parents have important influence on their children’s development. Parents who are responsive to their children set appropriate behavioral limits based on developmental

process. Moreover, parents attempt to avoid strict discipline or rules to provide positive effect on development of their children. The authors also highlighted the importance of sharing genetic and environmental factors, parental knowledge and modeling behavior, parenting style, and monitoring behaviors of their children in driving context. Since parental involvement has an important role in driving context, basic approaches should be mentioned to understand parent-child relationship. Therefore, social learning theory (Bandura, 1977) might be concerned in this context. Moreover, different perspective should be mentioned based on Taubman-Ben-Ari and Katz-Ben-Ami's (2013) study which includes family climate for road safety.

According to social learning theory, modeling is the main factor that shapes the behavior of children. For instance, when parents violate the rules, consumpt alcohol, or smoke, their children also show similar behavioral pattern like their parents (Corvo and Carpenter, 2000; White, Smith, Koss, & Figueredo, 2000). Bartholomew, Parcel, Kok, Gottlieb, and Fernandez (2011) stated that behaviors could be modified via learning from others directly with verbal persuasion or experiences; and indirectly with vicarious experiences and observation based on Bandura's Social Learning Theory. With regard to direct and indirect mechanisms, children directly observe the behaviors of their parents and express similar behavioral patterns in driving context (Wilson, Meckle, Wiggings, & Cooper 2006).

Shope, Waller, Rahhunathan and Patil (2001) found that high level of parental monitoring were related to lower rates of serious accidents. Another study about parental influence showed that children were less likely to report distracted by friends, less driving aggressively and more applying the traffic rules when their parents had specific rules about riding (Beck, Shattuck, & Raleigh, 2001). In addition to this study, Beck, Shattuck, and Raleigh (2001) found that teens who were not supervised by their parents while driving were more likely to become high-risk drivers. In the family context, Brookland, Begg, Langley, and Ameratunga (2008) stated that there was a link between the driving behaviors of parents and children. For example, young people may drive while drunk when they observe same behavioral pattern of their parents' (Evans-Whipp, Plenty, Toumbourou, Olsson, Rowland, & Hemphill, 2013).

In addition to Social Learning Theory, Taubman-Ben-Ari and Katz-Ben-Ami (2013) used different perspective with regard to family context via focusing safety climate. The concept of "safety climate" was defined as perceptions of employees with regard to the role of safety in organizations includig the policies, procedures, practices, safety related priorities of the organization (Zohar, 1980). Safety climate concept has a significant meaning to predict safety behavior and safety-related outcomes such as accidents and injuries in traffic context. (e.g.,Christian et al., 2009; Nahrgang et al., 2008). Zohar (1980) stated that workers' perceptions and expections related to the priority of safety is developed via observing their supervisors. Similarly, Taubman-Ben-Ari and Katz-Ben-Ami (2013) applied this description in family context to examine the effect of safety climate on teen drivers based on family dimensions.

According to their approach, safety climate is used and adapted to investigate the effect of familiy issue on teen driver behavior because they stated that safety climate is related "how individuals apprehend, perceive, and interpret the situation". Therefore, they defined a new concept which they called "family climate for road safety" (FCRS) which refers to "the perception of young drivers (instead of employees) regarding the values, perceptions, priorities, and practices of their parents of family (instead of supervisors or organization) in regard to safe driving (instead of safety in the workplace). In FCRS construct, there are seven dimensions; modeling, feedback, communication, monitoring, comitment to safety, messages, and limits. When FCRS dimensions are explained in detail, modeling dimension includes model that parents reflect their modes of driving and attitude to traffic laws to their children. For example, these behaviors and attitudes include obeying traffic regulations, driving safely although they are in hurry, tired or stressful situation. The feedback dimension is associated with giving positive feedback and encouraging about safe driving. Communication dimension includes the importance of open and direct communication with children about driving behavior, risk taking, and parents' tendency to explain potential hazards on the road and open discussion with their children about driving includes risky driving in family context. The other dimension - monitoring is related to parental supervision about young people's driving behavior and habits. Commitment to safety dimension is explained through how parents commit to road safety, obey the traffic rules, concern driving that includes time

investment in safety education. Messages dimension consists of clear messages of parents about safety. Therefore, their children can understand the messages clearly about driving. The final dimension which is limits include systematic and clear limits that parents set on their children's driving behavior. Moreover, parents can discipline their children about traffic violations by setting limits (Taubman-Ben-Ari & Katz-Ben-Ami, 2012).

Taubman-Ben-Ari, Musicant, Lotan and Farah (2014) combined two sets of data which were data from in-vehicle recorders and self-report questionnaire. In-vehichle data was gathered by parents and their teenage sons, self-reported questionnaires were completed by the young drivers. Therefore, the main aim was to examine the contribution of parents' driving behavior and participation in a parent-targeted interventions such as giving cleaer messages, providing feedback related to safe driving, and communicate with their children. Moreover, evaluating the perception of teen drivers about family climate with regard to road safety and driving behavior of young drivers when they drive alone are another aims of the study. The data was collected from families that assigned randomly in different intervention groups (receiving different forms of feedback) or control group (with no feedback). Their results indicated that there was a positive association between young drivers' risky driving events and their parents. Interventions led to a lower rate of risky driving events among young drivers compared to the control group. Moreover, higher level of not committed to safety and lower perceived parental monitoring were found related to higher risky driving event among young drivers. When driving behavior is evaluated in familial socialization, Carlson and Klein (1970) stated that there was a relationship between delinquent familial socialization and delinquent driver behavior which meant there was a positive correlation between fathers' and sons' convictions for traffic violations. Prato, Lotan, and Toledo (2009) found that there was a significant correlation between young male driver behaviors and their mothers and fathers' driving behavior. Moreover, young female drivers showed similar driving behavior with their mothers. Bianchi and Summala (2004) stated that parents have influence to explain childrent's involvement in road accident. In the study, child-parent pairs completed Driver Behavior Questionnaire (Reason et al., 1990) and it

was found that fathers had influence on sons and daughters in terms of driving behaviors; however, mothers had influence on their daughters more than their sons.

It is known that several studies focused on the relationship between gender differences in parental bond, peer influence and risky driving. For instance, it was found that parent had more control on their adolescent daughters than sons (e.g., Barnes, Reifman, Farrell, & Dintcheff, 2000; Borawski et al., 2003; Li, Feigelman, & Stanton, 2000). On the other hand, roles of parents in accident envolvement had less attention in the studies (Ferguson, Williams, Chapline, Reinfurt, & Leonardis, 2001).

In recent years, the roles of parents on driving behaviors of their children in the scope of family climate for road safety has been studied. Taubman-Ben-Ari and Katz-Ben-Ami (2012) investigated the contribution of "family climate for road safety" concept and various aspects of social environment with regard to driving behavior of young drivers. They conducted two studies to examine this relationship. The effect of family climate dimensions (Modeling, Feedback, Communication, Monitoring, Noncommitment, Messages, and Limits) and conform to authority on young driver behaviors. The results of their study indicated that positive aspects of parent-child relationship and high levels of conformity associated with careful driving style. On the other hand, noncommitment and lower conformity to authority were associated with reckless driving style. Finally, positive aspects of the family climate was found related for lower tendency to risky driving. Furthermore, Taubman-Ben-Ari, Kaplan, Lotan and Prato (2016) examined the association between familial attitudes and risky driving behavior of young male drivers. They collected data via in-vehicle data recorders to mesaure actual driving and self-report instruments. In the study, the findings indicated that there was a role of parents on risky tendencies.

In conclusion, family climate dimensions with regard to road safety are considered as one of the important interpersonal factors to investigate and predict risk-taking behaviors among young drivers in the current study. When considering gender of parents, there might be differences how young drivers evaluate their fathers and mothers in terms of safety. Therefore, these differences might be associated with different risk-taking behaviors. The present study aimed to examine how young

drivers perceive their mothers and fathers with regard to safety in driving within the scope of family climate for road safety.

1.4.Peer Pressure

Several studies about the relationship between establishing close and relationships and human well-being concerns emotional needs. Therefore, socialization requires interacting with people who are significant for us. In order to understand socialization process, different approaches are used based on psychosocial and developmental theories (Blos, 1979; Erikson, 1968; Winnicott, 1965). Berkman (2000) used the concept 'social influence' to explain the effects of other people on individuals' attitudes and behaviors in groups. From social psychological perspective, 'peer influence' can express how people can be perceived by significant others (Ajzen, 1989; Grasmick and Bursik, 1990).

Specifically peer influence is described as ability of peers to apply social pressure to their friends to approve or disapprove of their behavior. Since people have a tendency to avoid isolation, they may behave in acceptable way in their social environment (Lashbrook, 2000). Scott-Parker, Watson and King (2009) developed a questionnaire to examine the relationship between risky driving and Aker's social learning theory, social identity theory, and thrill seeking variables. In their study, the result showed that imitation of driving behaviors and anticipated rewards and punishments by peers predicted risky driving significantly. Moreover, Berkowitz (2004) indicated that there was a greater effect of perceived peer pressure on one's behavior rather than other influencing factors. Taubman-Ben-Ari and Katz-Ben-Ami (2012) investigated the contribution of the several aspects of the social envrionment with regard to peer influence on risky driving among young drivers. They conducted two studies to examine peer pressure for risky driving. The findings indicated there there was an association between reckless driving habits and and peer pressure which meant higher peer pressure associated with higher reckless driving. Moreover, lower perceived popularity was found related to lower tendency to risky driving. For instance, Gardner and Steinberg (2005) highlighted that peers have important role on risky behavior among young people. Therefore, adolescents may show riskier behaviors than adults because of their risk prone friends. In addition, authors stated

that adolescents showed risky behavior in group context more easily than when they were alone.

The aim of the study of Ouimet, Pradhan, Simons-Morton, Divekar, Mehranian, and Fisher (2013) was to investigate risky driving practices of teenagers when they drive with passenger (or alone) as well as with a risk-accepting (or risk-averse) passenger. In their study, participants were assigned randomly to drive with passenger who was risck-accepting or risk-averse. Speed, headway, gap of deviance, eye glances at hazards and horizontal eye movements were included as main outcomes. Relevant to the present review, peer pressure was measured. According to study findings, the presence of a passenger was found related to fewer eye glances at hazards and a trend for fewer horizontal eye movements compared to solo driving. On the other hand, participants waited for a greater number of vehicles to pass before initiating a left turn. Moreover, participants with risk-accepting passenger showed longer headway with the lead vehicle and more eye glances than participants with the risk-averse passenger. Finally, there was a significant association between driving with passenger, earlier initiation of a left turn and susceptibility to peer pressure With regard to driving behavior, the impact of social influence through direct and indirect ways are mentioned with several studies in risky driving context. Authors indicate that driving is a social interaction and young drivers feel more confident and seek exciting adventures when they drive with their friends. Therefore, their motivation is related to peer pressure or peer acceptance (Taubman-Ben-Ari, 2008; Winston & Jacobhson, 2010). Their main motivation source can be to impress others and they need to become popular among their friends (Allen & Brown, 2008).

Similarly, Taubman-Ben-Ari, Kaplan, Lotan, and Prato (2015) investigated the contribution of peers to driving behavior of young drivers when they drive alone. To collect data, they used self-report questionnaires about perceived popularity of risky driving among peers to examine peer dynamics. Moreover, driving behavior of participants were assessed via in-vehicle data recorders (IVDRs). The relevant results of the study mentioned that the perception of risky driviving as being popular among peers was related to teens' risky driving.

When gender differences are considered, young female drivers reported that their male friends would support speeding behavior of them. On the other hand, female drivers thought that their female friends would disapprove speeding behavior. Males reported that their male friends would be supportive speeding intentions (Horvath, Lewis, & Watson, 2012).

In addition to family climate, peer pressure was investigated in terms of risky driving. Taubman-Ben-Ari and Katz-Ben-Ami (2012) investigated the contribution of the several aspects of the social envrionment with regard to peer influence on risky driving among young drivers. The findings indicated there there was an association between reckless driving habits and and peer pressure which meant higher peer pressure associated with higher reckless driving. Moreover, lower perceived popularity was found related to lower tendency to risky driving.

Furthermore, Mirman, Albert, Jacobsohn, and Winston (2012) had aim to examine the association between parenting and risky driving via mediator role of peer passenger. Relevant results indicated that perceiving parents as strong monitors and rule setters were related to less engagement in risky driving. On the other hand, when controlling the effect of driving with multiple pasenger, parental monitoring and rule setting was no longer significant in the model.

In sum, existance of peers and might be evaluated as important motivational and interpersonal factor to gain acceptance in a group among young drivers and resulted with risky driving in some cases. In the current study, peer pressure was another external factor in order to understand risk-taking behaviors of young drivers in traffic context.

1.5.Traffic Safety Climate

In road traffic accidents, human factors are evaluated as an only or a contributory proximan factos (Lajunen, 1997; Evans, 2004; Rumar, 1985). These human factors can be categorized in two components which are driver behavior (i.e. “what drivers usually DO”) and driver performance (i.e. “what drivers CAN do”) (Elander et al., 1993). Lajunen (1997) stated that driver behavior and driver performance are related to accidents based on driving experience.

Evans (2004) stated that the main aim of the practices in traffic system was to decrease number of accidents and near accidents to improve safety and to reach a target destination at a certain time by promoting mobility. According to Evans (2004), countries put mobility in the first place by minimizing the risk of accident. Ward, Linkenbach, Keller, and Otto (2010) stated that attemps to decrease the undesired outcomes in traffic context such as the number fatalities, injuries, and accidents were not effective enough to reach the traffic safety aims on roads. In order to achieve desirable level of safety, traffic climate perspective should be considered in terms of safety.

Although culture and climate concepts are used interchangeably, these concepts have different meanings in traffic context. Culture consists of beliefs and values for people, work, organizations, and community (Özkan & Lajunen, 2011). Furthermore, it is evaluated as more qualitative approach and relatively stable. On the other hand, climate includes expression of feelings and behaviors that are common for organizational members. Moreover, climate is more quantitative approach and interactions shape the climate (Özkan & Lajunen, 2011). According to Leviäkangas (1998), traffic safety culture includes "the sum of all factors that affect skills, attitudes, and bevaiors of drivers as well as vehicles and infrastructure". When traffic safety culture is examined in the aspect of road safety attitudes and behaviors, Gehlert, Hagemeister, and Özkan (2014) highlighted variables related to road safety as "accident involvement, risk perception, driving style, distraction while driving or traffic violations/traffic compliance". Therefore, traffic climate is defined as "the road users' (i.e. drivers) attitudes and perceptions of the traffic of the context (i.e. country) at a given point in time" (Özkan & Lajunen, 2011).

When measuring traffic safety climate, it should be noted that Traffic Climate Scale (TSC) measures perception of drivers about traffic climate in terms of their attitudes towards traffic in their country via several statements and adjectives. The TCS is developed and tested by Özkan and Lajunen (unpublished[1]) in the Turkish sample. In their first study with nonprofessional drivers, there were five factors; functionality, external-affective demands, internality, uncontrollability, and competitiveness. However, these five factors were along with three dimensions namely functionality, externality, and internality. In the second study, the sample included truck and bus

drivers with amateur drivers. The results of the study indicated that there were four factors which were functionality, externality, internality and competitiveness. In the third study, the results indicated that aggressive violations and ordinary violations were negatively associated with internality, and errors were predicted positively by functionality and externality; whereas, errors were negatively associated with internality (Özkan & Lajunen, unpublished[2]). Moreover, TSC was also used in German sample via different road user groups such as cyclists, pedestrians, car drivers and pedestrians. In the study, the results revealed that there were three factors; external-affective demands, internality, and functionality. External-affective demands defined as emotional engagement required by road users when they participate in traffic, functionality was associated with requirements of functional traffic system, and internal requirements dimension was related to be part of traffic successfully by focusing on road users' skills and abilities (Gehlert, Hagemeister, & Özkan, 2014).

The related literature indicated that both the effect of family climate and peer pressure on risk-taking behaviors of young drivers were studied. On the other hand, few studies have investigated young drivers' evaluations about traffic climate in terms of risk-taking behaviors in traffic. It can be assumed that there might be relationship between how young drivers perceive traffic climate of their country and their driving behaviors. For example, when traffic is perceived as externally affective demanding, more violations might be showed. Furhermore, when traffic context is perceived as requiring highly driving skills, drivers might drive according to required skills in traffic and have a tendency to explain this with a confirmation bias (Özkan & Lajunen, unpublished). Zihni-Üzümcüoğlu (2018) found that drivers showed less violations when thet perceived traffic as more functional.

To sum, the relationship between family climate for road safety and peer pressure and risk-taking behaviors has been investigated. In order to examine risk-taking behaviors of young drivers, it is required to examine both interpersonal factors in mesosystem and cultural factors in macrosystem via traffic safety climate.

1.6.Aim of The Present Study

Although family climate and peer pressure as interpersonal factors were studied with regard to risky driving of young drivers, traffic climate as a cultural factor has not been investigated in this context based on Bronfenbrenner's (1979) socio-ecological model. Therefore, the current study focused on interaction between family climate for road safety, peer pressure, and traffic climate in terms of risk-taking behaviors of young drivers based on Bronfenbrenner's (1979) socio-ecological model. Moreover, the present study emphasized that mothers and fathers might differ in terms of road safety. As it mentioned before, fathers had influence on sons and daughters in terms of driving behaviors; however, mothers had influence on their daughters more than their sons. Thus, percetion of young drivers about their mothers and fathers might be different with regard to road safety. Furthermore, it was found that fathers had influence on sons and daughters in terms of driving behaviors; however, mothers had influence on their daughters more than their sons (Bianchi & Summala, 2004). Therefore, the influence of father who are only parent in the family drives should be investigated in the context of risk-taking behaviors of young drivers.

In the light of relevant literature, the first aim of the present study is to translate Family Climate for Road Safety Scale, Peer Pressure Scale, and Risk-Taking Behavioral Scales into Turkish and to examine their factor structures. Seconly, investigating effect of family climate, peer pressure, and traffic climate on risky-taking behaviors of young drivers is another aim of the present study for whose mothers drive, fathers drive, and only fathers drive in the family. Carlson and Klein (1970) argued that familial socialization had more influence on driving behaviors than other social institutions. Therefore, family climate might be put at Level 1 in interpersonal factors and peer pressure has place at Level 2. In a broader sense, traffic climate can be evaluated in cultural factors.The main aim of the present study is to investigating the moderating roles of peer pressure (primary moderator) and traffic climate (secondary moderator) on the relationship between family climate for road safety (for mothers and fathers, and only fathers) and risk-taking behaviors of young drivers in the scope of socio-ecological perspective. The conceptual model of moderated moderation diagram of the present study is given in Figure 1 based on socio-ecological model of Bronfenbrenner (1979).

Although the nature of the current study is exploratory, it is expected that less peer pressure and more functional traffic moderated the relationship between family climate for road safety and risky driving behaviors of young drivers. In other words, young drivers showed less risky driving behaviors when they perceive their mothers and fathers have safe attitudes towards driving. On the other hand, more peer pressure and less functional traffic might moderate the relationship between family climate for road safety and risky driving behaviors of young drivers in negative way means that perceiving mothers and fathers as less committing safety in traffic can be related to more risky driving behaviors with the moderating roles of peer pressure and traffic climate.

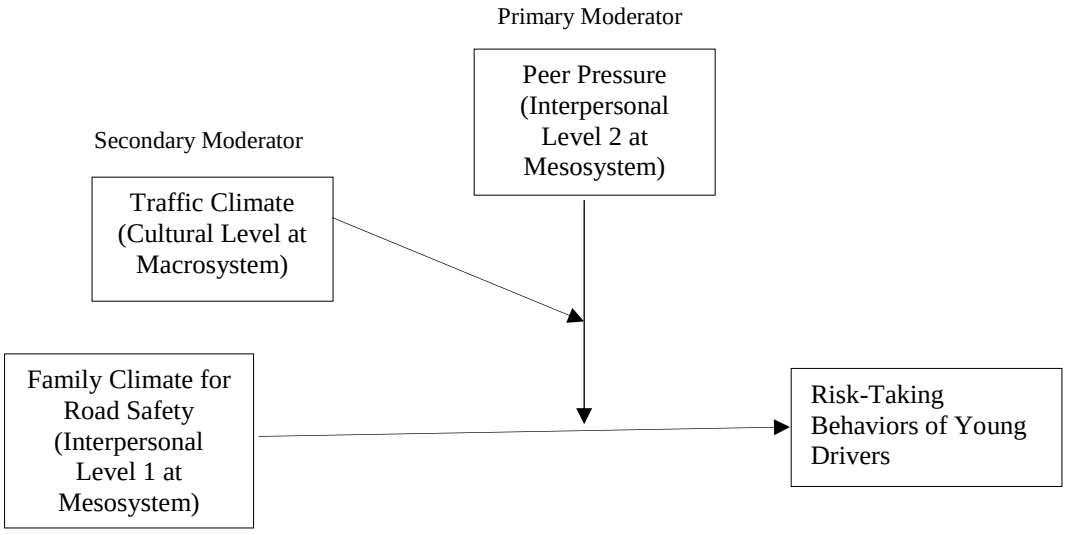

Figure 1. The conceptual model of the present study based on Bronfenbrenner's socio-ecological model (1979

CHAPTER 2

METHOD

In the following chapter, these steps were followed respectively: Firstly, sample characteristics of the participanst of the current study was presented. Secondly, the instruments used in this study were introduced. In the final section, the procedures including data collection and the data analysis were presented.

2.1.Participants

In the present study, the outliers were detected in terms of age and total mileage by checking the data in the first step. Therefore, 400 participants were left after the outliers. There were 182 female (45.5%) and 218 male (54.5%) drivers in the present study. The mean age of the participants were 21.29 (*SD* = 1.78) and their age range was between 18 and 25. The mean of the life time kilometer was 35795.93 (*SD* = 75205.23). Demographic characteristics of the participants were given in Table 1.

Table 1. Sample characteristics of the participants

Variables	*N*	*SD*	*M*	*Min-Max*
Total	400			
Female	182 (45.5%)			
Male	218 (54.5%)			
Age (*years*)		1.78	21.79	18-25
Lifetime km (*x1000*)		75.21	35.8	2500-900000
Driving frequency *(from very rare to almost everyday)*		1.12	4.09	

2.2.Measures

2.2.1.Family Climate for Road Safety Scale (FCRSS)

Family Climate for Road Safety Scale (Taubman-Ben-Ari & Katz-Ben-Ami, 2013) was developed to measure the perception of young drivers regarding the values, perceptions, priorities, and practices of their parents with regard to safe driving. In the current study, participants were asked to complete the scale for their mothers and fathers separately. Responses to each statement were made using a 5-point Likert-type scale from 1 (not at all) to 5 (very much). The Cronbach's Alpha levels of the factors were presented in the result section of the present study.

2.2.2. Peer Pressure Scale (PPS)

The peer pressure scale (Carpentier, Brijs, Brijs, Daniels, & Wets, 2014) was developed to measure the tendency to take into account both implicit and explicit influences of peers. The items were generated via already existing scales such as 'social norms towards speeding scale' developed by Parker, Manstead, and Stradlin (2010). This scale aimed to assess both implicit (e.g., "My friends regularly use their cellphones while driving") and explicit (e.g., "My friends don't mind if you don't wear your seatbelt all the time") effects of peer pressure. Participants were asked to express their level of aggreement on 5-point Likert scales (1 = totally disaggree, 5 = totally aggree). The Cronbach's Alpha levels of the factors were presented in the result section of the present study.

2.2.3.Traffic Climate Scale (TCS)

Traffic Climate Scale was developed by Özkan & Lajunen (unpublished), and includes 44 statements or adjectives associated with possible situations in traffic. There were three dimensions of the scale: external affective demands, functionality, and internal requirements. Participants were asked to express the degree that the items describe traffic in their country on a 6-point scale (1 =does not describe it at all; 6 = very much describes it). The Cronbach's Alpha levels of the factors were presented in the result section of the present study.

2.2.4. Risk-Taking Behavioral Scales (RTBS)

Risk-taking behavioral scales was developed by Ulleberg and Rundmo (2000) to measure risky driving behaviors among young drivers. The scale includes three dimensions with 15 items: self-assertiveness, speeding, and rule violations. Participants were asked to indicate how often they show different acts of risk-taking in traffic context, ranging from 1 (never) to 5 (very often) based on a 5-point Likert scales. The Cronbach's Alpha levels of the factors were presented in the result section of the present study.

2.3. Procedure

Data collection process involved several steps. Firstly, ethical permission for the questionnaire package was taken from Middle East Technical University Ethics Committee. Then, the English version of the questionnaires were sent to researchers for the translation procedure. Sinan Alper, Özgün Özkan, and Özlem Ersan translated the questionnaires in Turkish via forward back translation methos. After translation procedure, the questionnaire package was entered into online survey program named Qualtrics and distributed via a unique link for possible participants. Then, the link was shared via several platforms like social media channels. Participants were selected based on required conditions parallel with the aim of the current study. Firstly, the age range of participants are between 18 and 25. In addition, participants should have driver licence. Finally, participants were expected to drive at least 2500 km during their lifetime since the questionnaire package includes items related to driver behaviors. Since participants completed questionnaires about critical issues such as their family's driving behaviors and risky driving behaviors, they may feel discomfortable about anonimity. Therefore, they were guaranteed about confidentiality. Participants filled out the questionnaire package including demographic information form, the FCRSS for both their mothers and fathers, the PPS, the TCS, and the RTBS respectively. It should be noted that participants completed the FCRSS based on the question "Who does drive in your family?" by adding skip logic in Qualtrics survey programs. That was, participants who reported that only their mothers drive completed the FCRSS for their mothers, when only their

fathers drive, they completed the FCRSS for their fathers, and both parents drive in their family, they completed the FCRSS for both their mothers and fathers. The other scales were completed by all participants in the current study.

2.4. Statistical Analyses

In order to investigate the frequency of the accident histories of the participants themselves, their mothers and fathers, descriptive statistics was conducted. Then, the principal component analysis (PCA) with Promax rotation technique was conducted for factor structure of the FCRSS for mothers, the FRCSS for fathers in the same sample, the factor structure of the FCRSS for only fathers, the PPS, the TCS, and the RTBS to express a set of summary indices. In order to examine the relationship between the study variables, a Pearson product-moment correlation coefficient was computed. After, a series of hierarchical regression analyses were conducted to investigate the effect of the study variables (i.e., communication, noncommitment, monitoring, and feedback dimensions of the FCRSS for mothers and fathers, communication, modeling, monitoring, and feedback dimensions of the FCRSS for only fathers, peer pressure, external affective demands, functionality, internal requirements dimensions of the TCS) for participants whose mothers, fathers, and only fathers drive on the RTBS dimensions (i.e., self-assertiveness, speeding, and rule violations). Hayes (2013, p.300) defined a moderated moderation as "the moderation of one variable's effect by another is itself moderated". In other words, the moderation of family climate for roade safety's effect on risk-taking behaviors by peer pressure is itself moderated by traffic climate. In the current study, a series of moderated moderation analyses with Hayes' PROCESS macro analysis in SPSS were conducted to investigate whether the association between family climate for road safety (i.e., communication, noncommitment, monitoring, and feedback dimensions of the FCRSS for mothers and fathers, communication, modeling, monitoring, and feedback dimensions of the FCRSS for only fathers) and risk-taking behaviors of young drivers in traffic context (i.e., self-assertiveness, speeding, and rule violations) were moderated by peer pressure to depend on traffic climate perception (i.e., external affective demands, functionality, and internal requirements) by controlling age, gender, total mileage, and driving frequency for participants whose mothers, fathers, and only fathers drive. The significant interactions were

plotted with two approaches which were pick-a-point approach and the Johnson-Neyman technique.

2.4.1. Pick-A-Point Approach and The Johnson-Neyman Technique

Pick-a-point approach was used to show in which values of traffic climate as a secondary moderator were chosen with the target of determining whether peer pressure moderated family climate's effect on risk-taking behaviors of young drivers conditioned on these various values of traffic climate. The Johnson-Neyman (JN) technique was used to show significant conditional effect of family climate for road safety on risk-taking behaviors by peer pressure to depend on traffic climate by plotting the significant interactions. The JN technique was used to identify "region of significance" (Hayes, 2013, p. 240) of family climate for road safety on risk-taking behaviors within the continuum of peer pressure to depend on traffic climate for participants whose mothers, fathers, and only fathers drive in the current study. In other words, whether the moderating role of peer pressure on the relationship between family climate for road safety and risk-taking behaviors is significant or not based on certain *cut-off points* in traffic climate. The results of the present study are presented in the next session.

CHAPTER 3

RESULTS

In the following chapter, these steps were presented respectively: First, results of the descriptive statistics including the percentages of from whom participans first learned to drive, accidents history of participants and their parents were given. Secondly, the results of Principal Component Analyses were presented for the FCRSS (mother), the FCRSS (father), the FCRSS (only father), the PPS, the TCS, and the RTBS respectively. Then, the correlation analyses were presented between the study variables. In the next section, the results of regression analyses were given. In the final section, the results of Moderated Moderation analyses were presented as main results.

3.1. Descriptive Statistics

In the current study, 328 participants responded the question: "Who taught you to drive first?". According to the their responses, 45.7% of the participants learned to drive from their fathers, 30.5% of them learned from driver instructor, 7.3% of them learned from their older brothers, 7% of them learned from their mothers, 4% of them learned from other people (e.g., relatives, spouses, video games etc.), 3% of them learned from their older sisters, 2.1% of them learned from their friends, and 0.3% of them learned to drive from their younger siblings respectively (see Table 2). Furhermore, participants were asked about their accident history for last 3 years including active and passive accidents and traffic fines (e.g., wrong parking, incorrect overtaking, speed violation, and others). In addition, the accident history of both their mothers and fathers, and the accidents history of only their fathers were asked as well (see Table 3 and Table 4).

Table 2. Accident history of the participants and their parents (both parents drive)

	Driver himself/herself			**Driver's mother**			**Driver's father**		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Last 3-Year Active Accidents	168	1.29	1.56	152	.91	1.68	145	.91	1.59
Last 3-Year Passive Accidents	168	.66	1.29	147	.52	1.14	143	.64	.99
Wrong parking	131	.34	.74	115	.22	.65	113	.36	.82
Incorrect overtaking	120	.00	.00	110	.04	.23	108	.10	.63
Speed violation	141	.84	1.60	118	.43	.86	123	1.59	1.86
Other	112	.23	.55	90	.14	.59	92	.35	1.12

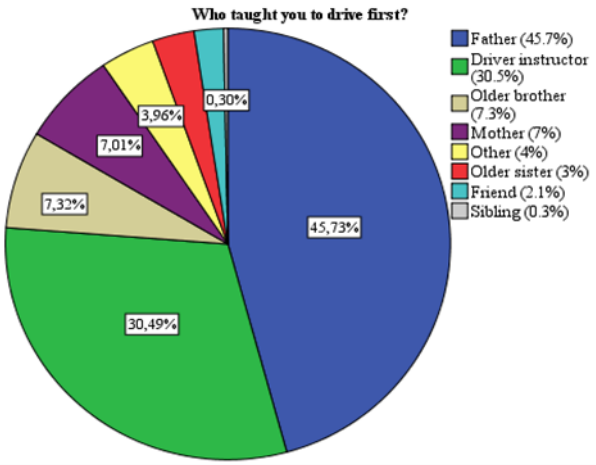

Figure 2. The percentage of from whom participans first learned to

Table 3. Accident history of the participants and their fathers (only fathers drive)

	Driver himself/herself			**Driver's father**		
	N	*M*	*SD*	*N*	*M*	*SD*
Last 3-Year Active Accidents	232	1.11	1.34	190	.82	1.78
Last 3-Year Passive Accidents	232	.53	.94	180	.58	.94
Wrong parking	164	.46	1.11	151	.55	1.63
Incorrect overtaking	149	.15	1.10	143	.13	.91
Speed violation	176	1.39	7.65	182	1.43	2.99
Other	135	.42	.80	112	.46	1.07

3.2. Results of Principle Component Analyses

3.2.1. Family Climate for Road Safety Scale for Mothers

In the current study, 168 participants reported that their mothers drive. The Principal Component Analysis (PCA) with Promax rotation technique was used for factor structure of FCRSS for mothers. According to the Kaiser-Meyer Olkin Measure, the adequacy of sampling was .86 and the Barlett's test of sphericity indicated that the correlation matrix produced by the items was significant ($df = 1431$, $p < .001$). In order to decide the number of factors, the scree plot was used and the factor structure of FCRSS was considered (Taubman-Ben-Ari & Katz-Ben-Ami, 2013). Then, the number of factors was entered as four. The cut-off value for loadings was determined as .30.

The first factor consisted of 16 items. The majority of the items were related to communicate in terms of potential hazards on the road, discussing subjects related to driving. Thus, the first factor was named as "communication". The communalities ranged between .41 and .62. The item "My mother tells me when I take unnecessary risks on the road" had the highest communality value. The initial eigenvalue of the first factor was 14.51 and explained 26.86% of the variance.

The second factor consisted of 10 items. The majority of the items were related to not investing enough time for their children in terms of safe driving. Thus, the factor was named as "noncommitment". The communalities ranged between .33 and .60. The item "My mother isn't very committed to the issue of safe driving" had the highest communality value. The initial eigenvalue of the second factor was 6.18 and explained 11.44% of the variance.

The third factor consisted of 9 items. The majority of the items were related to monitoring and controlling the driver habits of children. Thus, the factor was named as "monitoring". The communalities ranged between .55 and .81. The item "Whenever I take the car, I have to tell my mother who I'm taking with me wherever I go" had the highest communality value. The initial eigenvalue of the second factor was 2.94 and explained 5.45% of the variance.

The forth factor consisted of 6 items. The majority of the items were related to providing positive feedback related to safe driving. Thus, the factor was named as "feedback". The communalities ranged between .29 and .75. The item "My mother encourages me and applaud me when she sees I make sure to drive safely" had the highest communality value. The initial eigenvalue of the third factor was 2.73 and explained 5.01% of the variance.

Six items (item 20, item 28, item 36, item 41, item 46, and item 50) were excluded from the study due to cross-loading. Beside, two items (item 1 and item 29) did not load under any factor. Finally, 5 items (item 15, item 22, item 30, item 44, and item 45) were excluded from the study due to reliability issue. Therefore, 41 items were decided to use for further analyses under the four factors of FCRSS for mother. The four factors explained 43.80% of the total variance (see Table 4).

Table 4. Factor loadings and communality values of the items of the FCRSS (mother)

Items	Components				Communality
	1 (Com) α = .92	2 (Nonc) α = .84	3 (Mon) α = .89	4 (Fb) α = .89	
1. My mother plans her time well so she won't be pressed for time when she's driving					.209*
2. My mother teaches me how to anticipate potential problems on the road before they occur	**.620**				.449
3. My mother makes sure I don't fool around on the road	**.565**				.408
4. My mother and I talk openly about mistakes on the road or near accidents so I can learn from her	**.730**				.559
5. My mother tells me when I take unnecessary risks on the road	**.882**				.620
6. My mother sets an example by obeying traffic laws [–]		**.439**			.479
7. Whenever I take the car, I have to call my mother and tell her if I'm going to be late			**.662**		.545
8. I talk openly with my mother about anything related to driving	**.705**				.427
9. I know how my mother expects me to drive	**.804**				.605
10. According to my mother, it's considered a nuisance to have to obey all the traffic regulations		**-.789**			.507
11. My mother doesn't always say anything about my driving, even when I do something dangerous on the road [–]		**.508**			.392
12. My mother really cares that I drive safely	**.760**				.477
13. Whenever I take the car, I have to tell my mother where I'm going			**.860**		.701
14. My mother praises me when I drive safely and carefully				**.824**	.624
15. My mother only follows the rules for safe driving because she doesn't want to get caught					.127*
16. My mother tells me when they think I'm driving dangerously	**.854**				.563
17. My mother has clear rules about driving carefully	**.616**				.473
18. I have to get my mother's permission every time I want to go out in the car			**.785**		.565
19. My mother wouldn't let me take the car if I drove recklessly, even if it would make it easier for her if I drove (to go to the store, to pick someone up)	**.534**				.373
20. My mother drives safely even when she is in a hurry					.553*
21. Whenever I take the car, I have to call my mother and tell her if there's a change in where I'm going			**.848**		.668
22. Sometimes my mother urges me to speed up when the light turns yellow [–]					.285*
23. My mother doesn't like to admit it when she makes a mistake on the road [–]		**.535**			.336
24. My mother isn't very committed to the issue of safe driving [–]		**.697**			.596
25. Whenever I take the car, I have to tell my mother who I'm taking with me wherever I go			**.931**		.809

Table 4 (continued)

Items	Components				Communality
	1 (Com) α = .92	2 (Nonc) α = .84	3 (Mon) α = .89	4 (Fb) α = .89	
26. My mother compliments me for driving safely				**.882**	.685
27. There's an unwritten contract between me and my mother about my driving safely	**.405**				.470
28. My mother believes that driving safely is very important					.388*
29. My mother doesn't spend time teaching me how to drive safely					.241*
30. My mother serves as role Models for safe driving					.450*
31. My mother talks about safe driving, but she doesn't drive so safely herself [–]		**.741**			.541
32. If my mother found out I wasn't driving safely, she would impose limits on my driving			**.635**		.571
33. My mother talks to me about possible hazards on the road	**.702**				.567
34. I share in framing the family contract with my mother about my driving	**.447**				.527
35. My mother encourages me and applaud me when she sees I make sure to drive safely				**.934**	.747
36. I can talk freely with my mother about different driving situations					.313*
37. Sometimes my mother encourages me to ignore the traffic regulations [–]		**.712**			.518
38. My mother takes an interest in how I drive	**.502**				.454
39. My mother takes every traffic violation very seriously, even when it doesn't result in a crash	**.480**				.513
40. My mother will only pay attention to whether I'm driving safely if something like a car crash happens		**-.663**			.399
41. My mother doesn't like it if someone complains that she's not driving safely					.455*
42. My mother is willing to accept it if I get home late because I didn't want to speed			**.371**		.186
43. My mother made it clear to me that if I didn't obey the traffic regulations she would restrict my driving			**.690**		.517
44. My mother ignores it when I drive dangerously [–]					.508*
45. My mother lets me take the car more often when she feels I drive safely					.360*
46. My mother and I talk at home about how to prevent or avoid dangerous situations on the road					.536*
47. My mother tells me to drive carefully even though she's not very careful driver [–]		**.642**			.356
48. My mother's expectations from me about driving safely are very clear to me	**.580**				.418
49. I get positive feedback from my mother whenever she sees me drive safely				**.865**	.702
50. My mother obeys the traffic laws even when she's tired or feeling stressed					.389*
51. I tell my mother about dangerous situations I've been in on the road				**.319**	.291

Table 4 (continued)

Items	Components				Communality
	1 (Com) α = .92	2 (Nonc) α = .84	3 (Mon) α = .89	4 (Fb) α = .89	
52. My mother makes it clear that driving safely is more important than getting somewhere on time [–]		**-.346**			.484
53. I feel that my mother is proud of me when I drive safely				**.753**	.624
54. Whenever I take the car, I have to tell my mother when I'll be home			**.863**		.788

Note 1. The cut-off value for factor loadings was determined as .30. *Items deleted. [-] reversed items.
Note 2. Com = Communication, Nonc = Noncommitment, Mon = Monitoring, Fb = Feedback.

3.2.2. Family Climate for Road Safety Scale for Fathers

In the present study, 168 participants reported that their fathers drive. The principal component analysis (PCA) with Promax rotation technique was used for factor structure of FCRSS for fathers. According to the Kaiser-Meyer Olkin Measure, the adequacy of sampling was .90 and the Barlett's test of sphericity indicated that the correlation matrix produced by the items was significant ($df = 1431$, $p < .001$). In order to decide the number of factors, the scree plot was used and the factor structure of FCRSS was considered (Taubman-Ben-Ari & Katz-Ben-Ami, 2013). Then, the number of factors was entered as four. The cut-off value for loadings was determined as .30.

The first factor consisted of 18 items. The majority of the items were related to communicate in terms of potential hazards on the road, discussing subjects related to driving. Thus, the first factor was named as "communication". The communalities ranged between .34 and .66. The item "My father tells me when I take unnecessary risks on the road" had the highest communality value. The initial eigenvalue of the first factor was 16.79 and explained 31.10% of the variance.

The second factor consisted of 13 items. The majority of the items were related to not investing enough time for children in terms of safe driving. Thus, the factor was named as "noncommitment". The communalities ranged between .30 and .69. The item "My father talks about safe driving, but he doesn't drive so safely himself" had the highest communality value. The initial eigenvalue of the second factor was 6.44 and explained 11.93% of the variance.

The third factor consisted of 6 items. The majority of the items were related to monitoring and controlling the driver habits of children. Thus, the factor was named as “monitoring”. The communalities ranged between .74 and .85. The item “Whenever I take the car, I have to tell my father where I’m going” had the highest communality value. The initial eigenvalue of the second factor was 3.66 and explained 6.78% of the variance.

The forth factor consisted of 4 items. The majority of the items were related to providing positive feedback related to safe driving. Thus, the factor was named as “feedback”. The communalities ranged between .51 and .62. The item “My father encourages me and applaud me when she sees I make sure to drive safely” had the highest communality value. The initial eigenvalue of the third factor was 2.50 and explained 4.64% of the variance.

Ten items (item 26, item 8, item 11, item 28, item 32, item 36, item 41, item 44, item 51, and item 53) were excluded from the study due to cross-loading. Moreover, one item (item 42) did not load under any factor. Finally, 2 items (item 15 and item 43) were excluded from the study due to reliability issue. Therefore, 41 items were decided to use for further analyses under the four factors of FCRSS for father. The four factors explained 54.43% of the total variance (see Table 5).

Table 5. Factor loadings and communality values of the items of the FCRSS (father)

Items		Components				Communality
		1 (Com) α = .91	2 (Nonc) α = .90	3 (Mon) α = .96	4 (Fb) α = .91	
1.	My father plans his time well so he won't be pressed for time when he's driving	**.355**				.340
2.	My father teaches me how to anticipate potential problems on the road before they occur	**.727**				.485
3.	My father makes sure I don't fool around on the road	**.842**				.525
4.	My father and I talk openly about mistakes on the road or near accidents so I can learn from him	**.725**				.547
5.	My father tells me when I take unnecessary risks on the road	**.828**				.659
6.	My father sets an example by obeying traffic laws					.502*
7.	Whenever I take the car, I have to call my father and tell him if I'm going to be late			**.857**		.741
8.	I talk openly with my father about anything related to driving					.522*
9.	I know how my father expects me to drive	**.826**				.632
10.	According to my father, it's considered a nuisance to have to obey all the traffic regulations [–]		**-.772**			.590
11.	My father doesn't always say anything about my driving, even when I do something dangerous on the road					.466*
12.	My father really cares that I drive safely	**.738**				.535
13.	Whenever I take the car, I have to tell my father where I'm going			**.936**		.850
14.	My father praises me when I drive safely and carefully				**.605**	.569
15.	My father only follows the rules for safe driving because he doesn't want to get caught					.097*
16.	My father tells me when they think I'm driving dangerously	**.823**				.558
17.	My father has clear rules about driving carefully	**.563**				.568
18.	I have to get my father's permission every time I want to go out in the car			**.888**		.752
19.	My father wouldn't let me take the car if I drove recklessly, even if it would make it easier for him if I drove (to go to the store, to pick someone up)	**.438**				.379
20.	My father drives safely even when he is in a hurry		**.639**			.570
21.	Whenever I take the car, I have to call my father and tell him if there's a change in where I'm going			**.869**		.752
22.	Sometimes my father urges me to speed up when the light turns yellow [–]		**-.613**			.489

Table 5 (continued)

Items	Components				Communality
	1 (Com) α = .91	2 (Nonc) α = .90	3 (Mon) α = .96	4 (Fb) α = .91	
23. My father doesn't like to admit it when he makes a mistake on the road		**.745**			.459
24. My father isn't very committed to the issue of safe driving		**.757**			.625
25. Whenever I take the car, I have to tell my father who I'm taking with me wherever I go			**.877**		.794
26. My father compliments me for driving safely				**.615**	.612
27. There's an unwritten contract between me and my father about my driving safely	**.643**				.522
28. My father believes that driving safely is very important					.556*
29. My father doesn't spend time teaching me how to drive safely [–]		**-.368**			.299
30. My father serves as role Models for safe driving		**.563**			.569
31. My father talks about safe driving, but he doesn't drive so safely himself		**.918**			.692
32. If my father found out I wasn't driving safely, he would impose limits on my driving					.604*
33. My father talks to me about possible hazards on the road	**.770**				.613
34. I share in framing the family contract with my father about my driving	**.647**				.570
35. My father encourages me and applaud me when he sees I make sure to drive safely				**.607**	.617
36. I can talk freely with my father about different driving situations					.559*
37. Sometimes my father encourages me to ignore the traffic regulations		**.652**			.423
38. My father takes an interest in how I drive	**.745**				.581
39. My father takes every traffic violation very seriously, even when it doesn't result in a crash		**.452**			.524
40. My father will only pay attention to whether I'm driving safely if something like a car crash happens [–]		**-.670**			.419
41. My father doesn't like it if someone complains that he's not driving safely					.493*
42. My father is willing to accept it if I get home late because I didn't want to speed					.158*
43. My father made it clear to me that if I didn't obey the traffic regulations he would restrict my driving					.581*
44. My father ignores it when I drive dangerously					.602*
45. My father lets me take the car more often when he feels I drive safely	**.568**				.373
46. My father and I talk at home about how to prevent or avoid dangerous situations on the road	**.495**				.427
47. My father tells me to drive carefully even though he's not very careful driver		**.749**			.485
48. My father's expectations from me about driving safely are very clear to me	**.801**				.556

Table 5 (continued)

Items	Components				Communality
	1 (Com) α = .91	2 (Nonc) α = .90	3 (Mon) α = .96	4 (Fb) α = .91	
49. I get positive feedback from my father whenever he sees me drive safely				**.553**	.508
50. My father obeys the traffic laws even when he's tired or feeling stressed		**.566**			.556
51. I tell my father about dangerous situations I've been in on the road					.513*
52. My father makes it clear that driving safely is more important than getting somewhere on time	**-.518**				.553
53. I feel that my father is proud of me when I drive safely					.619*
54. Whenever I take the car, I have to tell my father when I'll be home			**.914**		.802

Note 1. The cut-off value for factor loadings was determined as .30. *Items deleted. [-] reversed items.
Note 2. Com = Communication, Nonc = Noncommitment, Mon = Monitoring, Fb = Feedback.

3.2.3 Family Climate for Road Safety Scale for only Fathers

In the study, 232 participants reported that only their fathers drive in their family as a parent. The principal component analysis (PCA) with Promax rotation technique was used for factor structure of FCRSS for only fathers who drive. According to the Kaiser-Meyer Olkin Measure, the adequacy of sampling was .90 and the Barlett's test of sphericity indicated that the correlation matrix produced by the items was significant (df = 1431, p < .001). In order to decide the number of factors, the scree plot was used and the factor structure of FCRSS was considered (Taubman-Ben-Ari & Katz-Ben-Ami, 2013). Then, the number of factors was entered as four. The cut-off value for loadings was determined as .30.

The first factor consisted of 20 items. The majority of the items were associated with communication between father and daughter/son with regard to potential hazards on the road, discussing several topics related to driving in traffic context. Thus, the first factor was named as "communication". The communalities ranged between .25 and .66. The item "My father tells me when I take unnecessary risks on the road" had the highest communality value. The initial eigenvalue of the first factor was 15.36 and explained 28.44% of the variance.

The second factor consisted of 12 items. The majority of the items were related to model that parents reflect their models of driving and attitude to traffic laws to their children. For example, these behaviors and attitudes include obeying traffic regulations, driving safely although they are in hurry, tired or stressful situation. Thus, the factor was named as "*modeling*". The communalities ranged between .30 and .67. The item "My father talks about safe driving, but he doesn't drive so safely himself" had the highest communality value. The initial eigenvalue of the second factor was 5.54 and explained 10.25% of the variance.

The third factor consisted of 6 items. The majority of the items were related to monitoring and controlling the driver habits of children. Thus, the factor was named as "monitoring". The communalities ranged between .62 and .78. The item "Whenever I take the car, I have to tell my father where I'm going" had the highest communality value. The initial eigenvalue of the second factor was 3.42 and explained 6.33% of the variance.

The forth factor consisted of 5 items. The majority of the items were related to providing positive feedback related to safe driving. Thus, the factor was named as "feedback". The communalities ranged between .67 and .82. The item "I get positive feedback from my father whenever he sees me drive safely" had the highest communality value. The initial eigenvalue of the third factor was 2.77 and explained 5.13% of the variance.

Six items (item 23, item 28, item 44, item 46, item 51, and item 52) were excluded from the present study due to cross-loading. Moreover, one item (item 1) did not load under any factor. Finally, 4 items (item 32, item 40, item 42, and item 43) were excluded from the study due to reliability issue. Therefore, 43 items were decided to use for further analyses under the four factors of FCRSS for only fathers who drive. The four factors explained 50.15% of the total variance (see Table 6).

Table 6. Factor loadings and communality values of the items of the FCRSS (only father)

Items	Components				Communality
	1 (Com) α = .89	2 (Mod) α = .90	3 (Mon) α = .92	4 (Fb) α = .93	
1. My father plans his time well so he won't be pressed for time when he's driving					.187
2. My father teaches me how to anticipate potential problems on the road before they occur	**.788**				.527
3. My father makes sure I don't fool around on the road	**.597**				.309
4. My father and I talk openly about mistakes on the road or near accidents so I can learn from him	**.640**				.391
5. My father tells me when I take unnecessary risks on the road	**.615**				.410
6. My father sets an example by obeying traffic laws		**.706**			.659
7. Whenever I take the car, I have to call my father and tell him if I'm going to be late			**.768**		.616
8. I talk openly with my father about anything related to driving	**.614**				.503
9. I know how my father expects me to drive	**.752**				.460
10. According to my father, it's considered a nuisance to have to obey all the traffic regulations [–]		**-.660**			.462
11. My father doesn't always say anything about my driving, even when I do something dangerous on the road	**.558**				.456
12. My father really cares that I drive safely	**.707**				.555
13. Whenever I take the car, I have to tell my father where I'm going			**.891**		.761
14. My father praises me when I drive safely and carefully				**.835**	.666
15. My father only follows the rules for safe driving because he doesn't want to get caught [–]					.161*
16. My father tells me when they think I'm driving dangerously	**.755**				.489
17. My father has clear rules about driving carefully	**.570**				.544
18. I have to get my father's permission every time I want to go out in the car			**.885**		.719
19. My father wouldn't let me take the car if I drove recklessly, even if it would make it easier for him if I drove (to go to the store, to pick someone up)	**.479**				.360

Table 6 (continued)

Items	Components				Communality
	1 (Com) α = .89	2 (Mod) α = .90	3 (Mon) α = .92	4 (Fb) α = .93	
20. My father drives safely even when he is in a hurry		**.654**			.592
21. Whenever I take the car, I have to call my father and tell him if there's a change in where I'm going			**.790**		.661
22. Sometimes my father urges me to speed up when the light turns yellow [–]		**-.646**			.375
23. My father doesn't like to admit it when he makes a mistake on the road					.303*
24. My father isn't very committed to the issue of safe driving		**.749**			.638
25. Whenever I take the car, I have to tell my father who I'm taking with me wherever I go			**.908**		.781
26. My father compliments me for driving safely				**.880**	.752
27. There's an unwritten contract between me and my father about my driving safely	**.479**				.357
28. My father believes that driving safely is very important					.685*
29. My father doesn't spend time teaching me how to drive safely	**-.427**				.440
30. My father serves as role Models for safe driving		**.515**			.597
31. My father talks about safe driving, but he doesn't drive so safely himself		**.893**			.672
32. If my father found out I wasn't driving safely, he would impose limits on my driving					.334*
33. My father talks to me about possible hazards on the road	**.830**				.663
34. I share in framing the family contract with my father about my driving	**.796**				.550
35. My father encourages me and applaud me when he sees I make sure to drive safely				**.793**	.701
36. I can talk freely with my father about different driving situations	**.413**				.283
37. Sometimes my father encourages me to ignore the traffic regulations		**.570**			.308
38. My father takes an interest in how I drive	**.732**				.514
39. My father takes every traffic violation very seriously, even when it doesn't result in a crash		**.577**			.547
40. My father will only pay attention to whether I'm driving safely if something like a car crash happens [–]					.147*
41. My father doesn't like it if someone complains that he's not driving safely [–]		**-.525**			.302
42. My father is willing to accept it if I get home late because I didn't want to speed					.228*
43. My father made it clear to me that if I didn't obey the traffic regulations he would restrict my driving					.402*
44. My father ignores it when I drive dangerously					.310*
45. My father lets me take the car more often when he feels I drive safely	**.367**				.254

Table 6 (continued)

Items	Components				Communality
	1 (Com) α = .89	2 (Mod) α = .90	3 (Mon) α = .92	4 (Fb) α = .93	
46. My father and I talk at home about how to prevent or avoid dangerous situations on the road					.430*
47. My father tells me to drive carefully even though he's not very careful driver		**.836**			.515
48. My father's expectations from me about driving safely are very clear to me	**.818**				.592
49. I get positive feedback from my father whenever he sees me drive safely				**.879**	.816
50. My father obeys the traffic laws even when he's tired or feeling stressed		**.688**			
51. I tell my father about dangerous situations I've been in on the road					.464*
52. My father makes it clear that driving safely is more important than getting somewhere on time					.619*
53. I feel that my father is proud of me when I drive safely				**.749**	.685
54. Whenever I take the car, I have to tell my father when I'll be home			**.825**		.707

Note 1. The cut-off value for factor loadings was determined as .30. *Items deleted. [-] reversed items.
Note 2. Com = Communication, Mod = Modeling, Mon = Monitoring, Fb = Feedback.

3.2.4. Peer Pressure Scale

The principal component analysis (PCA) with Promax rotation technique was used for factor structure of the PPS. According to the Kaiser-Meyer Olkin Measure, the adequacy of sampling was .80 and the Barlett's test of sphericity indicated that the correlation matrix produced by the items was significant (df = 15, p < .001). In order to decide the number of factors, the scree plot was used and the factor structure of the PPS was considered (Carpentier, Brijs, Brijs, Daniels, & Wets, 2014). The number of factors was decided as one. The cut-off value for loadings was determined as .30. Two items were excluded from the study since item 4 showed cross-loading and item 6 did not load under the factor. Therefore, 4 items were decided to use for further analyses (see Table 7). The factor consisted of 4 items and associated with the pressure of peers related to risky driving. The communalities ranged between .55 and .65. The item "My friends drive faster than the speed limit on a regularly basis" had the highest communality value. The initial eigenvalue of the factor was 2.78 and explained 46.26% of the variance.

Table 7. Factor loadings and communality values of the items of the PPS

Items	Components	Communality
	1 (PP) α = .78	
1.My friends use their cellphones regularly while driving.	**.800**	.592
2.My friends wouldn't mind if you occasionally don't wear a seatbelt.	**.758**	.552
3.My friends drive faster than the speed limit on a regularly basis.	**.791**	.646
4.My friends wouldn't mind if you drank a glass of alcohol before driving.		.637*
5.My friends sometimes drive to close to the driver in front of them.	**.759**	.632
6.My friends wouldn't mind if you used a small amount of drugs before driving.		.822*

Note. The cut-off value for factor loadings was determined as .30. *Items deleted.

3.2.5 Traffic Climate Scale

The principal component analysis (PCA) with Promax rotation technique was used for factor structure of the TCS. According to the Kaiser-Meyer Olkin Measure, the adequacy of sampling was .92 and the Barlett's test of sphericity indicated that the correlation matrix produced by the items was significant (df = 946, p < .001). In order to decide the number of factors, the scree plot was used and the factor structure of TCS was considered (Chu, Wu, Atombo, Zhang, & Özkan, 2019; Özkan & Lajunen unpublished). Then, the number of factors was entered as three. The cut-off value for loadings was determined as .30. Item 16 was excluded since it did not load under any factor. Moreover item 8 was excluded in order to increase relability of the Factor 3. Therefore, 42 items were decided to use for further analyses (see Table 8).

The first factor consisted of 23 items. The majority of the items were associated with emotinal commitment in traffic environment. Therefore, this factor was named as "external affective demands". The communalities ranged between .18 and .64. The item "Making irritated" had the highest communality value. The initial eigenvalue of the first factor was 13.14 and explained 29.87% of the variance.

The second factor consisted of 15 items. The majority of the items were associated with the functionality of the traffic environment. Therefore, this factor was named as "functionality". The communalities ranged between .22 and .59. The item "Safe" had the highest communality value. The initial eigenvalue of the second factor was 5.11 and explained 11.61% of the variance.

The third factor consisted of 4 items. The majority of the items were associated with the internal requirements, reqired abilities and skills in the traffic environment. Therefore, this factor was named as "internal reqirements". The communalities ranged between .23 and .56. The item "Mobile" had the highest communality value. The initial eigenvalue of the third factor was 1.75 and explained 3.97% of the variance. The three factors explained 45.44% of the total variance.

Table 8. Factor loadings and communality values of the items of the TCS

Items	Components			Communality
	1 (EAD) α = .94	2 (FUN) α = .90	3 (IR) α = .66	
1. Dangerous	**.554**			.564
2. Dynamic			**.657**	.379
3. Complicated	**.629**			.599
4. Aggressive	**.573**			.565
5. Exciting			**.474**	.234
6. Fast			**.574**	.472
7. Stressful	**.779**			.524
8. Monotonous				.215*
9. Depend on luck	**.615**			.320
10. Requiring you on the alert	**.573**			.459
11. Depends on fate	**.516**			.177
12. Requiring cautiousness	**.561**			.508
13. Requiring experience	**.447**			.466
14. Requiring quickness	**.435**			.255
15. Requiring you obey rules		**.602**		.314
16. What you done becomes a benefit to you				.153*
17. Giving a feeling that you are worthless	**.413**			.284
18. Mobile			**.652**	.556
19. Causing tension	**.726**			.644
20. Including preventive measures		**.669**		.391
21. Under enforcement		**.746**		.511
22. Travel easily from place to place		**.586**		.432
23. Depend on mutual consideration		**.634**		.559
24. Planned		**.746**		.603
25. Putting pressure on you	**.747**			.502
26. Directed to compensate the things that happened		**.652**		.418
27. Including deterring rules		**.693**		.400
28. Risky	**.774**			.634
29. Chaotic	**.592**			.447
30. Requiring patience	**.792**			.522
31. Making irritated	**.849**			.645
32. Requiring vigilance	**.726**			.518
33. Requiring skillfulness	**.651**			.429
34. Harmonious		**.661**		.398
35. Time consuming	**.755**			.533
36. Annoying	**.861**			.625
37. Egalitarian		**.666**		.588
38. Safe		**.667**		.591
39. Functional		**.697**		.546
40. Free flowing		**.549**		.446
41. Requiring knowledge of traffic rules		**.612**		.339
42. Directing your behaviors		**.451**		.213
43. Unpredictable	**.741**			.526
44. Dense	**.748**			.496

Note 1. The cut-off value for factor loadings was determined as .30. *Items deleted.
Note 2. EAD = External affective demands, FUN = Functionality, IR = Internal reqirements.

3.2.6. Risk-Taking Behavioral Scales

The principal component analysis (PCA) with Promax rotation technique was used for factor structure of RTBS. According to the Kaiser-Meyer Olkin Measure, the adequacy of sampling was .92 and the Barlett's test of sphericity indicated that the correlation

matrix produced by the items was significant (df = 105, p < .001). In order to decide the number of factors, the scree plot was used and the factor structure of RTBS was considered (Ulleberg & Rundmo, 2000). The cut-off value for loadings was determined as .30. Then the number of factors was decided as three. Item 12 was decided to excluded from the current study due to cross-loading. Hence, 14 items were used for the further analyses.

The first factor consisted of 5 items. The majority of the items were associated with assertive behaviors in driving context. Thus, the factor was named as "self-assertiveness". The communalities ranged between .57 and .77. The item "Drive fast to show others that I am tough enough" had the highest communality value. The initial eigenvalue of the first factor was 7.11 and explained 47.39% of the variance.

The second factor consisted of 3 items. The majority of the items were associated with speeding behaviors. Thus, the factor was named as "speeding". The communalities ranged between .70 and .82. The item "Exceed the speed limit in build-up areas (more than 10 km/h)" had the highest communality value. The initial eigenvalue of the second factor was 1.77 and explained 11.77% of the variance.

The third factor consisted of 6 items. The majority of the items were associated with violating the traffic rules. Thus, the factor was named as "rule violations". The communalities ranged between .50 and .75. The item "Ignore traffic rules to in order to get ahead in traffic" had the highest communality value. The initial eigenvalue of the second factor was 1.07 and explained 5.15% of the variance. The three factors explained 66.27% of the total variance (see Table 9).

Table 9. Factor loadings and communality values of the items of the RTBS

Items	Components			Communality
	1 (SA) α = .88	2 (SP) α = .87	3 (RV) α = .87	
1. Drive recklessly because others expect me to do it	**.716**			.565
2. Drive fast to show others that I am tough enough	**.924**			.770
3. Drive fast to show others I can handle the car	**.819**			.706
4. Break traffic rules due to peer pressure	**.741**			.722
5. Drive fast because the opposite sex enjoys it	**.785**			.642
6. Exceed the speed limit in build-up areas (more than 10 km/h)		**.913**		.823
7. Exceed the speed limit on country roads (more than 10 km/h)		**.921**		.812
8. Overtake the car in front when it is driving at the speed limit		**.764**		.704
9. Drive too close to the car in front			**.457**	.499
10. Bend the traffic rules in order to get ahead in traffic			**.783**	.714
11. Ignore traffic rules to in order to get ahead in traffic			**.881**	.749
12. Drive on a yellow light when it is about to turn red				.503*
13. Disregard red light on an empty road			**.767**	.549
14. Drive the wrong way down a one-way street			**.578**	.507
15. Break traffic rules because they are too complicated to follow			**.790**	.670

Note 1. The cut-off value for factor loadings was determined as .30. *Items deleted.
Note 2. SA = Self-assertiveness, SP = Speeding, RV = Rule violations.

3.3. Correlations Between The Study Variables

A Pearson product-moment correlation coefficient was computed to assess the relationship between the study variables, namely age, gender, lifetime mileage, frequency of driving, communication, noncommitment, monitoring, feedback (for mother and father), modeling (only father), peer pressure, external affective demands, functionality, internal requirements, self-assertiveness, speeding, and rule violations for the total sample and were presented in Table 10.

Age was significantly positively correlated to lifetime mileage (r = .169, p < .01) and frequency of driving (r = .123, p < .01), significantly negatively related to gender (r = -.139, p < .01), monitoring (mother) (r = -.283, p < .01), monitoring (father) (r = -.266, p < .01), communication (only father) (r = -.139, p < .05), monitoring (only father) (r = -.246, p < .01), functionality (r = -.266, p < .01), self-assertiveness (r = -.139, p < .05), and rule violations (r = -.246, p < .01).

Gender was significantly positively associated with communication (mother) ($r = .217$, $p < .01$), monitoring (mother) ($r = .227$, $p < .01$), feedback (mother) ($r = .237$, $p < .01$), monitoring (father) ($r = .164$, $p < .05$), monitoring (only father) ($r = .225$, $p < .01$), feedback (only father) ($r = .328$, $p < .01$), functionality ($r = .164$, $p < .05$), and rule violations ($r = .225$, $p < .01$), and significantly negatively related to lifetime mileage ($r = -.157$, $p < .01$).

Lifetime mileage was significantly positively related to frequency of driving ($r = .190$, $p < .01$), and significantly negatively correlated to monitoring (mother) ($r = -.309$, $p < .01$), monitoring (father) ($r = -.232$, $p < .01$), communication (only father) ($r = -.244$, $p < .01$), functionality ($r = -.232$, $p < .01$), and self-assertiveness ($r = -.244$, $p < .01$).

Frequency of driving was significantly negatively associated with monitoring (mother) ($r = -.486$, $p < .01$), monitoring (father) ($r = -.429$, $p < .01$), feedback (father) ($r = -.152$, $p < .05$), monitoring (only father) ($r = -.250$, $p < .01$), functionality ($r = -.429$, $p < .01$), internal requirements ($r = -.152$, $p < .05$), and rule violations ($r = -.250$, $p < .01$).

Communication (mother) was significantly positively related to monitoring (mother) ($r = .436$, $p < .01$), feedback (mother) ($r = .522$, $p < .01$), communication (father) ($r = .464$, $p < .01$), noncommitment (father) ($r = .176$, $p < .05$), monitoring (father) ($r = .250$, $p < .01$), feedback (father) ($r = .233$, $p < .01$), communication (only father) ($r = .202$, $p < .01$), modeling (only father) ($r = .271$, $p < .01$), monitoring (only father) ($r = .186$, $p < .05$), feedback (only father) ($r = .507$, $p < .01$), peer pressure ($r = .464$, $p < .01$), external affective demands ($r = .176$, $p < .05$), functionality ($r = .250$, $p < .01$), internal requirements ($r = .232$, $p < .01$), self-assertiveness ($r = .202$, $p < .01$), speeding ($r = .271$, $p < .01$), and rule violations ($r = .186$, $p < .05$) and negatively related to noncommitment (mother) ($r = -.434$, $p < .01$).

Noncommitment (mother) was significantly positively associated with monitoring (father) ($r = .169$, $p < .05$) and functionality ($r = .169$, $p < .05$) and significantly negatively related to feedback (mother) ($r = -.250$, $p < .01$), communication (father) ($r = -.192$, $p < .05$), noncommitment (father) ($r = -.377$, $p < .01$), monitoring (only father) ($r = -.197$, $p < .05$), feedback (only father) ($r = -.246$, $p < .01$), peer pressure ($r = -.192$,

$p < .05$), external affective demands ($r = -.377$, $p < .01$), and rule violations ($r = -.197$, $p < .05$).

Monitoring (mother) was significantly positively correlated to feedback (mother) ($r = .384$, $p < .01$), communication (father) ($r = .195$, $p < .05$), monitoring (father) ($r = .735$, $p < .01$), feedback (father) ($r = .271$, $p < .05$), modeling (only father) ($r = .168$, $p < .01$), monitoring (only father) ($r = .214$, $p < .01$), feedback (only father) ($r = .226$, $p < .01$), peer pressure ($r = .195$, $p < .05$), functionality ($r = .735$, $p < .01$), internal requirements ($r = .271$, $p < .01$), speeding ($r = .168$, $p < .05$), and rule violations ($r = .214$, $p < .01$).

Feedback (mother) was significantly positively related to communication (father) ($r = .364$, $p < .01$), monitoring (father) ($r = .314$, $p < .01$), feedback (father) ($r = .392$, $p < .01$), feedback (only father) ($r = .358$, $p < .01$), peer pressure ($r = .364$, $p < .01$), functionality ($r = .314$, $p < .01$), and internal requirements ($r = .392$, $p < .01$).

Communication (father) was significantly positively related to noncommitment (father) ($r = .460$, $p < .01$), monitoring (father) ($r = .323$, $p < .01$), feedback (father) ($r = .561$, $p < .01$), communication (only father) ($r = .360$, $p < .01$), monitoring (only father) ($r = .166$, $p < .05$), feedback (only father) ($r = .92$, $p < .01$). On the other hand, communication (father) was significantly negatively related to speeding ($r = -.354$, $p < .01$) and rule violations ($r = -.312$, $p < .01$).

Noncommitment (father) was significantly positively related to feedback (father) ($r = .282$, $p < .01$), communication (only father) ($r = .282$, $p < .01$), and feedback (only father) ($r = .473$, $p < .01$). Noncommitment (father) was significantly negatively associated with peer pressure ($r = -.230$, $p < .01$), self-assertiveness ($r = -.283$, $p < .01$), speeding ($r = -.251$, $p < .01$), and rule violations ($r = -.355$, $p < .01$).

Monitoring (father) was significantly positively correlated to feedback (father) ($r = .360$, $p < .01$), feedback (only father) ($r = .344$, $p < .01$), and functionality ($r = .286$, $p < .01$). On the other hand, monitoring (father) was significantly negatively related to peer pressure ($r = -.183$, $p < .05$), speeding ($r = -.379$, $p < .01$), and rule violations ($r = -.175$, $p < .05$).

Feedback (father) was significantly positively associated with communication (only father) (r = .185, p < .05), feedback (only father) (r = .526, p < .01) and significantly negatively related to speeding (r = -.320, p < .01), and rule violations (r = -.185, p < .05).

Communication (only father) was significantly positively related to modeling (only father) (r = .530, p < .019, monitoring (only father) (r = .222, p < 01), feedback (only father) (r = .463, p < .01), external affective demands (r = .193, p < .01), and internal requirements (r = .208, p < .01). On the other hand, communication (only father) was significantly negatively associated with peer pressure (r = -.172, p < .01), self-assertiveness (r = -.277, p < .01), speeding (r = -.220, p < 01), and rule violations (r = -.319, p < .01).

Modeling (only father) was significantly positively correlated to feedback (only father) (r =259, p < .01), and significantly negatively related to peer pressure (r = -.295, p < .01), self-assertiveness (r = -.397, p < .01), speeding (r = -.310, p < .01), and rule violations (r = -.388, p < .01).

Monitoring (only father) was significantly positivelt related to feedback (only father) (r = .277, p < .01) and functionality (r = .204, p < .01). On the other hand, monitoring (only father) was significantly negatively associated with peer pressure (r = -.265, p < .01), speeding (r = -.303, p < .01), and rule violations (r = -.196, p < .01).

Feedback (only father) was significantly and positively related to functionality (r = .173, p < .01) and significantly negatively correlated to peer pressure (r = -.209, p < .01), self-assertiveness (r = -.163, p < .05), speeding (r = -.312, p < .05), and rule violations (r = -.211, p < .01).

Peer pressure was significantly and positively related to external affective demands (r = .206, p < .01), internal requirements (r = .151, p < .01), self-assertiveness (r = .358, p < .01), speeding (r = .424, p < .01), and rule violations (r = .444, p < .01). On the other hand, peer pressure was significantly negatively associated with functionality (r = -.201, p < .01).

External affective demands was significantly positively related to internal requirements ($r = .404$, $p < .01$), and significantly negatively correlated to functionality ($r = -.404$, $p < .01$) and self-assertiveness ($r = -.113$, $p < .05$). Funtionality was significantly negatively related to speeding ($r = -.125$, $p < .05$).

Self-assertiveness was significantly positively associated with speeding ($r = .433$, $p < .01$) and rule violations ($r = .642$, $p < .01$). Speeding was significantly positively related to rule violations ($r = .603$, $p < .01$).

Table 10. Correlatations between the study variables

	1	2	3	4	5	6	7	8
1. Age	-							
2. Gender	**-.139****	-						
3. Lifetime mileage	**.169****	**-.157****	-					
4. Frequency of driving	**.123***	-.096	**.190****	-				
5. Communication (mother)	-.006	**.217****	-.099	-.104	-			
6. Noncommitment (mother)	-.112	-.005	.005	-.038	**-.434****	-		
7. Monitoring (mother)	**-.283****	**.227****	**-.309****	**-.486****	**.436****	-.027	-	
8. Feedback (mother)	-.013	**.237****	-.042	-.133	**.522****	**-.250****	**.384****	-

**. Correlation is significant at the 0.01 level.
*. Correlation is significant at the 0.05 level.

Table 10 (continued)

	1	2	3	4	5	6	7	8
9. Communication (father)	.051	.033	.079	-.107	**.464****	**-.192***	**.195***	**.364****
10. Noncommitment (father)	.008	-.007	.038	.059	**.176***	**-.377****	-.036	.027
11. Monitoring (father)	**-.266****	**.164***	**-.232****	**-.429****	**.250****	**.169***	**.735****	**.314****
12. Feedback (father)	-.010	.104	.062	**-.152***	**.232****	.074	**.271****	**.392****
13. Communication (father only)	**-.139***	.124	**-.244****	-.034	**.202****	-.130	.071	.053
14. Modeling (only father)	.002	.029	-.108	-.123	**.271****	-.128	**.168***	.080
15. Monitoring (only father)	**-.246****	**.225****	-.022	**-.250****	**.186***	**-.197***	**.214****	.133
16. Feedback (only father)	-.124	**.328****	-.078	-.080	**.507****	**-.246****	**.226****	**.358****

**. Correlation is significant at the 0.01 level.
*. Correlation is significant at the 0.05 level.

Table 10 (continued)

	1	2	3	4	5	6	7	8
17. PP	.051	.033	.079	-.107	**.464****	**-.192***	**.195***	**.364****
18. EAD	.008	-.007	.038	.059	**.176***	**-.377****	-.036	.027
19. FUN	**-.266****	**.164***	**-.232****	**-.429****	**.250****	**.169***	**.735****	**.314****
20. IR	-.010	.104	.062	**-.152***	**.232****	.074	**.271****	**.392****
21. SA	**-.139***	.124	**-.244****	-.034	**.202****	-.130	.071	.053
22. SP	.002	.029	-.108	-.123	**.271****	-.128	**.168***	.080
23. RV	**-.246****	**.225****	-.022	**-.250****	**.186***	**-.197***	**.214****	.133

Note. PP = Peer Pressure, EAD = External Affective Demands, FUN = Functionality, IR = Internal Requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations
**. Correlation is significant at the 0.01 level.
*. Correlation is significant at the 0.05 level.

Table 10 (continued)

	9	10	11	12	13	14	15	16
9. Communication (father)	-							
10. Noncommitment (father)	**.460****	-						
11. Monitoring (father)	**.323****	-.001	-					
12. Feedback (father)	**.561****	**.282****	**.360****	-				
13. Communication (father only)	**.360****	**.283****	.116	**.185***	-			
14. Modeling (father only)	.137	.123	.132	.066	**.530****	-		
15. Monitoring (father only)	**.166***	.102	.081	.125	**.222****	.061	-	
16. Feedback (father only)	**.920****	**.473****	**.344****	**.526****	**.463****	**.259****	**.277****	-

**. Correlation is significant at the 0.01 level.
*. Correlation is significant at the 0.05 level.

Table 10 (continued)

	9	10	11	12	13	14	15	16
17. PP	-.122	**-.230****	**-.183***	-.053	**-.172****	**-.295****	**-.265****	**-.209****
18. EAD	.113	.074	-.134	.016	**.193****	.080	-.085	-.016
19. FUN	.130	.073	**.286****	.140	.074	.067	**.204****	**.173****
20. IR	.104	.025	.022	.000	**.208****	.068	.015	.122
21. SA	-.131	**-.283****	.017	.050	**-.277****	**-.397****	-.095	**-.163***
22. SP	**-.354****	**-.251****	**-.379****	**-.320****	**-.220****	**-.310****	**-.303****	**-.312****
23. RV	**-.312****	**-.355****	**-.175***	**-.185***	**-.319****	**-.388****	**-.196****	**-.211****

Note. PP = Peer Pressure, EAD = External Affective Demands, FUN = Functionality, IR = Internal Requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations
**. Correlation is significant at the 0.01 level.
*. Correlation is significant at the 0.05 level.

Table 10 (continued)

	17	18	19	20	21	22	23
17. PP	1						
18. EAD	**.206****	1					
19. FUN	**-.201****	**-.404****	1				
20. IR	**.151****	**.404****	.063	1			
21. SA	**.358****	**-.113***	.097	-.062	1		
22. SP	**.424****	.040	**-.125***	.033	**.433****	1	
23. RV	**.444****	-.059	-.064	-.030	**.642****	**.603****	1

Note. PP = Peer Pressure, EAD = External Affective Demands, FUN = Functionality, IR = Internal Requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations
**. Correlation is significant at the 0.01 level.
*. Correlation is significant at the 0.05 level.

3.4. Hierarchical Regression Analyses

3.4.1. The Results of Hierarchical Regression Analyses For The Sample Whose Mothers Drive

In order to examine the effect of four dimensions (i.e., communication, noncommitment, monitoring, and feedback) of the FCRSS, the PPS, and the TCS (i.e., external affective demands, functionality, and internal requirements) for mother on the RTBS dimensions (i.e., self-assertiveness, speeding, and rule violations), a series of hierarchical regression analyses was conducted. In all analyses, age, gender, total mileage, and frequency of driving were entered in the first step as the control variables. The factors of the FCRSS were entered in the second step, peer pressure was entered in the third step, and the factors of the TCS were entered in the fourth step (see Table 11).

In the first hierarchical regression analysis, self-assertiveness was entered as the dependent variable. In the first step, age, gender, total mileage, and the frequency of driving were entered as control variables, and the model was significant (R^2 = .13, F (4, 163) = 5.93, p < .001). Among the control variables, age (β = -.23, p = .004) and gender (β = -.29, p < .001) were significantly negatively related to self-assertiveness. Four factors of the FCRSS were entered in the second step, and the model was significant (adjusted R^2 = .20, F (4, 159) = 6.08, p < .001). Among four factors of the FCRSS, noncommitment was significantly positively (β = .31, p < .001) related to self-assertiveness. In the third step, peer pressure was entered and the model was significant (adjusted R^2 = .27, F (1, 158) = 7.78, p < .001). Peer pressure was significantly positively (β = .29, p < .001) related to self-assertiveness. Three factors of the TCS were entered in the fourth step, and the model was significant (adjusted R^2 = .31, F (3, 155) = 7.17, p = .009). Among three factors of the TCS, functionality was significantly positively (β = .20, p = .009) related to self-assertiveness.

In the second hierarchical regression analysis, speeding was entered as the dependent variable. In the first step, age, gender, total mileage, and the frequency of driving were entered as control variables, and the model was significant (R^2 = .16, F (4, 163) = 7.53, p < .001). Among the control variables, gender was significantly negatively (β = -.31,

$p < .001$) and the frequency of driving was significantly positively ($\beta = .21$, $p = .007$) related to speeding. Four factors of the FCRSS were entered in the second step, and the model was significant (adjusted $R^2 = .32$, F (4, 159) = 10.66, $p < .001$). Among four factors of the FCRSS, noncommitment was significantly positively ($\beta = .22$, $p = .003$), and monitoring ($\beta = -.32$, $p < .001$) and feedback ($\beta = -.16$, $p = .045$) were significantly negatively related to speeding. In the third step, peer pressure was entered and the model was significant (adjusted $R^2 = .36$, F (1, 158) = 11.58, $p < .001$). Peer pressure was significantly positively ($\beta = .23$, $p < .001$) related to speeding. Three factors of the TCS were entered in the fourth step, however the model was not significant (adjusted $R^2 = .36$, F (3, 155) = 8.77, $p = .623$).

In the third hierarchical regression analysis, rule violations was entered as the dependent variable. In the first step, age, gender, total mileage, and the frequency of driving were entered as control variables, and the model was significant ($R^2 = .09$, F (4, 163) = 3.79, $p = .006$). Among the control variables, gender was significantly negatively ($\beta = -.26$, $p = .001$) related to rule violations. Four factors of the FCRSS were entered in the second step, and the model was significant (adjusted $R^2 = .25$, F (4, 159) = 7.78, $p < .001$). Among four factors of the FCRSS, noncommitment was significantly positively ($\beta = .37$, $p < .001$), and monitoring ($\beta = -.21$, $p = .025$) was significantly negatively related to rule violations. In the third step, peer pressure was entered and the model was significant (adjusted $R^2 = .30$, F (1, 158) = 8.94, $p < .001$). Peer pressure was significantly positively ($\beta = .25$, $p < .001$) related to rule violations. Three factors of the TCS were entered in the fourth step, however the model was not significant (adjusted $R^2 = .29$, F (3, 155) = 6.60, $p = .975$).

Table 11. The results of hierarchical regression analyses on RTBS dimensions with the FCRSS dimensions, the PPS, and the TCS dimensions for mother

	SA					SP					RV				
Variables	R^2	ΔR^2	F	β	p	R^2	ΔR^2	F	β	p	R^2	ΔR^2	F	β	p
	.13	.11	5.93		.000	.16	.14	7.53		.000	.09	.06	3.79		.006
Age				-.23	.004				-.05	.528				-.08	.341
Gender				-.29	.000				-.63	.000				-.26	.001
Total mileage				-.10	.206				.01	.880				.05	.54
Freq. of driving				-.10	.191				.21	.007				.09	.285
	.23	.20	6.08		.000	.35	.32	10.66		.000	.28	.25	7.78		.000
Com				-.03	.759				.08	.929				-.01	.941
Nonc				.31	.000				.22	.003				.37	.000
Mon				-.15	.128				-.32	.000				-.21	.025
Fb				.09	.276				-.16	.045				-.05	.555
	.31	.27	7.78		.000	.40	.36	11.58		.000	.34	.30	8.94		.000
PP				.29	.000				.23	.000				.25	.000
	.36	.31	7.17		.009	.40	.36	8.77		.623	.34	.29	6.60		.975
EAD				-.10	.279				.04	.647				-.01	.910
FUN				.20	.009				.03	.703				-.03	.658
IR				.04	.590				.06	.800				.02	.838

Note. Com = Communication, Nonc = Noncommitment, Mon = Monitorin, FB = Feedback, PP = Peer Pressure, EAD = External Affective Demands, FUN = Functionality, IR = Internal Requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations, ΔR^2 = Adjusted R^2

3.4.2. The results of hierarchical regression analyses for the sample whose fathers drive

In order to examine the effect of four dimensions (i.e., communication, noncommitment, monitoring, and feedback) of the FCRSS, the PPS, and the TCS (i.e., external affective demands, functionality, and internal requirements) for father on the RTBS dimensions (i.e., self-assertiveness, speeding, and rule violations), a series of hierarchical regression analyses was conducted. In all analyses, age, gender, total mileage, and frequency of driving were entered in the first step as the control variables. The factors of the FCRSS were entered in the second step, peer pressure was entered in the third step, and the factors of the TCS were entered in the fourth step (see Table 12).

In the first hierarchical regression analysis, self-assertiveness was entered as the dependent variable. In the first step, age, gender, total mileage, and the frequency of driving were entered as control variables, and the model was significant (R^2 = .13, F (4, 163) = 5.93, p < .001). Among the control variables, age (β = -.23, p = .004) and gender (β = -.29, p < .001) were significantly negatively related to self-assertiveness. Four factors of the FCRSS were entered in the second step, and the model was significant (adjusted R^2 = .20, F (4, 159) = 6.16, p < .001). Among four factors of the FCRSS, noncommitment was significantly negatively (β = -.30, p < .001) and feedback was significantly positively (β = .22, p = .013) related to self-assertiveness. In the third step, peer pressure was entered and the model was significant (adjusted R^2 = .26, F (1, 158) = 7.51, p < .001). Peer pressure was significantly positively (β = .27, p < .001) related to self-assertiveness. Three factors of the TCS were entered in the fourth step, and the model was significant (adjusted R^2 = .30, F (3, 155) = 7.03, p = .007). Among three factors of the TCS, functionality was significantly positively (β = .18, p = .020) related to self-assertiveness.

In the second hierarchical regression analysis, speeding was entered as the dependent variable. In the first step, age, gender, total mileage, and the frequency of driving were entered as control variables, and the model was significant (R^2 = .16, F (4, 163) = 7.53,

$p < .001$). Among the control variables, gender was significantly negatively ($\beta = -.31$, $p < .001$) and the frequency of driving was significantly positively ($\beta = .21$, $p = .007$) related to speeding. Four factors of the FCRSS were entered in the second step, and the model was significant (adjusted $R^2 = .29$, F (4, 159) = 9.48, $p < .001$). Among four factors of the FCRSS, noncommitment ($\beta = -.18$, $p = .019$) and monitoring ($\beta = -.24$, $p = .004$) were significantly negatively related to speeding. In the third step, peer pressure was entered and the model was significant (adjusted $R^2 = .34$, F (1, 158) = 10.66, $p < .001$). Peer pressure was significantly positively ($\beta = .25$, $p < .001$) related to speeding. Three factors of the TCS were entered in the fourth step, however the model was not significant (adjusted $R^2 = .33$, F (3, 155) = 7.92, $p = .890$).

In the third hierarchical regression analysis, rule violations was entered as the dependent variable. In the first step, age, gender, total mileage, and the frequency of driving were entered as control variables, and the model was significant ($R^2 = .09$, F (4, 163) = 3.79, $p = .006$). Among the control variables, gender was significantly negatively ($\beta = -.26$, $p = .001$) related to rule violations. Four factors of the FCRSS were entered in the second step, and the model was significant (adjusted $R^2 = .21$, F (4, 159) = 6.40, $p < .001$). Among four factors of the FCRSS, noncommitment was significantly negatively ($\beta = -.30$, $p < .001$) related to rule violations. In the third step, peer pressure was entered and the model was significant (adjusted $R^2 = .26$, F (1, 158) = 7.50, $p = .001$). Peer pressure was significantly positively ($\beta = .26$, $p = .001$) related to rule violations. Three factors of the TCS were entered in the fourth step, however the model was not significant (adjusted $R^2 = .25$, F (3, 155) = 5.68, $p = .724$).

Table 12. The results of hierarchical regression analyses on RTBS dimensions with the FCRSS dimensions, the PPS, and the TCS dimensions for father

	SA					SP					RV				
Variables	R^2	ΔR^2	F	β	p	R^2	ΔR^2	F	β	p	R^2	ΔR^2	F	β	p
	.13	.11	5.93		.000	.16	.14	7.53		.000	.09	.06	3.79		.006
Age				-.23	.004				-.05	.528				-.08	.341
Gender				-.29	.000				-.63	.000				-.26	.001
Total mileage				-.10	.206				.01	.880				.05	.540
Freq. of driving				-.10	.191				.21	.007				.09	.285
	.24	.20	6.16		.000	.32	.29	9.48		.000	.24	.21	6.40		.000
Com				-.09	.348				-.14	.127				-.16	.087
Nonc				-.30	.000				-.18	.019				-.30	.000
Mon				-.06	.483				-.24	.004				-.08	.334
Fb				.22	.013				-.07	.422				-.05	.565
	.30	.26	7.51		.000	.38	.34	10.65		.000	.30	.26	7.50		.001
PP				.27	.000				.25	.000				.26	.001
	.35	.30	7.03		.007	.38	.33	7.92		.890	.31	.25	5.68		.724
EAD				-.13	.120				-.04	.656				-.08	.349
FUN				.18	.020				.02	.327				-.04	.613
IR				.04	.650				.04	.606				-.00	.986

Note. Com = Communication, Nonc = Noncommitment, Mon = Monitorin, FB = Feedback, PP = Peer Pressure, EAD = External Affective Demands, FUN = Functionality, IR = Internal Requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations, ΔR^2 = Adjusted R^2

3.4.3. The results of hierarchical regression analyses for the sample whose only fathers drive

In order to examine the effect of four dimensions (i.e., communication, noncommitment, monitoring, and feedback) of the FCRSS, the PPS, and the TCS (i.e., external affective demands, functionality, and internal requirements) for only father on the RTBS dimensions (i.e., self-assertiveness, speeding, and rule violations), a series of hierarchical regression analyses was conducted. In all analyses, age, gender, total mileage, and frequency of driving were entered in the first step as the control variables. The factors of the FCRSS were entered in the second step, peer pressure was entered in the third step, and the factors of the TCS were entered in the fourth step (see Table 13).

In the first hierarchical regression analysis, self-assertiveness was entered as the dependent variable. In the first step, age, gender, total mileage, and the frequency of driving were entered as control variables, and the model was significant (R^2 = .06, F (4, 227) = 3.61, p = .007). Among the control variables, gender (β = -.16, p = .013) was significantly negatively related to self-assertiveness. Four factors of the FCRSS were entered in the second step, and the model was significant (adjusted R^2 = .17, F (4, 223) = 7.07, p < .001). Among four factors of the FCRSS, modeling was significantly negatively (β = -.34, p < .001) related to self-assertiveness. In the third step, peer pressure was entered and the model was significant (adjusted R^2 = .23, F (1, 222) = 8.77, p < .001). Peer pressure was significantly positively (β = .27, p < .001) related to self-assertiveness. Three factors of the TCS were entered in the fourth step, but the model was not significant (adjusted R^2 = .25, F (3, 219) = 7.35, p = .056).

In the second hierarchical regression analysis, speeding was entered as the dependent variable. In the first step, age, gender, total mileage, and the frequency of driving were entered as control variables, and the model was significant (R^2 = .10, F (4, 227) = 5.92, p < .001). Among the control variables, gender was significantly negatively (β = -.27, p < .001) related to speeding. Four factors of the FCRSS were entered in the second step, and the model was significant (adjusted R^2 = .21, F (4, 223) = 8.85, p < .001). Among four factors of the FCRSS, modeling (β = -.29, p < .001), monitoring (β = -.21, p = .002), and feedback (β = -.15, p = .038) were significantly negatively related to speeding. In the third step, peer pressure was entered and the model was significant

(adjusted R^2 = .30, F (1, 222) = 12.09, p < .001). Peer pressure was significantly positively (β = .33, p < .001) related to speeding. Three factors of the TCS were entered in the fourth step, however the model was not significant (adjusted R^2 = .29, F (3, 219) = 9.01, p = .923).

In the third hierarchical regression analysis, rule violations was entered as the dependent variable. In the first step, age, gender, total mileage, and the frequency of driving were entered as control variables, and the model was significant (R^2 = .07, F (4, 227) = 4.23, p = .003). Among the control variables, gender was significantly negatively (β = -.18, p = .006) related to rule violations. Four factors of the FCRSS were entered in the second step, and the model was significant (adjusted R^2 = .19, F (4, 223) = 7.88, p < .001). Among four factors of the FCRSS, modeling was significantly negatively (β = -.32, p < .001) related to rule violations. In the third step, peer pressure was entered and the model was significant (adjusted R^2 = .33, F (1, 222) = 13.51, p < .001). Peer pressure was significantly positively (β = .40, p < .001) related to rule violations. Three factors of the TCS were entered in the fourth step, however the model was not significant (adjusted R^2 = .33, F (3, 219) = 10.54, p = .243).

Table 13. The results of hierarchical regression analyses on RTBS dimensions with the FCRSS dimensions, the PPS, and the TCS dimensions for only father

Variables	SA					SP					RV				
	R^2	ΔR^2	F	β	p	R^2	ΔR^2	F	β	p	R^2	ΔR^2	F	β	p
	.06	.04	3.61		.007	.10	.08	5.92		.000	.07	.05	4.23		.003
Age				-.07	.317				.07	.289				.06	.400
Gender				-.16	.013				-.27	.000				-.18	.006
Total mileage				.81	.223				-.04	.548				.08	.206
Freq. of driving				.13	.052				.10	.143				.11	.108
	.20	.17	7.08		.000	.24	.21	8.85		.000	.22	.19	7.88		.000
Com				-.08	.313				.07	.394				-.10	.232
Nonc				-.34	.000				-.29	.000				-.32	.000
Mon				-.02	.771				-.15	.038				-.10	.130
Fb				.02	.774				-.17	.005				-.01	.946
	.26	.23	8.77		.000	.33	.30	12.09		.000	.35	.33	13.51		.000
PP				.27	.000				.33	.000				.40	.000
	.29	.25	7.35		.056	.33	.29	9.01		.923	.37	.33	10.54		.243
EAD				-.03	.646				-.02	.742				-.10	.150
FUN				.12	.081				-.02	.803				.03	.648
IR				-.10	.135				.04	.495				-.01	.863

Note. Com = Communication, Nonc = Noncommitment, Mon = Monitorin, FB = Feedback, PP = Peer Pressure, EAD = External Affective Demands, FUN = Functionality, IR = Internal Requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations, ΔR^2 = Adjusted R^2

3.5. The Results of Moderated Moderation Analyses

A series of moderated moderation analyses with Hayes' PROCESS macro analysis in SPSS were conducted to examine whether the relationship between family climate for road safety (i.e., communication, noncommitment, monitoring, and feedback for mothers and fathers; communication, modeling, monitoring, and feedback for only fathers) and risk-taking behaviors of young drivers in traffic context (i.e., self-assertiveness, speeding, and rule violations) were moderated by peer pressure to depend on traffic climate perception (i.e., external affective demands, functionality, and internal requirements) by controlling age, gender, total mileage, and frequency of driving for participants whose mothers, fathers, and only fathers drive. As can be seen in Figure 3 and Figure 4, peer pressure was entered as a primary moderator and dimensions of the TCS (i.e., external affective demands, functionality, and internal requirements) were entered a secondary moderator in the current study. It should be noted that each dimension of the FCRSS, of the TCS, and of the RTBS was entered to the analyses one by one. Statistical diagram of a Moderated Moderation Model was

given in Figure 3 in order to demonstrate the simple effects and interaction effects of the study variables on risk-taking behaviors. Both conceptual diagram and statistical diagram (Figure 5) were adapted based on Hayes' (2013, p. 308) moderated moderation model representations. In total, 108 moderated moderation analyses were conducted.

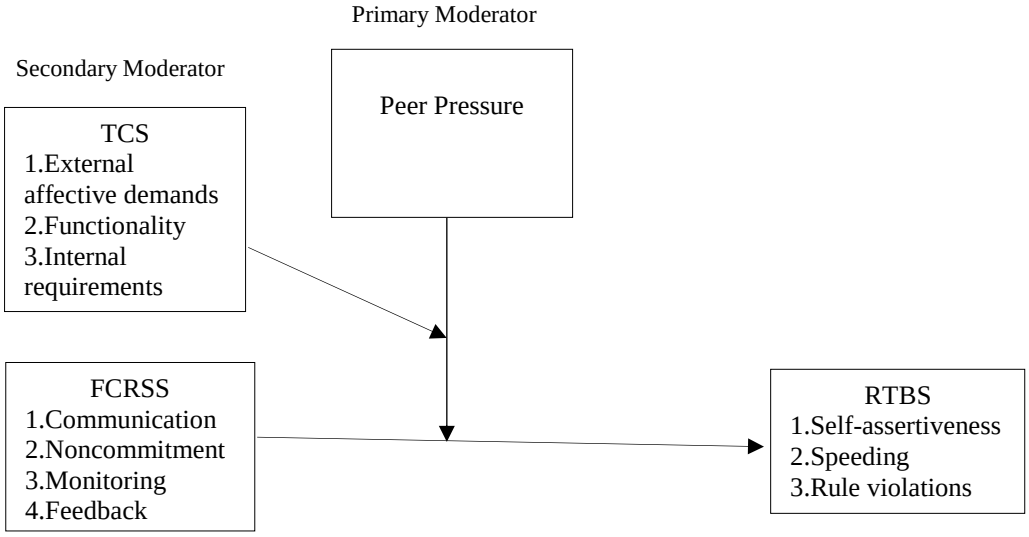

Figure 3. Conceptual diagram of a Moderated Moderation Model of the present study for the participants whose mothers and fathers drive

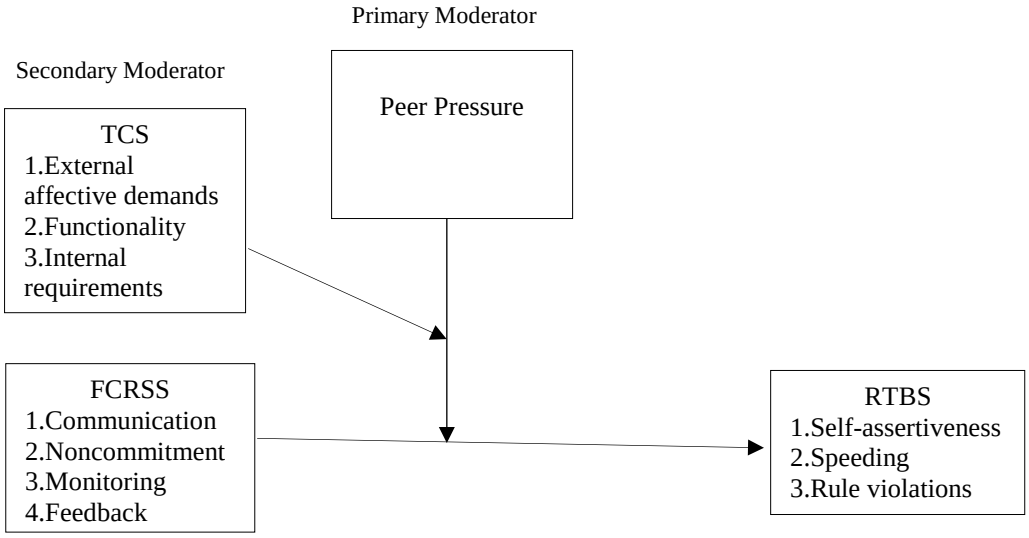

Figure 4. Conceptual diagram of a Moderated Moderation Model of the present study for the participants only fathers drive

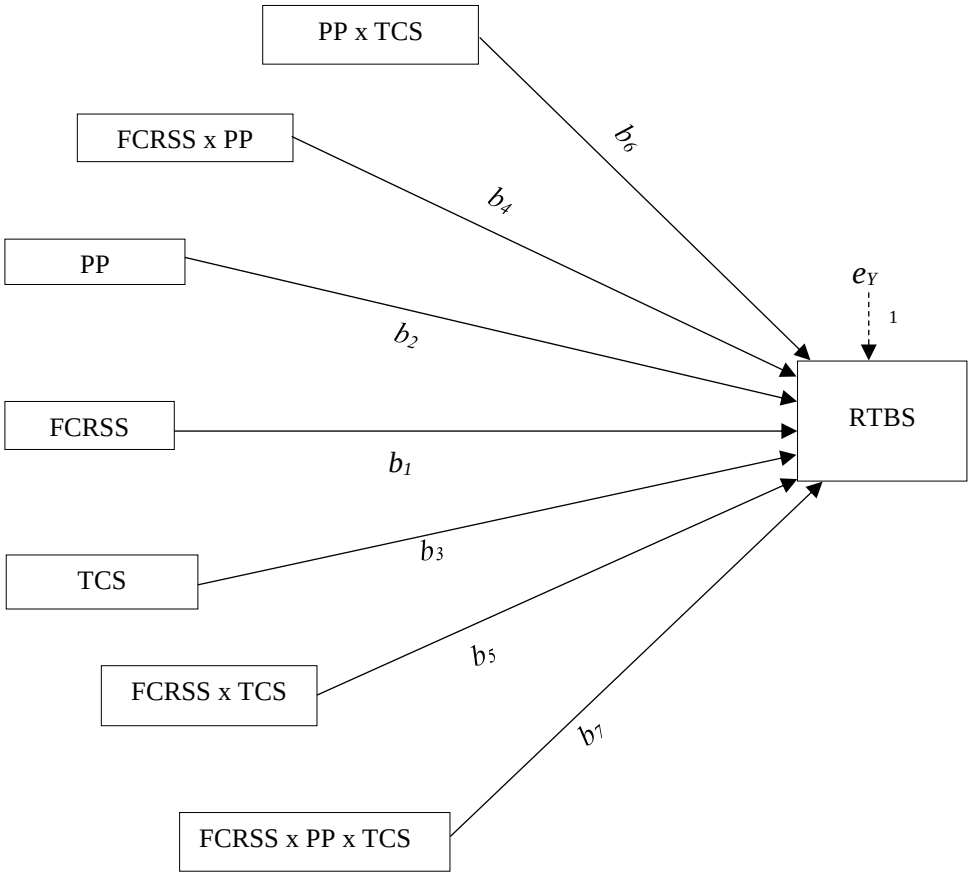

Figure 5. Statistical diagram of a Moderated Moderation Model of the present study

3.5.1. The Model summary of a Moderated Moderation analyses in the sample whose mothers drive

The results of moderated moderation analyses including significant model summaries including the interaction between FCRSS dimensions for mother (i.e., communication, noncommitment, monitoring, and feedback) and peer pressure to depend on traffic climate (i.e., external affective demands, functionality, and internal requirements) on risk-taking behaviors (i.e., self-assertiveness, speeding, and rule violations) indicated that all models were significant (see Table 14).

Table 14. The model summaries of a moderated moderation analyses for the sample whose mothers drive

	Dependent variables					
	SA		SP		RV	
Models	$F(11,156)$	R^2	$F(11,156)$	R^2	$F(11,156)$	R^2
1.COMxPPxEAD	5.41**	.28	7.07**	.33	4.61**	.25
2.NONCxPPxEAD	6.95**	.33	6.81**	.32	7.21**	.34
3.MONxPPxEAD	7.17**	.34	7.90**	.36	5.30**	.27
4.FBxPPxEAD	5.49**	.28	7.09**	.33	4.20**	.23
5.COMxPPxFUN	6.27**	.31	6.59**	.32	4.70**	.25
6.NONCxPPxFUN	7.57**	.35	6.55**	.32	7.01**	.33
7.MONxPPxFUN	6.10**	.30	7.79**	.35	5.00**	.26
8.FBxPPxFUN	6.08**	.30	7.21**	.34	4.25**	.23
9.COMxPPxIR	5.09**	.26	6.53**	.32	4.57**	.24
10.NONCxPPxIR	6.72**	.32	6.61**	.32	7.86**	.36
11.MONxPPxIR	5.70**	.29	7.98**	.36	4.63**	.25
12.FBxPPxIR	5.00**	.26	6.93**	.33	4.37**	.24

Note. COM = Communication, NONC = Noncommitment, MON = Monitoring, FB = Feedback, PP = Peer pressure, EAD = External affective demands, FUN = Functionality, IR = Internal requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations, **p < .001

3.5.2.Significant simple effects of the study variables on risk-taking behaviors for the sample whose mothers drive

Hayes (2013, p. 309) stated that b_1 (each dimension of the FCRSS), b_2 (peer pressure), and b_3 (each dimension of the TCS) were simple effects. The effect of each dimension of the FCRSS (i.e., communication, noncommitment, monitoring, and feedback) on each dimension the RTBS (i.e., self-assertiveness, speeding, and rule violations) was estimated by b_1 when both peer pressure and each dimension of the TCS (i.e., external affective demands, functionality, and internal requirements) were zero, the effects of peer pressure on each dimension of the RTBS (i.e., self-assertiveness, speeding, and rule violations) was estimated by b_2 when both each dimension of the FCRSS (i.e., communication, noncommitment, monitoring, and feedback) and each dimension of the TCS (i.e., external affective demands, functionality, and internal requirements) were zero, and the effect of each dimension of the TCS (i.e., external affective

demands, functionality, and internal requirements) on each dimension of the RTBS (i.e., self-assertiveness, speeding, and rule violations) was estimated by b_2 when both each dimension of the FCRSS (i.e., communication, noncommitment, monitoring, and feedback) and peer pressure were equal to zero. Therefore, the simple effects of the study variables by including the simple effects of the covariate variables (i.e., age, gender, lifetime mileage, and frequency of driving) were given in the current study. It should be noted that statistical power might be lower when examining the effects of interactions (Morris, Sherman, & Mansfield, 1986). In the present study, *p* value was accepted as significant up to .10 for moderated moderation analyses. The results of moderated moderation analyses were given in Table 21.

In Model 1, it was found that there were significant simple effects of age (C_1 = -.109, t(156) = -3.194, p = .002), gender (C_2 = -.282, t(156) = -2.503, p = .013), and lifetime mileage (C_3 = .000, t(156) = 1.808, p = .073) on self-assertiveness; there was a significant simple effect of gender (C_2 = -.047, t(156) = -.954, p = .003) on speeding; and there was a significant simple effect of gender (C_2 = -.229, t(156) = -1.815, p = .071) on rule violations.

In Model 2, the results indicated that age (C_1 = -.091, t(156) = -2.732, p = .007), gender (C_2 = -.289, t(156) = -2.690, p = .008), and lifetime mileage (C_3 = .000, t(156) = 1.846, p = .067) had significant simple effects on self-assertiveness; gender (C_2 = -.555, t(156) = -3.447, p < .001) and frequency of driving (C_4 = .248, t(156) = 3.248, p = .001) had simple significant effects on speeding; and gender (C_2 = -.294, t(156) = -2.511, p = .013) had a significant simple effect on rule violations.

In Model 3, it was found that there were significant simple effects of monitoring (b_1 = -2.782, t(156) = -2.105, p = .037), peer pressure (b_2 = -2.999, t(156) = -2.270, p = .025), external affective demands (b_3 = -1.410, t(156) = -1.834, p = .069), age (C_1 = -.085, t(156) = -2.512, p = .013) , and gender (C_2 = -.286, t(156) = -2.707, p = .008) on self assertiveness; gender (C_2 = -.477, t(156) = -3.072, p = .003) had a significant simple effect on speeding; and gender (C_2 = -.260, t(156) = -2.144, p = .033) had a significant simple effect on rule violations.

In Model 4, the results indicated that there were significant simple effects of age (C_1 = -.107, t(156) = -3.156, p = .002), gender (C_2 = -.305, t(156) = -2.723, p = .007), and lifetime mileage (C_3 = .000, t(156) = 1.821, p = .071) on self-assertiveness; gender (C_2 = -.421, t(156) = -2.620, p = .010) and frequency of driving (C_4 = .193, t(156) = 2.512, p = .013) on speeding; and gender (C_2 = -.234, t(156) = -1.840, p = .068) on rule violations.

In Model 5, age (C_1 = -.102, t(156) = -2.982, p = .003), gender (C_2 = -.297, t(156) = -2.730, p = .007), and lifetime mileage (C_3 = .000, t(156) = 1.889, p = .061) had significant simple effects on self-assertiveness; gender (C_2 = -.481, t(156) = -2.979, p = .003), and frequency of driving (C_4 = .197, t(156) = 2.581, p = .011) had significant simple effects on speeding; and gender (C_2 = -.229, t(156) = -1.815, p = .071), had a significant simple effect on rule violations.

In Model 6, the results indicated that there were significant simple effects of age (C_1 = -.091, t(156) = -2.745, p = .007), gender (C_2 = -.320, t(156) = -3.078, p = .003), and lifetime mileage (C_3 = .000, t(156) = 1.775, p = .078) on self-assertiveness; gender (C_2 = -.564, t(156) = -3.548, p < .001) and frequency of driving (C_4 = .237, t(156) = 3.070, p = .003) had significant simple effects on speeding; and gender (C_2 = -.310, t(156) = -2.683, p = .008) had a significant simple effect on rule violations.

In Model 7, it was found that age (C_1 = -.118, t(156) = -3.355, p = .001), gender (C_2 = -.318, t(156) = -2.910, p = .004), and frequency of driving (C_4 = .-100, t(156) = -1.743, p = .004) had significant simple effects on self-assertiveness, gender (C_2 = -.470, t(156) = -2.999, p = .003) had a significant simle effect on speeding; and gender (C_2 = -.315, t(156) = -2.561, p = .011) had a significant simple effect on rule violations.

In Model 8, there were significant effects of feedback (b_1 = 1.716, t(156) = 1.741, p = .084), peer pressure (b_2 = 2.532, t(156) = 1.975, p = .050), functionality (b_3 = 2.338, t(156) = 1.819, p = .071), age (C_1 = -.104, t(156) = -3.028, p = .003), gender (C_2 = -.277, t(156) = -2.498, p = .014), and lifetime mileage (C_3 = .000, t(156) = 1.980, p = .050) on self-assertiveness; gender (C_2 = -.396, t(156) = -2.449, p = .015) and frequency of driving (C_4 = .183, t(156) = 2.410, p = .017) had significant simple effects

on speeding; and gender (C_2 = -.228, t(156) = -1.783, p = .077) had a significant simple effect on rule violations.

In Model 9, the results indicated that age (C_1 = -.110, t(156) = -3.135, p = .003), gender (C_2 = -.328, t(156) = -2.927, p = .002), and frequency of driving (C_4 = -.095, t(156) = -1.736, p = .085) had significant simple effects on self-assertiveness; gender (C_2 = -.476, t(156) = -2.948, p = .004) and frequency of driving (C_4 = .198, t(156) = 2.510, p = .013) had significant simple effects on speeding; and gender (C_2 = -.255, t(156) = -2.050, p = .042) had a significant simple effect on rule violations.

In Model 10, age (C_1 = -.091, t(156) = -2.709, p = .008), gender (C_2 = -.347, t(156) = -3.271, p = .001) and frequency of driving (C_4 = -.102, t(156) = -1.901, p = .059) had significant simple effects on self-assertiveness; gender (C_2 = -.562, t(156) = -3.538, p < .001) and frequency of driving (C_4 = .218, t(156) = 2.718, p = .007) had significant simple effects on speeding; and noncommitment (b_1 = 4.047, t(156) = 3.162, p = .002), peer pressure (b_2 = 2.312, t(156) = 2.706, p = .008), and gender (C_2 = -.307, t(156) = -2.710, p = .008) had significant simple effects on rule violations.

In Model 11, it was found that there were significant simple effects of monitoring (b_1 = -1.795, t(156) = -1.830, p = .069), peer pressure (b_2 = -2.292, t(156) = -2.368, p = .019), internal requirements (b_3 = -1.533, t(156) = -2.173, p = .031), age (C_1 = -.087, t(156) = -2.410, p = .017), and gender (C_2 = -.284, t(156) = -2.574, p = .011) on self-assertiveness; there was a significant simple effect of gender (C_2 = -.461, t(156) = -2.953, p = .004) on speeding; and there was a significant simple effect of gender (C_2 = -.267, t(156) = -2.148, p = .033) on rule violations.

In Model 12, age (C_1 = -.113, t(156) = 3.237, p = .002), and gender (C_2 = -.369, t(156) = -3.231, p = .002) had significant simple effects on self-assertiveness; gender (C_2 = -.440, t(156) = -2.725, p = .007) and frequency of driving (C_4 = .191, t(156) = 2.446, p = .016) had significant simple effects on speeding; and gender (C_2 = -.273, t(156) = -2.162, p = .032) had significant simple effect on rule violations.

Table 15. Significant simple effects of the study variables on RTBS dimensions

	Dependent variables					
	SA		SP		RV	
Models	*B*	*SE*	*B*	*SE*	*B*	*SE*
1.COMxPPxEAD						
COM (b_1)						
PP (b_2)						
EAD (b_3)						
Age (C_1)	-.11**	.03				
Gender (C_2)	-.28**	.11	-.48**	.16	-.23*	.13
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)						
2.NONCxPPxEAD						
NONC (b_1)						
PP (b_2)						
EAD (b_3)						
Age (C_1)	-.10**	.03				
Gender (C_2)	-.29**	.11	-.56***	.16	-.29**	.12
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)			.25**	.08		
3.MONxPPxEAD						
MON (b_1)	-2.78**	1.32				
PP (b_2)	-3.00**	1.32				
EAD (b_3)	-1.41*	.77				
Age (C_1)	-.09**	.03				
Gender (C_2)	-.29**	.11	-.48**	.16	-.26**	.12
Lifetime mileage (C_3)						
Frequency of driving (C_4)						
4.FBxPPxEAD						
FB (b_1)						
PP (b_2)						
EAD (b_3)						
Age (C_1)	-.11**	.03				
Gender (C_2)	-.30**	.11	-.42**	.16	-.23*	.13
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)			.19**	.08		
5.COMxPPxFUN						
COM (b_1)						
PP (b_2)						
FUN (b_3)						
Age (C_1)	-.10**	.03				
Gender (C_2)	-.30**	.11	-.46**	.16	-.25**	.12
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)			.21**	.08		
6.NONCxPPxFUN						
NONC (b_1)						
PP (b_2)						
FUN (b_3)						
Age (C_1)	-.09**	.03				
Gender (C_2)	-.32**	.10	-.56***	.16	-.31**	.12
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)			.24**	.08		

Table 15 (continued)

	Dependent variables					
	SA		SP		RV	
Models	*B*	*SE*	*B*	*SE*	*B*	*SE*
7.MONxPPxFUN						
MON (b_1)						
PP (b_2)						
FUN (b_3)						
Age (C_1)	-.12**	.04				
Gender (C_2)	-.32**	.11	-.47**	.16	-.32**	.12
Lifetime mileage (C_3)						
Frequency of driving (C_4)	-.10*	.06				
8.FBxPPxFUN						
FB (b_1)	1.72*	.99				
PP (b_2)	2.53**	1.28				
FUN (b_3)	2.34*	1.29				
Age (C_1)	-.10**	.03				
Gender (C_2)	-.28**	.11	-.40**	.16	-.23*	.13
Lifetime mileage (C_3)	.00**	.00				
Frequency of driving (C_4)			.18**	.08		
9.COMxPPxIR						
COM (b_1)						
PP (b_2)						
IR (b_3)						
Age (C_1)	-.11**	.35				
Gender (C_2)	-.33**	.11	-.48**	.16	-.26**	.12
Lifetime mileage (C_3)						
Frequency of driving (C_4)	-.09*	.05	.20**	.08		
10.NONCxPPxIR						
NONC (b_1)					4.04**	1.28
PP (b_2)					2.31**	.85
IR (b_3)					1.57**	.58
Age (C_1)	-.09**	.03				
Gender (C_2)	-.35**	.11	-.56***	.16	-.31**	.11
Lifetime mileage (C_3)						
Frequency of driving (C_4)	-.10*	.05	.22**	.08		
11.MONxPPxIR						
MON (b_1)	-1.80*	.98				
PP (b_2)	-2.29**	.97				
IR (b_3)	-1.53**	.71				
Age (C_1)	-.09**	.04				
Gender (C_2)	-.28**	.11	-.46**	.16	-.27**	.12
Lifetime mileage (C_3)						
Frequency of driving (C_4)						

Table 15 (continued)

	Dependent variables					
	SA		SP		RV	
Models	*B*	*SE*	*B*	*SE*	*B*	*SE*
12.FBxPPxIR						
FB (b_1)						
PP (b_2)						
IR (b_3)						
Age (C_1)	-.11**	.03				
Gender (C_2)	-.37**	.11	-.44**	.16	-.27**	.13
Lifetime mileage (C_3)						
Frequency of driving (C_4)			.19**	.08		

Note 1. COM = Communication, NONC = Noncommitment, MON = Monitoring, FB = Feedback, PP = Peer pressure, EAD = External affective demands, FUN = Functionality, IR = Internal requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations. C_1, C_2, C_3, and C_4 are the covariate variables. *p < .10, **p < .05, ***p < .001

Note 2. Only significant simple effects were given in order to provide clarity.

3.5.3. Significant interaction effects of the study variables for the sample whose mothers drive

It was found that the regression coefficient for MONxPPxEAD was statistically significant (b_7 = -.267, t(156) = -2.970, p = .003). Therefore, there was a three-way interaction between monitoring, peer pressure, and external affective demands. The meaning of this three-way interaction was that the magnitude of moderation by peer pressure of the effect of monitoring on self-assertiveness depended on external affective demands (see Figure 6). Furthermore, a two-way interaction between monitoring and peer pressure (b_4 = 1.390, t(156) = 3.027, p = .0903, monitoring and external affective demands (b_5 = .528, t(156) = 2.012, p = .046), and peer pressure and external affective demands (b_6 = .630, t(156) = 2.461, p = .015) were statistically significant. That was, there was a moderating role of peer pressure on the relationship between monitoring and self-assertiveness; there was a moderating role of external affective demands on the relationship between monitoring and self-assertiveness; and there was a moderating role of external affective demands on the relationship between peer pressure and self-assertiveness.

b_7 = -.267, t(156) = -2.970, p = .003

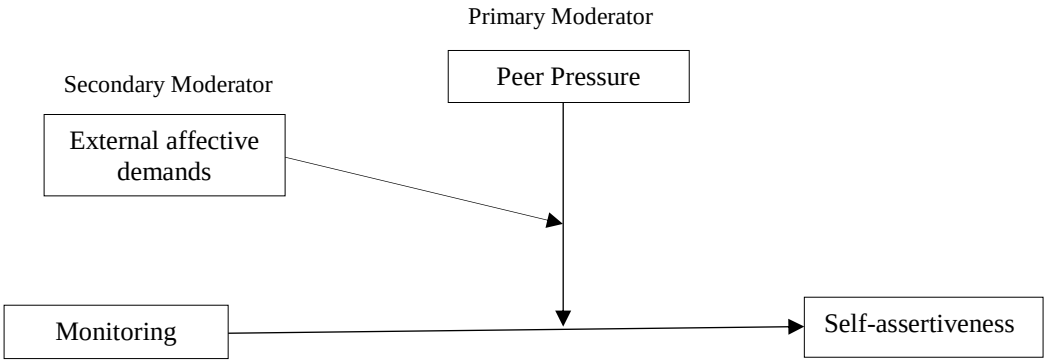

Figure 6. Significant three-way interaction diagram of a moderated moderation model (MONxPPxEAD on SA)

The results of the moderated moderation analyses indicated that the regression coefficient for FBxPPxFUN was statistically significant (b_7 = .195, t(156) = 2.044, p = .043) meaning that there was a three-way interaction between feedback, peer pressure, and functionality. That was, the magnitude of moderation by peer pressure of the effect of feedback on self-assertiveness depended on functionality (see Figure 7). Moreover, a two-way interaction between feedback and peer pressure (b_4 = -.591, t(156) = -1.925, p = .056), feedback and functionality (b_5 = -.566, t(156) = -1.866, p = .064), and peer pressure and functionality (b_6 = -.730, t(156) = -1.818, p = .071) were statistically significant. That was, there was a moderating role of peer pressure on the relationship between feedback and self-assertiveness; there was a moderating role of functionality on the relationship between feedback and self-assertiveness; and there was a moderating role of functionality on the relationship between peer pressure and self-assertiveness.

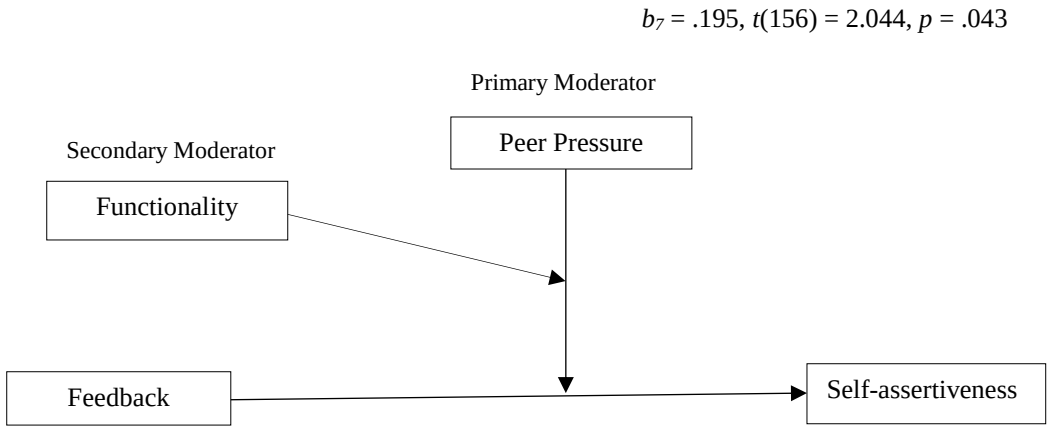

Figure 7. Significant three-way interaction diagram of a moderated moderation model (FBxPPxFUN on SA)

The results of the moderated moderation analyses indicated that the regression coefficient for NONCxPPxIR was statistically significant (b_7 = .147, t(156) = 1.673, p = .096) meaning that there was a three-way interaction between noncommitment, peer pressure and internal requirements. That was, the magnitude of moderation by peer pressure of the effect of noncommitment on self-assertiveness depended on internal requirements (see Figure 8).

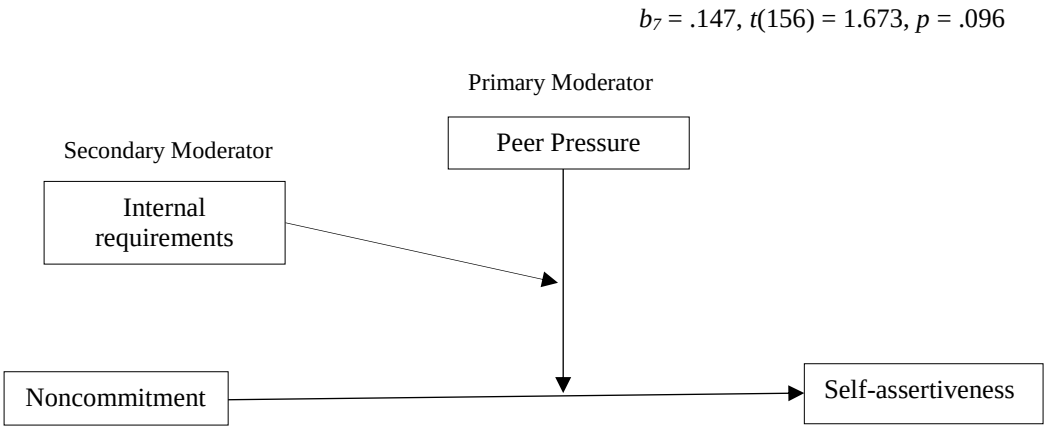

Figure 8. Significant three-way interaction diagram of a moderated moderation model (NONCxPPxIR on SA)

According to the results of moderated moderation analyses, the regression coefficient for MONxPPxIR was statistically signiciant (b_7 = -.154, t(156) = -2.319, p = .022). That was, there was a three-way interaction between monitoring, peer pressure, and internal requirements. The meaning of this three-way interaction was that the magnitude of moderation by peer pressure of the effect of monitoring on self-assertiveness depended on internal requirements (see Figure 9). Furthermore, a two-way interaction between monitoring and peer pressure (b_4 = .718, t(156) = 2.354, p = .020), monitoring and internal requirements (b_5 = .379, t(156) = 1.753, p = .082), and peer pressure and internal requirements (b_6 = .564, t(156) = 2.612, p = .010) were statistically significant. That was, there was a moderating role of peer pressure on the relationship between monitoring and self-assertiveness; there was a moderating role of internal requirements on the relationship between monitoring and self-assertiveness; and there was a moderating role of internal requirements on the relationship between peer pressure and self-assertiveness.

b_7 = -.154, t(156) = -2.319, p = .022

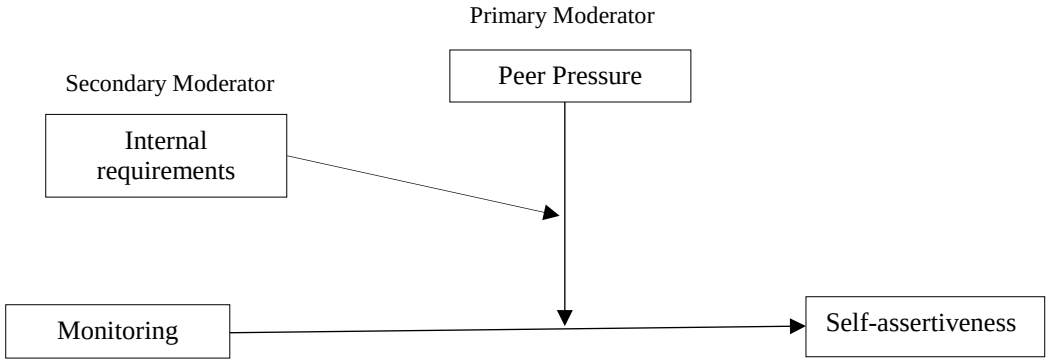

Figure 9. Significant three-way interaction diagram of a moderated moderation model (MONxPPxIR on SA)

It was found that the regression coefficient for NONCxPPxIR was statistically significant (b_7 = .270, t(156) = 2.883, p = .005), meaning that there was a three-way interaction between noncommitment, peer pressure, and internal requirements. That was, the magnitude of moderation by peer pressure of the effect of noncommitment on rule violations depended on internal requirements (see Figure 10). Moreover, a two-way interaction between noncommitment and peer pressure (b_4 = -1.099, t(156) = -2.653, p = .009), noncommitment and internal requirements (b_5 = -.879, t(156) = -3.039, p = .003), and peer pressure and internal requirements (b_6 = -.489, t(156) = -2.595, p = .010) were statistically significant. That was, there was a moderating role of peer pressure on the relationship between noncommitment and rule violations; there was a moderating role of internal requirements on the relationship between noncommitment and rule violations; and there was a moderating role of internal requirements on the relationship between peer pressure and rule violations.

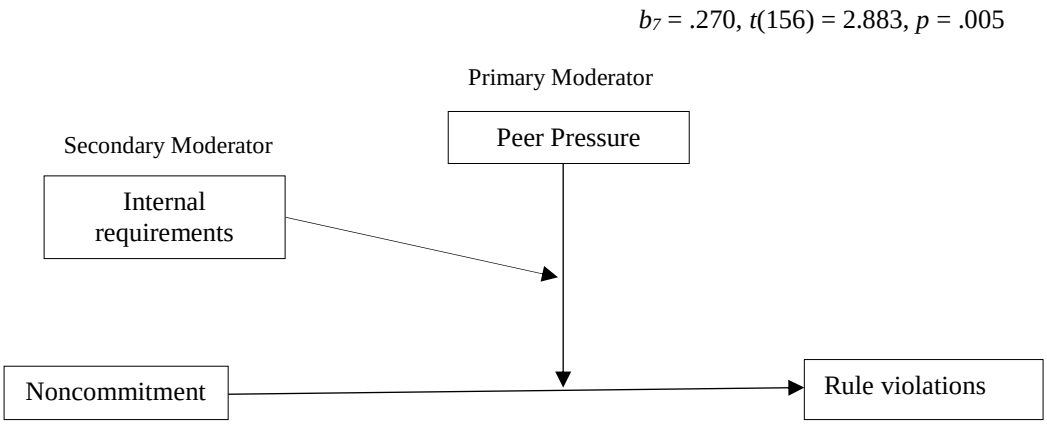

Figure 10. Significant three-way interaction diagram of a moderated moderation model (NONCxPPxIR on RV)

3.5.4. The results of the Pick-a-Point Approach and Johnson-Neyman region of significance analyses for the sample whose mothers drive

Pick-a-point approach was used to show in which values of traffic climate as a secondary moderator were chosen with the target of determining whether peer pressure moderated family climate's effect on risk-taking behaviors of young drivers conditioned on these various values of traffic climate. The results of the pick-a-point approach indicated that among those "relatively low" in external affective demands scores, [W = 4.256, $\theta_{(XM\rightarrow Y)}$ = .252, t(156), p = .007] and "relatively high" in external affective demands scores [W = 5.768, $\theta_{(XM\rightarrow Y)}$ = -.157, t(156), p = .077], peer pressure moderated the effect of monitoring on self-assertiveness (see Figure 11). That is, young drivers reported that they showed less self-assertive behaviors when they perceived more monitoring of their mothers, felt less peer pressure, and percevied traffic environment as relatively less external affective demanding. Moreover, young drivers reported that they showed less self-assertive behaviors when they perceived more monitoring of their mothers, more feeling of peer pressure, and percevied traffic environment as relatively high external affective demanding. The results of the JN indicated that there was an interaction between monitoring and peer pressure between statistically significant or nonsignificant at the standardized scores of external affective demands $\leq$ 4.715 and $\geq$ 5.901. Below the score 4.715 and above the score

5.901 of external affective demands, there was a two-way interaction between monitoring and peer pressure (see Figure 12).

The results of the pick-a-point approach indicated that among those "relatively high" in functionality scores [W = 3.395, $\theta_{(XM \rightarrow Y)}$ = .175, t(156), p = .088], peer pressure moderated the effect of feedback on self-assertiveness (see Figure 13). That is, young drivers reported that they showed more self-assertive behaviors when they were given more feedback by their mothers, less felt peer pressure, and percevied traffic environment as relatively more functional. The results of the JN region of significance analysis, it was found that there was an interaction between feedback and peer pressure between statistically significant or nonsignificant at the standardized scores of functionality = 4.672. Above the score 4.672 of functionality, there was a two-way interaction between feedback and peer pressure (see Figure 14).

The results of the pick-a-point approach indicated that among those "relatively high" in internal reqirements scores [W = 5.342, $\theta_{(XM \rightarrow Y)}$ = .211, t(156), p = .090], peer pressure moderated the effect of noncommitment on self-assertiveness (see Figure 15). That is, young drivers reported that they showed more self-assertive behaviors when they perceived more noncommitment from their mothers, felt more peer pressure, and percevied traffic environment as relatively more internally required. According to the JN region of significance analysis, it was foud that there was no statistical significant transition points of internal requirements; however, the moderation of the effect of noncommitment on self-assertiveness by peer pressure to depend on internal requirements was statistically significant (see Figure 16).

The results of the pick-a-point approach indicated that among those "relatively less" in internal reqirements scores [W = 3.550, $\theta_{(XM \rightarrow Y)}$ = .173, t(156), p = .050], peer pressure moderated the effect of noncommitment on self-assertiveness (see Figure 17). That is, young drivers reported that they showed less self-assertive behaviors when they perceived more monitoring from their mothers, felt less peer pressure, and percevied traffic environment as relatively less internally required. Moreover, the results indicated that there was an interaction between monitoring and peer pressure between statistically significant or nonsignificant at the standardized scores of internal

reqirements = 3.544. Below the score 3.544 of internal requirements, there was a two-way interaction between monitoring and peer pressure (see Figure 18).

Finally, the results of the pick-a-point approach indicated that among those "relatively high" in internal reqirements scores [W = 5.432, $\theta_{(XM \rightarrow Y)}$ = .342, t(156), p = .010], peer pressure moderated the effect of noncommitment on rule violations (see Figure 19). That is, young drivers reported that they showed more rule violations when they perceived more noncommitment from their mothers, felt more peer pressure, and percevied traffic environment as relatively more internally required. Furthermore, it was found that there was an interaction between noncommitment and peer pressure between statistically significant or nonsignificant at the standardized scores of internal requirements ≤ 2.887 and ≥ 4.827. Below the score 2.887 and above the score 4.827 of internal requirements, there was a two-way interaction between noncommitment and peer pressure (see Figure 20).

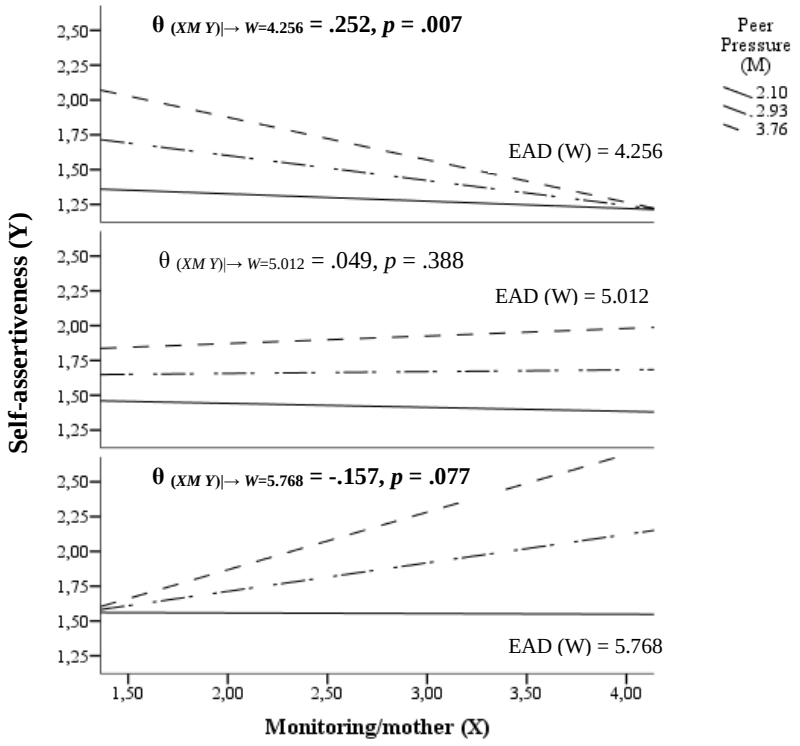

Figure 11. The conditional effect of monitoring on self-assertiveness as a function of peer pressure and external affective demands.

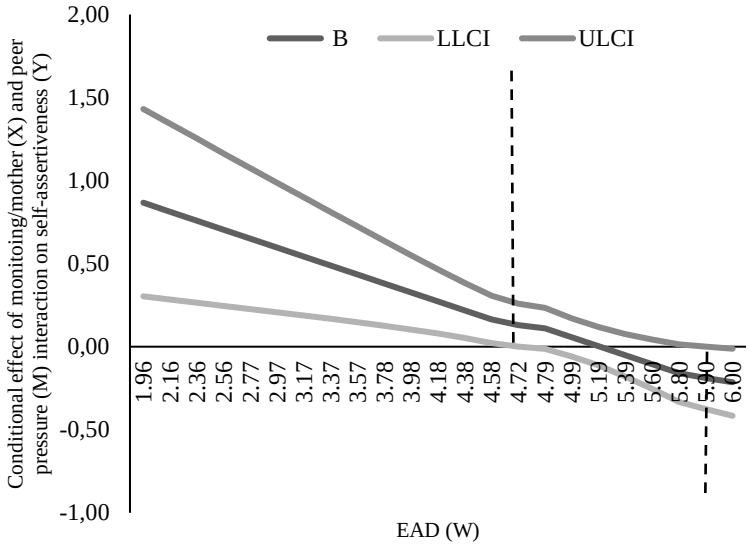

Figure 12. The conditional effect of monitoring on self-assertiveess as a function of peer pressure and external affective demands. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

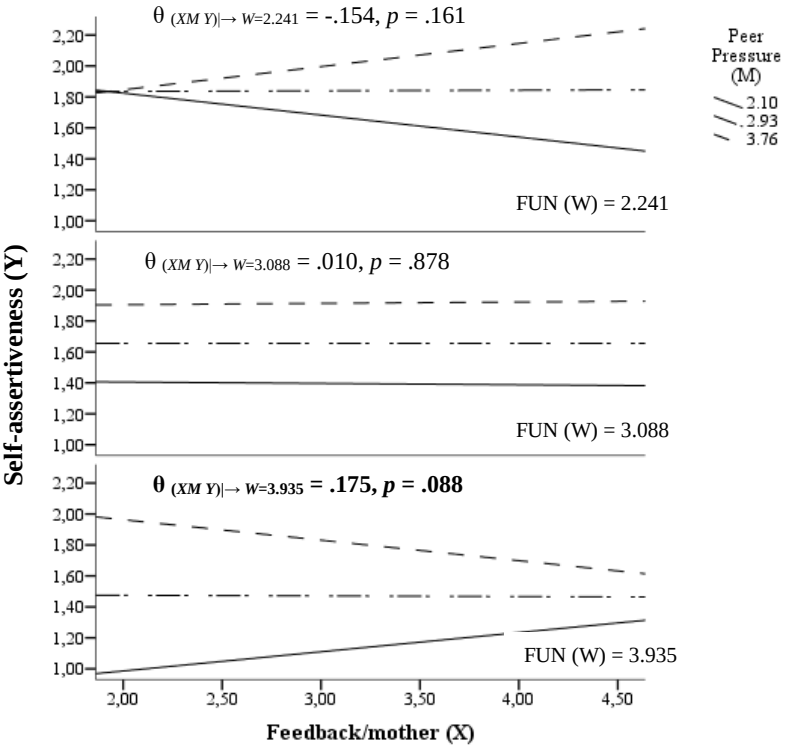

Figure 13. The conditional effect of feedback on self-assertiveness as a function of peer pressure and functionality.

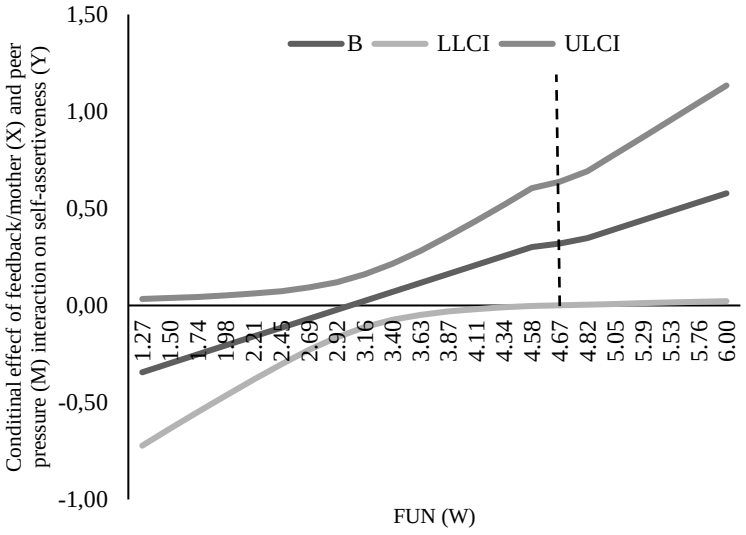

Figure 14. The conditional effect of feedback on self-assertiveess as a function of peer pressure and functionality. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

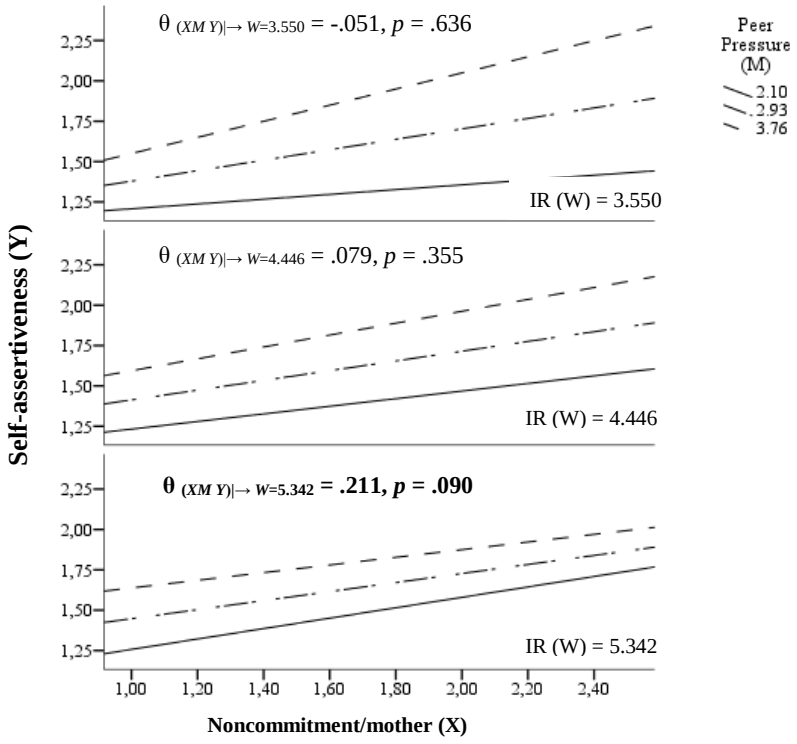

Figure 15. The conditional effect of noncommitment on self-assertiveness as a function of peer pressure and internal requirements.

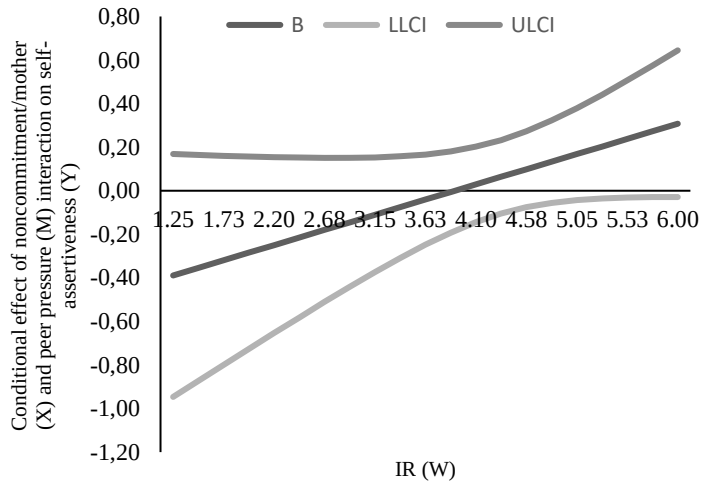

Figure 16. The conditional effect of noncommitment on self-assertiveess as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

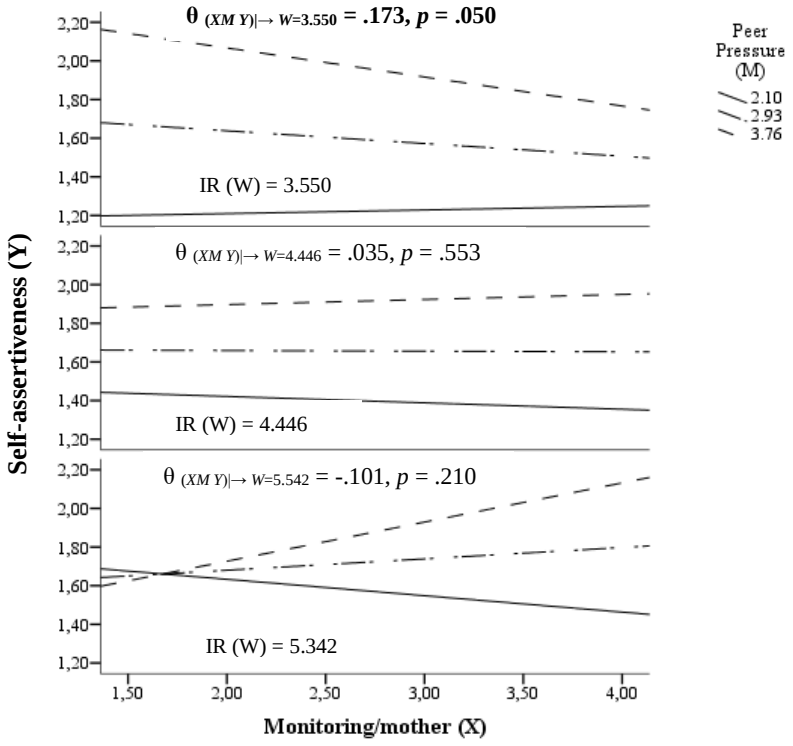

Figure 17. The conditional effect of monitoring on self-assertiveness as a function of peer pressure and internal requirements.

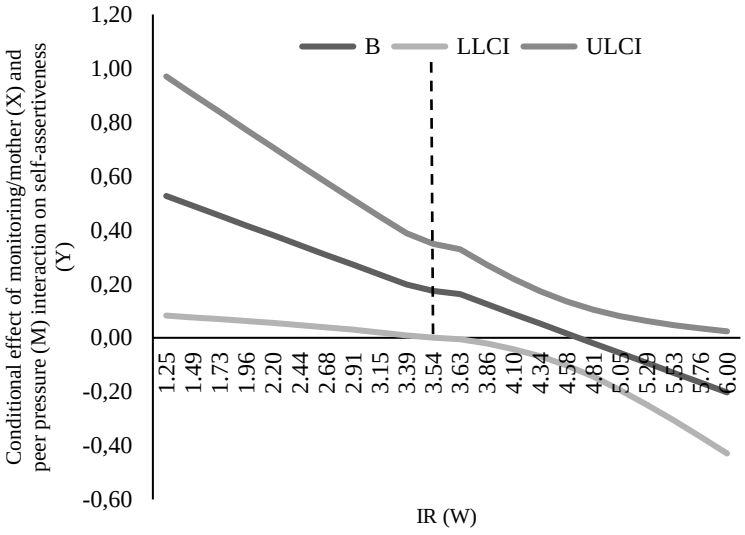

Figure 18. The conditional effect of monitoring on self-assertiveess as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

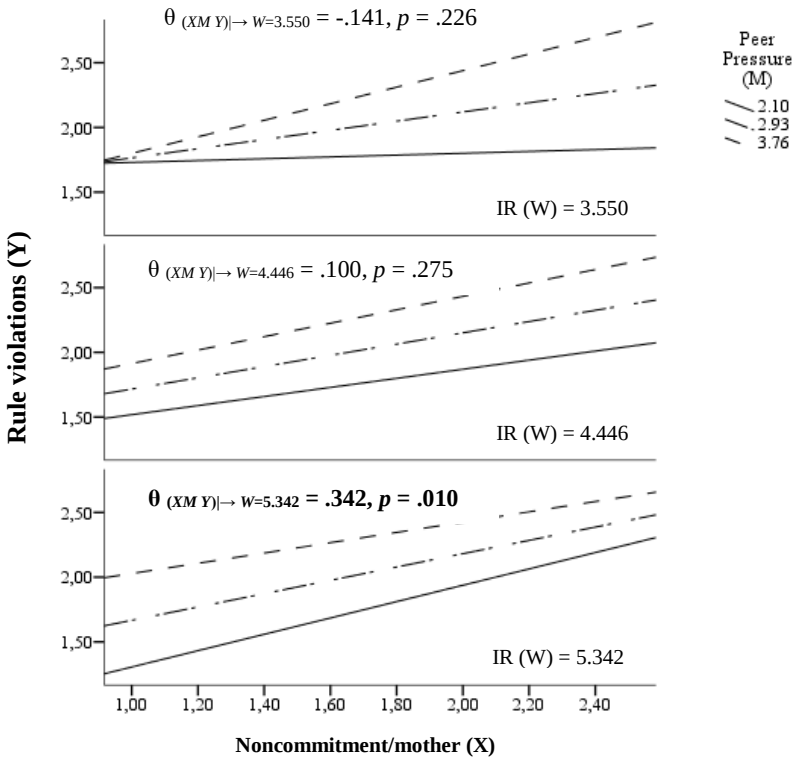

Figure 19. The conditional effect of noncommitment on rule violations as a function of peer pressure and internal requirements.

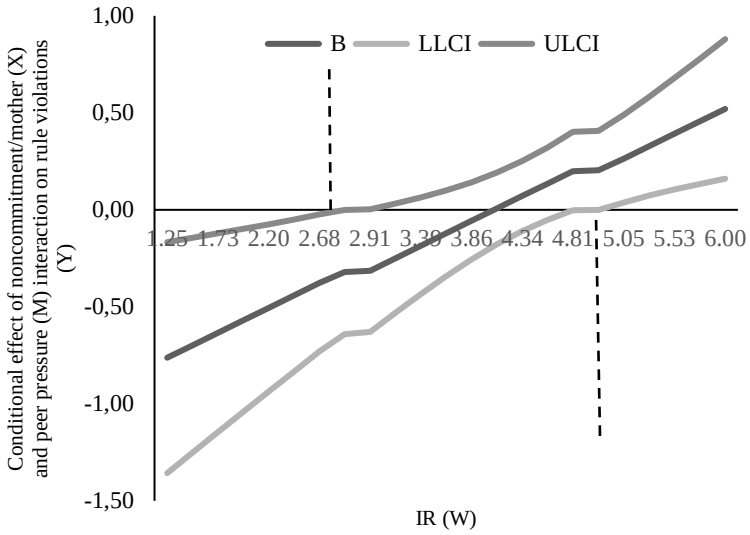

Figure 20. The conditional effect of noncommitment on rule violations as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

3.5.5. The Model summary of a Moderated Moderation analyses in the sample whose fathers drive

The results of moderated moderation analyses including significant model summaries including the interaction between FCRSS dimensions for mother (i.e., communication, noncommitment, monitoring, and feedback) and peer pressure to depend on traffic climate (i.e., external affective demands, functionality, and internal requirements) on risk-taking behaviors (i.e., self-assertiveness, speeding, and rule violations) indicated that all models were significant (see Table 16).

Table 16. The model summaries of a moderated moderation analyses for the sample whose fathers drive

	Dependent variables					
	SA		SP		RV	
Models	$F(11,156)$	R^2	$F(11,156)$	R^2	$F(11,156)$	R^2
1.COMxPPxEAD	5.47**	.28	7.62**	.35	5.33**	.27
2.NONCxPPxEAD	7.61**	.35	6.37**	.31	6.21**	.30
3.MONxPPxEAD	5.93**	.29	6.89**	.33	4.53**	.24
4.FBxPPxEAD	5.58**	.28	7.35**	.34	4.68**	.25
5.COMxPPxFUN	6.15**	.30	7.75**	.35	5.01**	.26
6.NONCxPPxFUN	7.81**	.36	6.78**	.32	5.69**	.29
7.MONxPPxFUN	5.73**	.29	6.64**	.32	4.31**	.23
8.FBxPPxFUN	6.35**	.31	6.91**	.33	3.40**	.22
9.COMxPPxIR	4.81**	.25	8.64**	.38	5.24**	.27
10.NONCxPPxIR	7.25**	.34	6.75**	.32	6.45**	.31
11.MONxPPxIR	4.87**	.26	6.60**	.32	3.72**	.21
12.FBxPPxIR	5.87**	.29	7.43**	.34	4.69**	.25

Note. COM = Communication, NONC = Noncommitment, MON = Monitoring, FB = Feedback, PP = Peer pressure, EAD = External affective demands, FUN = Functionality, IR = Internal requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations, **p < .001

3.5.6. Significant simple effects of the study variables on risk-taking behaviors for the sample whose fathers drive

As it was menditoned above for simple effects of the study variables for the sample whose mothers drive, the same procedure was followed for the sample whose fathers drive. The simple effects of the study variables on risk-taking behaviors were given in Table 23.

In Model 1, it was found that there were significant simple effects of age (C_1 = -.100, t(156) = -2.789, p = .005), gender (C_2 = -.287, t(156) = -2.583, p = .011), and lifetime mileage (C_3 = .000, t(156) = 1.855, p = .065) on self-assertiveness; there was a significant simple effect of gender (C_2 = -.553, t(156) = -3.508, p < .001) on speeding; and there was a significant simple effect of gender (C_2 = -.293, t(156) = -2.397, p = .018) on rule violations.

In Model 2, the results indicated that age (C_1 = -.092, t(156) = -2.802, p = .006), gender (C_2 = -.305, t(156) = -2.354, p = .005), and lifetime mileage (C_3 = .000, t(156) = 1.961, p = .052) had significant simple effects on self-assertiveness; gender (C_2 = -.592, t(156) = -3.596, p < .001) and frequency of driving (C_4 = .247, t(156) = 3.224, p = .002) had simple significant effects on speeding; and gender (C_2 = -.342, t(156) = -2.818, p = .006) had a significant simple effect on rule violations.

In Model 3, it was found that there were significant simple effects of age (C_1 = -.098, t(156) = -2.842, p = .005) , and gender (C_2 = -.310, t(156) = -2.819, p = .005) on self assertiveness; gender (C_2 = -.528, t(156) = -3.289, p = .001) had a significant simple effect on speeding; and gender (C_2 = -.313, t(156) = -2.504, p = .013) had a significant simple effect on rule violations.

In Model 4, the results indicated that there were significant simple effects of age (C_1 = -.106, t(156) = -3.132, p = .002) and gender (C_2 = -.285, t(156) = -2.534, p = .012) on self-assertiveness; gender (C_2 = -.436, t(156) = -2.706, p = .008) and frequency of driving (C_4 = .205, t(156) = 2.675, p = .008) on speeding; and gender (C_2 = -.224, t(156) = -1.773, p = .078) on rule violations.

In Model 5, age (C_1 = -.099, t(156) = -2.900, p = .004), gender (C_2 = -.315, t(156) = -2.929, p = .004), and lifetime mileage (C_3 = .000, t(156) = 2.037, p = .043) had

significant simple effects on self-assertiveness; gender (C_2 = -.545, t(156) = -3.522, p < .001), and frequency of driving (C_4 = .193, t(156) = 2.517, p = .013) had significant simple effects on speeding; and gender (C_2 = -.301, t(156) = -2.483, p = .014), had a significant simple effect on rule violations.

In Model 6, the results indicated that there were significant simple effects of age (C_1 = -.104, t(156) = -3.174, p = .002), gender (C_2 = -.336, t(156) = -3.217, p = .002), and lifetime mileage (C_3 = .000, t(156) = 2.202, p = .0729) on self-assertiveness; gender (C_2 = -.560, t(156) = -3.496, p < .001) and frequency of driving (C_4 = .248, t(156) = 3.272, p = .001) had significant simple effects on speeding; and gender (C_2 = -.315, t(156) = -2.611, p = .010) had a significant simple effect on rule violations.

In Model 7, it was found that age (C_1 = -.110, t(156) = -3.095, p = .002), gender (C_2 = -.327, t(156) = -3.003, p = .003), and lifetime mileage (C_3 = .000, t(156) = 1.710, p = .089) had significant simple effects on self-assertiveness, gender (C_2 = -.534, t(156) = -3.358, p = .001) had a significant simle effect on speeding; and age (C_1 = -.068, t(156) = -1.684, p = .094) and gender (C_2 = -.329, t(156) = -2.655, p = .009) had significant simple effects on rule violations.

In Model 8, there were significant effects of feedback (b_1 = 1.605, t(156) = 2.027, p = .044), peer pressure (b_2 = 1.965, t(156) = 2.041, p = .043), functionality (b_3 = 2.300, t(156) = 2.266, p = .025), age (C_1 = -.107, t(156) = -3.157, p = .002), gender (C_2 = -.321, t(156) = -2.990, p = .003), and lifetime mileage (C_3 = .000, t(156) = 1.750, p = .082) on self-assertiveness; gender (C_2 = -.478, t(156) = -3.014, p = .003) and frequency of driving (C_4 = .178, t(156) = 2.291, p = .023) had significant simple effects on speeding; and gender (C_2 = -.280, t(156) = -2.234, p = .027) had a significant simple effect on rule violations.

In Model 9, the results indicated that age (C_1 = -.109, t(156) = -3.103, p = .002) and gender (C_2 = -.340, t(156) = -3.056, p = .003) had significant simple effects on self-assertiveness; gender (C_2 = -.5.26, t(156) = -3.470, p < .001) and frequency of driving (C_4 = .160, t(156) = 2.123, p = .035) had significant simple effects on speeding; and gender (C_2 = -.292, t(156) = -2.422, p = .017) had a significant simple effect on rule violations.

In Model 10, age (C_1 = -.103, t(156) = -3.136, p = .002) and gender (C_2 = -.333, t(156) = -3.165, p = .002) had significant simple effects on self-assertiveness; noncommitment (b_1 = -3.402, t(156) = -1.781, p = .077), gender (C_2 = -.569, t(156) = -3.567, p < .001) and frequency of driving (C_4 = .223, t(156) = 2.813, p = .006) had significant simple effects on speeding; and gender (C_2 = -.316, t(156) = -2.680, p = .008) had a significant simple effect on rule violations.

In Model 11, it was found that there were significant simple effects of age (C_1 = -.097, t(156) = -2.698, p = .008), and gender (C_2 = -.329, t(156) = -2.938, p = .011) on self-assertiveness; there was a significant simple effect of gender (C_2 = -.509, t(156) = -3.183, p = .002) on speeding; and there was a significant simple effect of gender (C_2 = -.295, t(156) = -2.336, p = .021) on rule violations.

In Model 12, age (C_1 = -.097, t(156) = -2.864, p = .005), and gender (C_2 = -.296, t(156) = -2.672, p = .008) had significant simple effects on self-assertiveness; gender (C_2 = -.455, t(156) = -2.851, p = .005) and frequency of driving (C_4 = .190, t(156) = 2.455, p = .015) had significant simple effects on speeding; and gender (C_2 = -.219, t(156) = -1.747, p = .083) had significant simple effect on rule violations.

Table 17. Significant simple effects of the study variables on RTBS dimensions

	Dependent variables					
	SA		SP		RV	
Models	*B*	*SE*	*B*	*SE*	*B*	*SE*
1.COMxPPxEAD						
COM (b_1)						
PP (b_2)						
EAD (b_3)						
Age (C_1)	-.10**	.03				
Gender (C_2)	-.29**	.11	-.55***	.16	-.29**	.12
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)			.18**	.08		
2.NONCxPPxEAD						
NONC (b_1)						
PP (b_2)						
EAD (b_3)						
Age (C_1)	-.09**	.03				
Gender (C_2)	-.31**	.11	-.59***	.16	-.34**	.12
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)			.25**	.08		
3.MONxPPxEAD						
MON (b_1)						
PP (b_2)						
EAD (b_3)						
Age (C_1)	-.10**	.03				
Gender (C_2)	-.31**	.11	-.53**	.16	-.31**	.12
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)						
4.FBxPPxEAD						
FB (b_1)						
PP (b_2)						
EAD (b_3)						
Age (C_1)	-.11**	.03				
Gender (C_2)	-.28**	.11	-.44**	.16	-.22*	.13
Lifetime mileage (C_3)						
Frequency of driving (C_4)			.21**	.08		
5.COMxPPxFUN						
COM (b_1)						
PP (b_2)						
FUN (b_3)						
Age (C_1)	-.10**	.03				
Gender (C_2)	-.31**	.11	-.54***	.15	-.30**	.12
Lifetime mileage (C_3)	.00**	.00				
Frequency of driving (C_4)			.19**	.08		
6.NONCxPPxFUN						
NONC (b_1)						
PP (b_2)						
FUN (b_3)						
Age (C_1)	-.10**	.03				
Gender (C_2)	-.33**	.10	-.56***	.16	-.31**	.12
Lifetime mileage (C_3)	.00**	.00				
Frequency of driving (C_4)			.25**	.08		

Table 17 (continued)

	Dependent Variables					
	SA		SP		RV	
Models	*B*	*SE*	*B*	*SE*	*B*	*SE*
7.MONxPPxFUN						
MON (b_1)						
PP (b_2)						
FUN (b_3)						
Age (C_1)	-.11**	.04			-.07*	.04
Gender (C_2)	-.33**	.11	-.53***	.16	-.33**	.12
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)						
8.FBxPPxFUN						
FB (b_1)	1.60**	.79				
PP (b_2)	1.96**	.96				
FUN (b_3)	2.30**	1.01				
Age (C_1)	-.11**	.03				
Gender (C_2)	-.32**	.11	-.48**	.16	-.28**	.13
Lifetime mileage (C_3)	.00*	.00				
Frequency of driving (C_4)			.18**	.08		
9.COMxPPxIR						
COM (b_1)			-8.56**	2.87		
PP (b_2)			-9.34**	3.87		
IR (b_3)			-6.72**	2.50		
Age (C_1)	-.11**	.04				
Gender (C_2)	-.34**	.11	-.53***	.15	-.29**	.12
Lifetime mileage (C_3)						
Frequency of driving (C_4)			.16**	.08		
10.NONCxPPxIR						
NONC (b_1)			-3.40*	1.91		
PP (b_2)						
IR (b_3)						
Age (C_1)	-.10**	.03				
Gender (C_2)	-.33**	.11	-.57***	.16	-.32**	.12
Lifetime mileage (C_3)						
Frequency of driving (C_4)			.22**	.08		
11.MONxPPxIR						
MON (b_1)						
PP (b_2)						
IR (b_3)						
Age (C_1)	-.10**	.04				
Gender (C_2)	-.33**	.11	-.51**	.16	-.30**	.13
Lifetime mileage (C_3)						
Frequency of driving (C_4)						

Table 17 (continued)

	Dependent Variables					
	SA		SP		RV	
Models	*B*	*SE*	*B*	*SE*	*B*	*SE*
12.FBxPPxIR						
FB (b_1)						
PP (b_2)						
IR (b_3)						
Age (C_1)	-.10**	.03				
Gender (C_2)	-.30**	.11	-.46**	.16	-.22*	.13
Lifetime mileage (C_3)						
Frequency of driving (C_4)			.1900	.08		

Note. COM = Communication, NONC = Noncommitment, MON = Monitoring, FB = Feedback, PP = Peer pressure, EAD = External affective demands, FUN = Functionality, IR = Internal requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations. C_1, C_2, C_3, and C_4 are the covariate variables. *p < .10, **p < .05, ***p < .001

3.5.7. Significant interaction effects of the study variables for the sample whose fathers drive

It was found that the regression coefficient for MONxPPxEAD was statistically significant (b_7 = -.170, t(156) = -1.880, p = .062). Hence, there was a three-way interaction between monitoring, peer pressure, and external affective demands. The meaning of this three-way interaction was that the magnitude of moderation by peer pressure of the effect of monitoring on self-assertiveness depended on external affective demands (see Figure 21). Moreover, a two-way interaction between monitoring and peer pressure (b_4 = .890, t(156) = 1.916, p = .057) was statistically significant. That was, there was a moderating role of peer pressure on the relationship between monitoring and self-assertiveness.

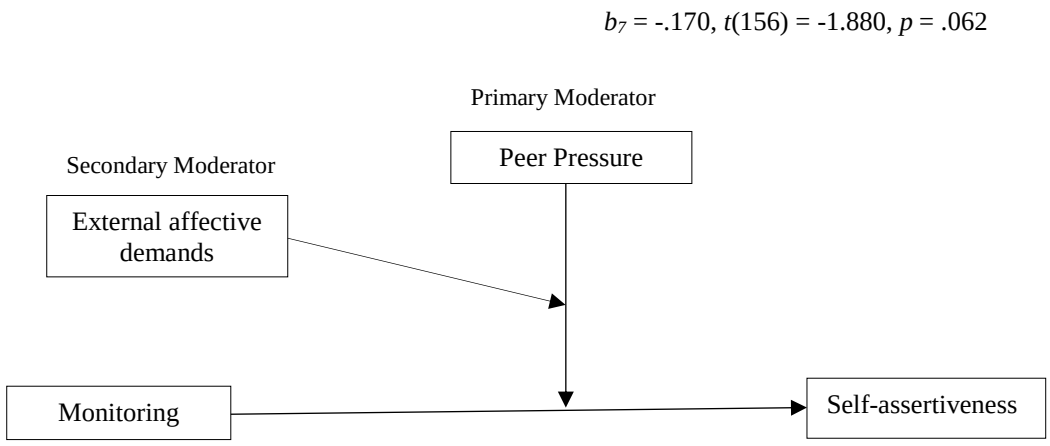

Figure 21. Significant three-way interaction diagram of a moderated moderation model (MONxPPxEAD on SA)

The results of moderated moderation analyses indicated that the regression coefficient for FBxPPxFUN was statistically significant, b_7 = .174, t(156) = 2.189, p = .002. Thus, there was a three way-interaction between feedback, peer pressure, and functionality. That was, the magnitude of moderation by peer pressure of the effect of feedback on self-assertiveness depended on functionality (see Figure 22). In addition, a two-way interaction between feedback and peer pressure (b_4 = .890, t(156) = 1.916, p = .057), feedback and functionality (b_5 = -.584, t(156) = -2.310, p = .022), and peer and functionality (b_6 = -.628, t(156) = -1.966, p = .051) were statistically significant. There was a moderating role of peer pressure on the relationship between feedback and self-assertiveness; there was a moderating role of functionality on the relationship between feedback and self-assertiveness; and there was a moderating role of functionality on the relationship between peer pressure and self-assertiveness.

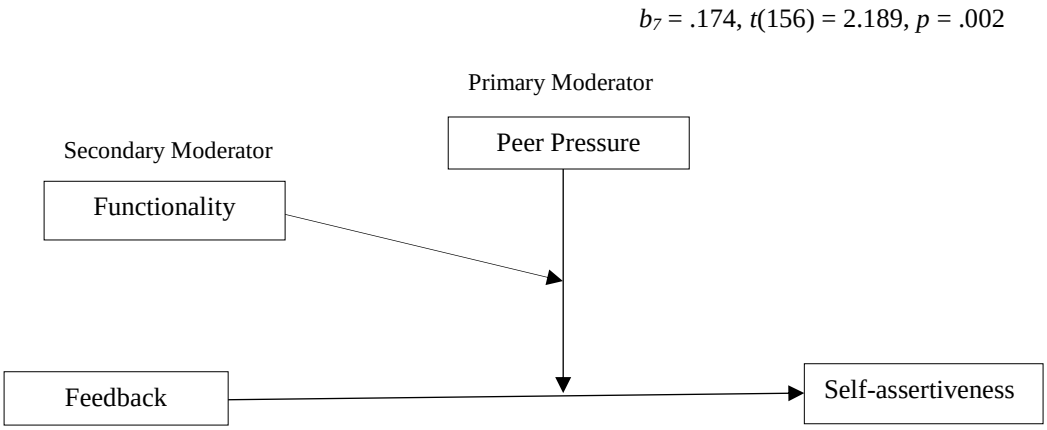

Figure 22. Significant three-way interaction diagram of a moderated moderation model (FBxPPxFUN on SA)

According to the results of the moderated moderation analyses, it was found that the regression coefficient for FBxPPxIR was statistically significant (b_7 = .172, t(156) = 2.159, p = .032) and there was a three-way interaction between feedback, peer pressure, and internal requirements (see Figure 23). It means that the magnitude of moderation by peer pressure of the effect of feedback on self-assertiveness depended on internal requirements. Furhermore, there was a two-way interaction between feedback and peer pressure (b_4 = -.694, t(156) = -1.926, p = .056), and feedback and internal requirements (b_5 = -.584, t(156) = -2.310, p = .022). There was a moderating role of peer pressure on the relationship between feedback and self-assertiveness; and internal requirements had a moderating role on the relationship between feedback and self-assertiveness.

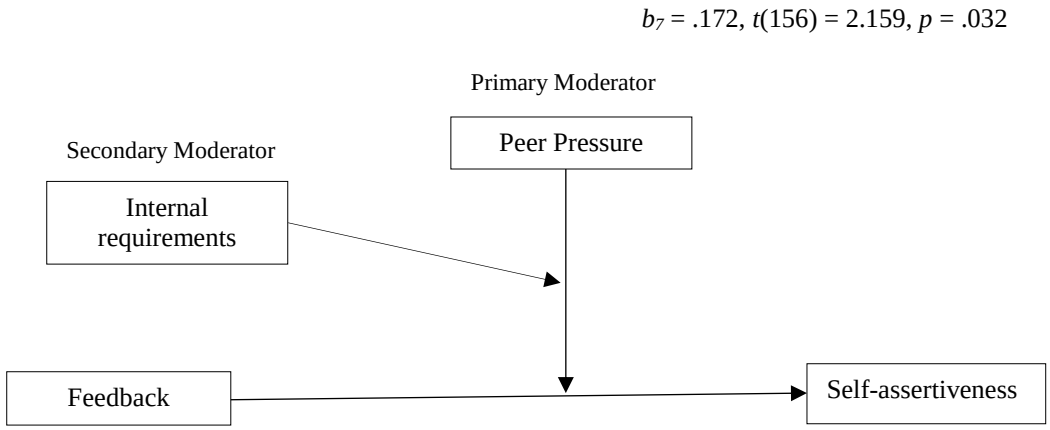

Figure 23. Significant three-way interaction diagram of a moderated moderation model (FBxPPxIR on SA)

Finally, the results indicated the regression coefficient for COMxPPxIR was statistically significant, (b_7 = -.516, t(156) = -2.532, p = .012) and there was a three-way interaction between communication, peer pressure, and internal requirements. It means that the magnitude of moderation by peer pressure of the effect of communication on speeding depended on internal requirements (see Figure 24). Furthermore, there was a two-way interaction between communication and peer pressure (b_4 = 2.465, t(156) = 2.560, p = .011), and communication and internal requirements (b_5 = 1.719, t(156) = 2.769, p = .006), and peer and internal requirements (b_6 = 2.036, t(156) = 2.491, p = .014). That was, peer pressure had a moderating role on the relationship between communication and speeding, internal requirements had a moderating role on the relationship between communication and speeding, and internal requirements had a moderating role on the relationship between peer pressure and speeding.

b_7 = -.516, t(156) = -2.532, p = .012

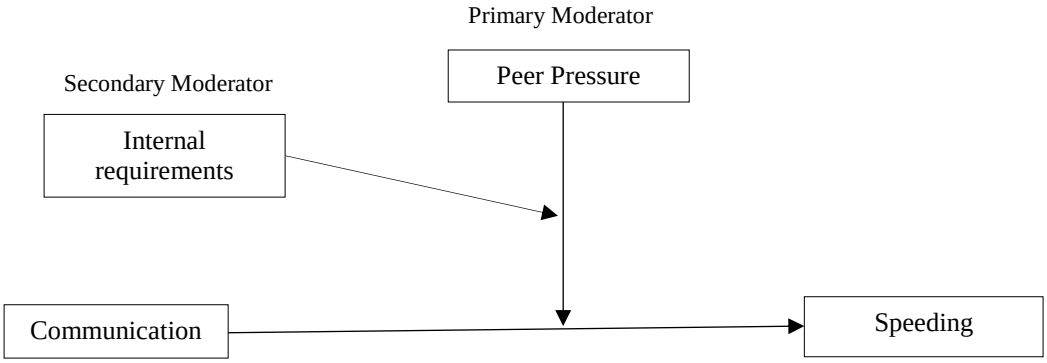

Figure 24. Significant three-way interaction diagram of a moderated moderation model (COMxPPxIR on SP)

3.5.8. The results of the Pick-a-Point Approach and the Johnson-Neyman region of significance analyses for the sample whose fathers drive

The results of the pick-a-point approach indicated that among those "relatively low" in external affective demands scores [W = 4.256, $\theta_{(XM \rightarrow Y)}$ = .165, t(156), p = .074], peer pressure moderated the effect of monitoring on self-assertiveness (see Figure 25). That is, young drivers reported that they showed less self-assertive behaviors when they perceived more monitoring of their fathers, felt less peer pressure, and percevied traffic environment as relatively less external affective demanding. The result of the JN region of signifcance analyses indicated that there no statistical significant transition points of internal requirements; however, the moderation of the effect of monitoring on self-assertiveness by peer pressure to depend on external affective demands was statistically significant (see Figure 26).

The results of the pick-a-point approach indicated that among those "relatively high" in functionality scores [W = 3.935, $\theta_{(XM \rightarrow Y)}$ = .226, t(156), p = .032], peer pressure moderated the effect of feedback on self-assertiveness (see Figure 27). That is, young drivers reported that they showed more self-assertive behaviors when they were given more feedback by their fathers, felt more peer pressure, and percevied traffic environment as relatively high functional. The results of the JN region of significance analysis, it was found that there was an interaction between feedback and peer pressure

between statistically significant or nonsignificant at the standardized scores of functionality = 3.635. Above the score 3.635 of functionality, there was a two-way interaction between feedback and peer pressur (see Figure 28).

The results of the pick-a-point approach indicated that among those "relatively high" in internal requirements scores [W = 5.432, $\theta_{(XM \rightarrow Y)}$ = .225, t(156), p = .022], peer pressure moderated the effect of feedback on self-assertiveness (see Figure 29). That is, young drivers reported that they showed more self-assertive behaviors when they were given more feedback by their fathers, felt more peer pressure, and percevied traffic environment as relatively high internally required. Furthermore, it was foud that there was an interaction between feedback and peer pressure between statistically significant or nonsignificant at the standardized scores of internal requirements = 4.912. Above the score 4.912 of internal requirements, there was a two-way interaction between feedback and peer pressure (see Figure 30).

Finally, the results of the pick-a-point approach indicated that among those "relatively low" in internal requirements scores [W = 3.550, $\theta_{(XM \rightarrow Y)}$ = .633, t(156), p = .022], peer pressure moderated the effect of communication on speeding (see Figure 31). That is, young drivers reported that they showed less speeding behaviors when they had more communication with their fathers, felt less peer pressure, and percevied traffic environment as relatively low internally required. Moreover, it was found that there was an interaction between communication and peer pressure between statistically significant or nonsignificant at the standardized scores of internal requirements $\leq$ 3.980 and $\geq$ 5.930. Below the score 3.980 and above the score 5.930 of internal requirements, there was a two-way interaction between communication and peer pressure (see Figure 32).

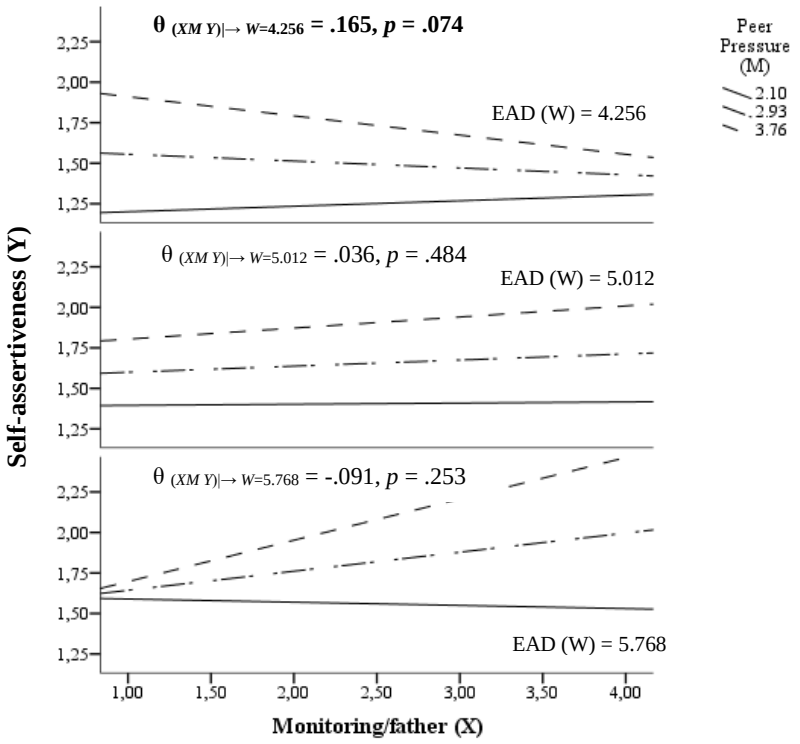

Figure 25. The conditional effect of monitoring on self-assertiveness as a function of peer pressure and internal requirements.

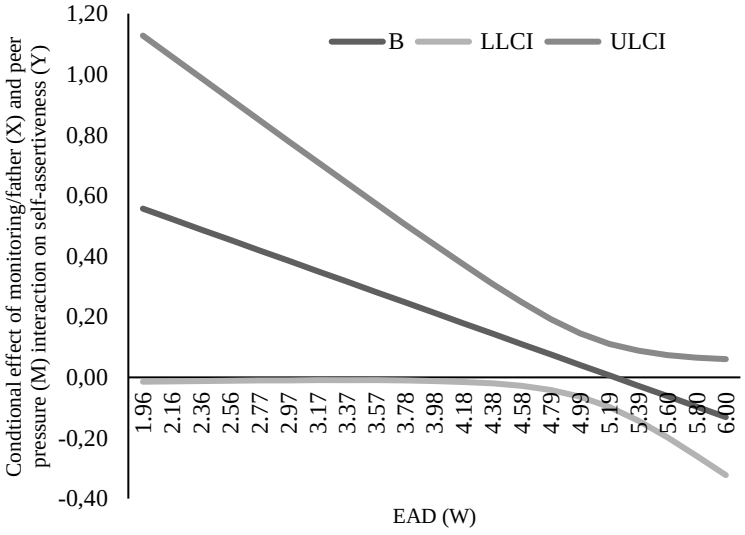

Figure 26. The conditional effect of monitoring on self-assertiveness as a function of peer pressure and external affective demands. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

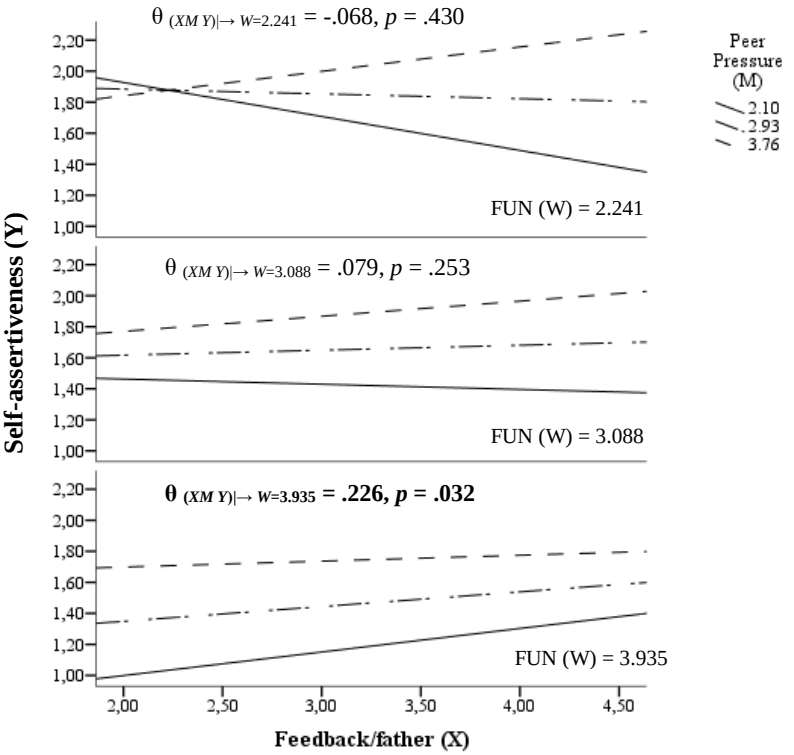

Figure 27. The conditional effect of feedback on self-assertiveness as a function of peer pressure and functionality.

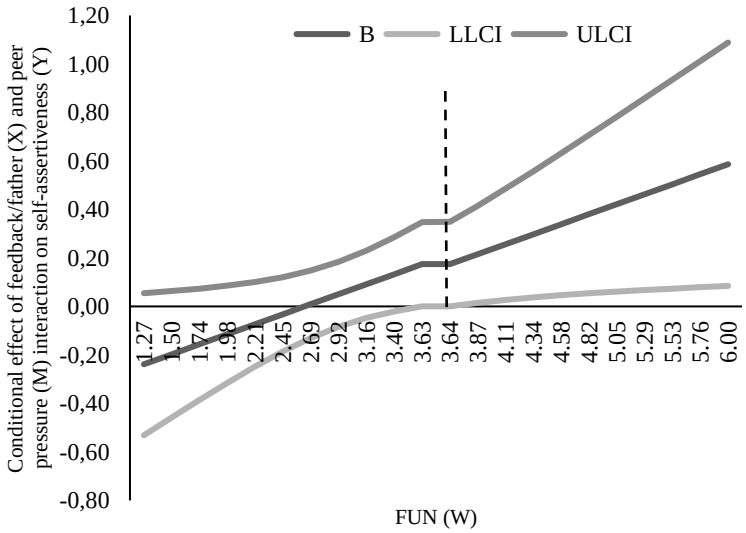

Figure 28. The conditional effect of feedback on self-assertiveness as a function of peer pressure and functionality. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

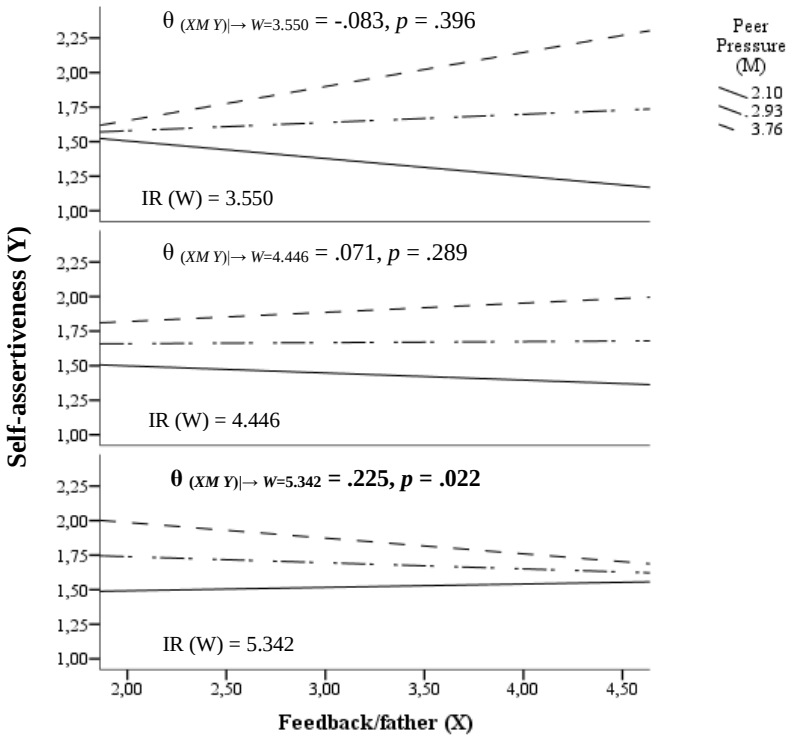

Figure 29. The conditional effect of feedback on self-assertiveness as a function of peer pressure and internal requirements.

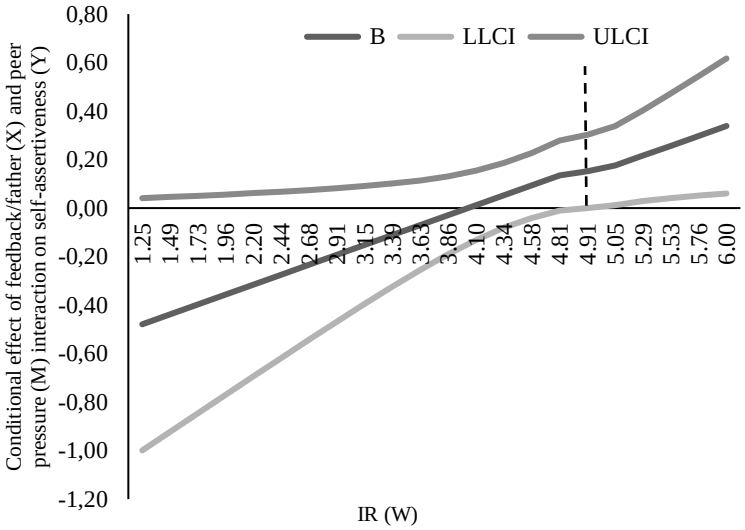

Figure 30. The conditional effect of feedback on self-assertiveness as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

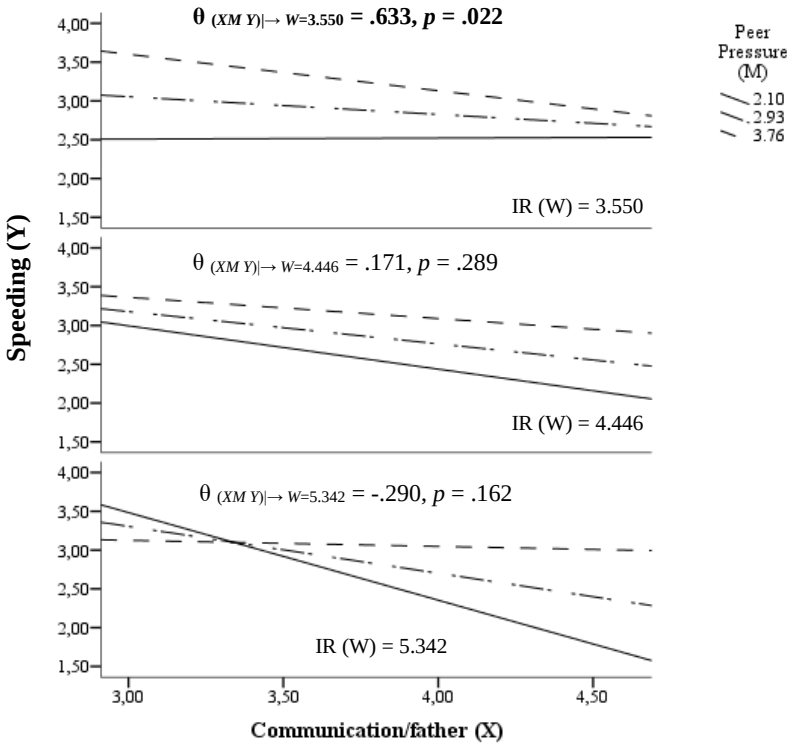

Figure 31. The conditional effect of feedback on self-assertiveness as a function of peer pressure and internal requirements.

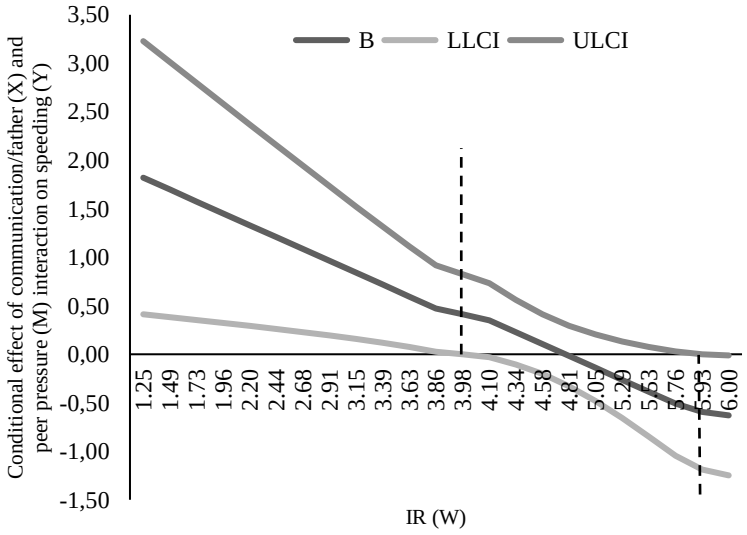

Figure 32. The conditional effect of communication on speeding as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

3.5.9.The Model summary of a Moderated Moderation analyses in the sample whose only fathers drive

The results of moderated moderation analyses including significant model summaries including the interaction between FCRSS dimensions for mother (i.e., communication, modeling, monitoring, and feedback) and peer pressure to depend on traffic climate (i.e., external affective demands, functionality, and internal requirements) on risk-taking behaviors (i.e., self-assertiveness, speeding, and rule violations) indicated that all models were significant (see Table 18).

Table 18. The model summaries of a moderated moderation analyses for the sample whose only fathers drive

	Dependent variables					
	SA		SP		RV	
Models	$F(11,220)$	R^2	$F(11,220)$	R^2	$F(11,220)$	R^2
1.COMxPPxEAD	6.52**	.25	8.48**	.30	11.14**	.36
2.MODxPPxEAD	7.89**	.28	9.02**	.31	11.85**	.37
3.MONxPPxEAD	5.58**	.22	8.26**	.29	9.43**	.32
4.FBxPPxEAD	5.46**	.21	8.98**	.31	9.79**	.33
5.COMxPPxFUN	7.04**	.26	8.32**	.29	10.15**	.34
6.MODxPPxFUN	7.99**	.29	8.94**	.31	10.71**	.35
7.MONxPPxFUN	5.29**	.21	8.34**	.29	8.64**	.30
8.FBxPPxFUN	5.14**	.20	8.62**	.30	8.85**	.31
9.COMxPPxIR	6.46**	.24	9.31**	.32	10.71**	.35
10.MODxPPxIR	8.06**	.29	9.13**	.31	13.37**	.40
11.MONxPPxIR	5.72**	.22	9.04**	.31	8.34**	.31
12.FBxPPxIR	4.95**	.20	8.65**	.30	9.00**	.31

Note. COM = Communication, MOD = Modeling, MON = Monitoring, FB = Feedback, PP = Peer pressure, EAD = External affective demands, FUN = Functionality, IR = Internal requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations, **p < .001

3.5.10. Significant simple effects of the study variables on risk-taking behaviors for the sample whose fathers drive

As it was menditoned above for simple effects of the study variables for the sample whose mothers and fathers drive, the same procedure was followed for the sample whose only fathers drive. The simple effects of the study variables on risk-taking behaviors were given in Table 25.

In Model 1, it was found that there was a significant simple effect of frequency of driving (C_4 = .104, t(220) = 2.348, p = .020) on self-assertiveness; there was a significant simple effect of gender (C_2 = -.474, t(220) = -3.548, p < .001) on speeding; and there were significant simple effects of gender (C_2 = -.168, t(220) = -1.726, p = .086) and frequency of driving (C_4 = .093, t(220) = 2.258, p = .025) on rule violations.

In Model 2, the results indicated that modeling (b_1 = -2.337, t(220) = -2.224, p = .027), external affective demands (b_2 = -1.820, t(220) = -1.897, p = .059), gender (C_2 = -.191, t(220) = -1.872, p = .063), and frequency of driving (C_4 = .079, t(220) = 1.804, p = .073) had significant simple effects on self-assertiveness; gender (C_2 = -.499, t(220) = -3.756, p < .001) had a simple significant effect on speeding; modeling (b_1 = -2.238, t(220) = -2.248, p = .026), external affective demands (b_2 = -1.906, t(220) = -2.097, p = .037), gender (C_2 = -.193, t(220) = -1.992, p = .048), and frequency of driving (C_4 = .070, t(220) = 1.679, p = .095) had significant simple effects on rule violations.

In Model 3, it was found that there were significant simple effects of gender (C_2 = -.196, t(220) = -1.817, p = .071) , and frequency of driving (C_4 = .123, t(220) = 2.660, p = .008) on self assertiveness; gender (C_2 = -.443, t(220) = -3.246, p = .001) had a significant simple effect on speeding; and gender (C_2 = -.179, t(220) = -1.757, p = .080) and frequency of driving (C_4 = .097, t(220) = 2.216, p = .028) had significant simple effects on rule violations.

In Model 4, the results indicated that there was a significant simple effect of frequency of driving (C_4 = .108, t(220) = 2.397, p = .017) on self-assertiveness; gender (C_2 = -.376, t(220) = -2.721, p = .007) on speeding; and feedback (b_1 = -1.254, t(220) = -1.671, p = .096) and frequency of driving (C_4 = .089, t(220) = 2.117, p = .035) on rule violations.

In Model 5, frequency of driving (C_4 = .121, t(220) = 2.745, p = .007) had a significant simple effect on self-assertiveness; gender (C_2 = -.474, t(220) = -3.561, p < .001) had a significant simple effect on speeding; and gender (C_2 = -.172, t(220) = -1.748, p = .082) and frequency of driving had (C_4 = .087, t(220) = 2.074, p = .039) significant simple effects on rule violations.

In Model 6, the results indicated that there were significant simple effects of gender (C_2 = -.198, t(220) = -1.961, p = .051), and frequency of driving (C_4 = .087, t(220) = 2.202, p = .046) on self-assertiveness; gender (C_2 = -.508, t(220) = -3.853, p < .001) had a significant simple effect on speeding; and gender (C_2 = -.213, t(220) = -2.179, p = .030) had a significant simple effect on rule violations.

In Model 7, it was found that monitoring (b_1 = .696, t(220) = 1.738, p = .084), peer (b_2 = .739, t(220) = 1.779, p = .077), gender (C_2 = -.201, t(220) = -1.862, p = .064), and frequency of driving (C_4 = .113, t(220) = 12.430, p = .016) had significant simple effects on self-assertiveness, gender (C_2 = -.456, t(220) = -3.377, p < .001) had a significant simle effect on speeding; and peer (b_2 = .807, t(220) = 2.042, p = .042), gender (C_2 = -.203, t(220) = -1.976, p = .049), and frequency of driving (C_4 = .085, t(220) = 1.929 p = .055) had significant simple effects on rule violations.

In Model 8, there was a significant effect of frequency of driving (C_4 = .106, t(220) = 2.345 p = .020) on self-assertiveness; gender (C_2 = -.386, t(220) = -2.785, p = .006) had a significant simple effect on speeding; and peer (b_2 = 1.033, t(220) = 1.888, p = .060) and frequency of driving (C_4 = .087, t(220) = 2.029, p = .044) had significant simple effects on rule violations.

In Model 9, the results indicated that communication (b_1 = -3.007, t(220) = -2.191, p = .030), peer (b_2 = -3.288, t(220) = -2.089, p = .038), internal requirements (b_3 = -2.718, t(220) = -2.054, p = .041) and frequency of driving (C_4 = .093, t(220) = 2.130, p = .034) had significant simple effects on self-assertiveness; communication (b_1 = -3.277, t(220) = -1.894, p = .060), peer (b_2 = -3.820, t(220) = -1.925, p = .056), internal requirements (b_3 = -2.862, t(220) = -1.716, p = .088), gender (C_2 = -.497, t(220) = -3.751, p < .001) and frequency of driving (C_4 = .096, t(220) = 1.734, p = .084) had significant simple effects on speeding; and gender (C_2 = -.164, t(220) = -1.658, p =

.099) and frequency of driving (C_4 = .076, t(220) = 1.845, p = .066) had significant simple effects on rule violations.

In Model 10, modeling (b_1 = -2.839, t(220) = -2.584, p = .010), peer (b_2 = -3.038, t(220) = -2.369, p = .019), internal requirements (b_3 = -2.454, t(220) = -2.386, p = .018) and gender (C_2 = -.190, t(220) = -1.836, p = .068) had significant simple effects on self-assertiveness; modeling (b_1 = -2.384, t(220) = -1.667, p = .097) and gender (C_2 = -.521, t(220) = -3.867, p < .001) had significant simple effects on speeding; and modeling (b_1 = -3.221, t(220) = -3.159, p = .002), peer (b_2 = -3.958, t(220) = -3.326, p = .001), internal requirements (b_3 = -2.925, t(220) = -3.065, p = .003) and gender (C_2 = -.177, t(220) = -1.829, p = .069) had significant simple effects on on rule violations.

In Model 11, it was found that there were significant simple effects of monitoring (b_1 = -1.080, t(220) = -1.661, p = .098), internal requirements (b_3 = -1.048, t(220) = -2.033, p = .043) and frequency of driving (C_4 = .953, t(220) = 2.069, p = .040) on self-assertiveness; there was a significant simple effect of gender (C_2 = -.452, t(220) = -3.352, p < .001) on speeding.

In Model 12, frequency of driving (C_4 = .089, t(220) = 1.973, p = .050) had a significant simple effect on self-assertiveness; gender (C_2 = -.377, t(220) = -2.704, p = .007) had a significant simple effect on speeding.

Table 19. Significant simple effects of the study variables on RTBS dimensions

	Dependent variables					
	SA		SP		RV	
Models	*B*	*SE*	*B*	*SE*	*B*	*SE*
1.COMxPPxEAD						
COM (b_1)						
PP (b_2)						
EAD (b_3)						
Age (C_1)						
Gender (C_2)			-.47***	.13	-.17*	.10
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.10**	.04			.09**	.04
2.MODxPPxEAD						
MOD (b_1)	-2.34**	1.05			-2.24**	.10
PP (b_2)						
EAD (b_3)	-1.82*	.96			-1.91**	.91
Age (C_1)						
Gender (C_2)	-.19*	.10	-.50***	.13	-.19**	.10
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.08*	.04			.07*	.04
3.MONxPPxEAD						
MON (b_1)						
PP (b_2)						
EAD (b_3)						
Age (C_1)						
Gender (C_2)	-.19*	.10	-.44**	.14	-.18*	.10
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.12**	.05			.10**	.04
4.FBxPPxEAD						
FB (b_1)					-1.25*	.75
PP (b_2)						
EAD (b_3)						
Age (C_1)						
Gender (C_2)			-.38**	.14		
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.11**	.05			.09**	.04
5.COMxPPxFUN						
COM (b_1)						
PP (b_2)						
FUN (b_3)						
Age (C_1)						
Gender (C_2)			-.47***	.13	-.17*	.10
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.12**	.04			.09**	.04
6.MODxPPxFUN						
MOD (b_1)						
PP (b_2)						
FUN (b_3)						
Age (C_1)						
Gender (C_2)	-.20*	.10	-.51***	.13	-.21**	.10
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.09**	.04				

Table 19 (continued)

	Dependent Variables					
	SA		SP		RV	
Models	*B*	*SE*	*B*	*SE*	*B*	*SE*
7.MONxPPxFUN						
MON (b_1)	.70*	.40				
PP (b_2)	.74*	.42			.81**	.40
FUN (b_3)						
Age (C_1)						
Gender (C_2)	-.20*	.11	-.46***	.14	-.20**	.10
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.11**	.05				
8.FBxPPxFUN						
FB (b_1)						
PP (b_2)					1.03*	.55
FUN (b_3)						
Age (C_1)						
Gender (C_2)			-.39**	.14		
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.11**	.05			.09**	.04
9.COMxPPxIR						
COM (b_1)	-3.00**	1.37	-3.28*	1.73		
PP (b_2)	-3.29**	1.57	-3.82*	1.98		
IR (b_3)	-2.72**	1.32	-2.86*	1.67		
Age (C_1)						
Gender (C_2)			-.50***	.13	-.16*	.10
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.09**	.04	.10*	.06	.08*	.04
10.MODxPPxIR						
MOD (b_1)	-2.84**	1.10	-2.38*	1.43	-3.22**	1.02
PP (b_2)	-3.04**	1.28			-3.96***	1.19
IR (b_3)	-2.45**	1.02			-2.93**	.95
Age (C_1)						
Gender (C_2)	-.19*	.10	-.52***	.13	-.18*	.10
Lifetime mileage (C_3)						
Frequency of driving (C_4)						
11.MONxPPxIR						
MON (b_1)	-1.08*	.65				
PP (b_2)						
IR (b_3)	-1.05**	.52				
Age (C_1)						
Gender (C_2)			-.45***	.13		
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.10**	.05				

Table 19 (continued)

	Dependent Variables					
	SA		SP		RV	
	B	*SE*	*B*	*SE*	*B*	*SE*
12.FBxPPxIR						
FB (b_1)						
PP (b_2)						
IR (b_3)						
Age (C_1)						
Gender (C_2)			-.38**	.14		
Lifetime mileage (C_3)						
Frequency of driving (C_4)	.09**	.05				

Note. COM = Communication, MOD = Modeling, MON = Monitoring, FB = Feedback, PP = Peer pressure, EAD = External affective demands, FUN = Functionality, IR = Internal requirements, SA = Self-assertiveness, SP = Speeding, RV = Rule violations. C_1, C_2, C_3, and C_4 are the covariate variables. *p < .10, **p < .05, ***p < .001

3.5.11.Significant interaction effects of the study variables for the sample whose only fathers drive

According to the results of the moderated moderation analyses, it was found that the regression coefficient for MONxPPxFUN was statistically significant (b_7 = .067, t(220) = 1.685, p = .094) and there was a three-way interaction between monitoring, peer pressure, and functionality. It means that the magnitude of moderation by peer pressure of the effect of monitoring on self-assertiveness depended on functionality (see Figure 33). Furhermore, there was a two-way interaction between monitoring and peer pressure (b_4 = -.253, t(220) = -1.839, p = .067). There was a moderating role of peer pressure on the relationship between monitoring and self-assertiveness.

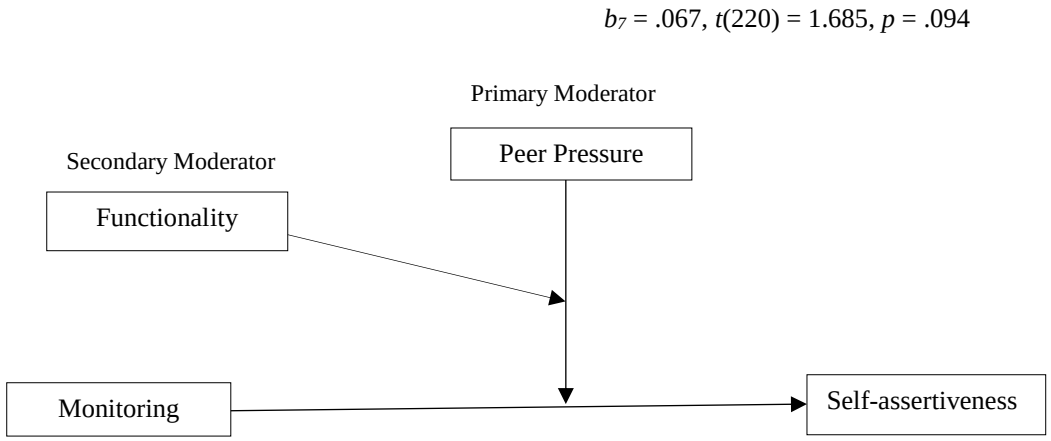

Figure 33. Significant three-way interaction diagram of a moderated moderation model (MONxPPxFUN on SA)

It was found that the regression coefficient for COMxPPxIR was statistically significant (b_7 = -.193, t(220) = -2.068, p = .040). There was a three-way interaction between communication, peer pressure, and internal requirements. The meaning of this three-way interaction was that the magnitude of moderation by peer pressure of the effect of communication on self-assertiveness depended on internal requirements (see Figure 34). Moreover, a two-way interaction between communication and peer pressure (b_4 = .855, t(220) = 2.168, p = .031), communication and internal requirements (b_5 = .620, t(220) = 1.896, p = .059), and peer pressure and internal requirements (b_6 = .811, t(220) = 2.167, p = .031) were statistically significant. That was, there was a moderating role of peer pressure on the relationship between communication and self-assertiveness, there was a moderating role of internal requirements on the relationship between communication and self-assertiveness, and internal requirements had a moderating role on the relationship between peer pressure and self-assertiveness.

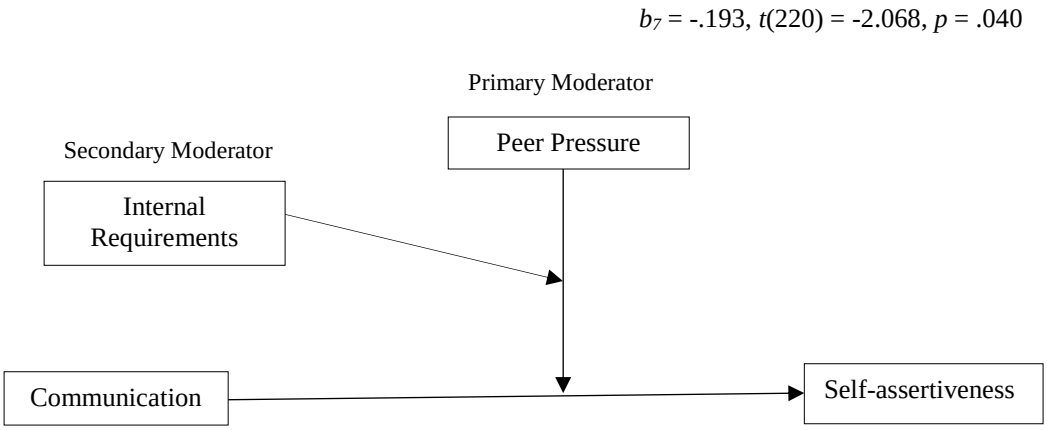

Figure 34. Significant three-way interaction diagram of a moderated moderation model (COMxPPxIR on SA)

According to the results of moderated moderation analyses, the regression coefficient for MODxPPxIR was statistically significant (b_7 = -.164, t(220) = -2.261, p = .025). Thus, there was a three way-interaction between modeling, peer pressure, and internal requirements. That was, the magnitude of moderation by peer pressure of the effect of modeling on self-assertiveness depended on internal requirements (see Figure 35). In addition, a two-way interaction between modeling and peer pressure (b_4 = .765, t(220) = 2.398, p = .017), modeling and internal requirements (b_5 = .545, t(220) = 2.160, p = .032), and peer and internal requirements (b_6 = .702, t(220) = 2.435, p = .016) were statistically significant. There was a moderating role of peer pressure on the relationship between modeling and self-assertiveness; there was a moderating role role of internal requirements on the relationship between modeling and self-assertiveness; and there was a moderating role of internal requirements on the relationship between peer pressure and self-assertiveness.

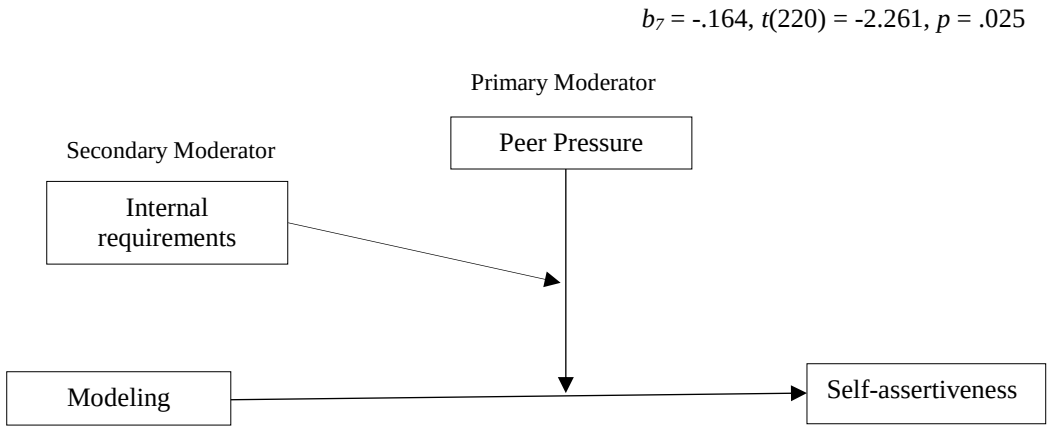

Figure 35. Significant three-way interaction diagram of a moderated moderation model (MODxPPxIR on SA)

The results indicated the regression coefficient for MONxPPxIR was statistically significant, (b_7 = -.109, t(220) = -2.318, p = .021) and there was a three-way interaction between monitoring, peer pressure, and internal requirements. It means that the magnitude of moderation by peer pressure of the effect of monitoring on self-assertiveness depended on internal requirements (see Figure 36). Furthermore, there was a two-way interaction between montoring and peer pressure (b_4 = .470, t(220) = 2.238, p = .026), and monitoring and internal requirements (b_5 = .265, t(220) = 1.770, p = .078), and peer pressure and internal requirements (b_6 = .344, t(220) = 2.218, p = .028). That was, peer pressure had a moderating role on the relationship between monitoring and self-assertiveness, internal requirements had a moderating role on the relationship between monitoring and self-assertiveness, and internal requirements had a moderating role on the relationship between peer pressure and self-assertiveness.

b_7 = -.109, t(220) = -2.318, p = .021

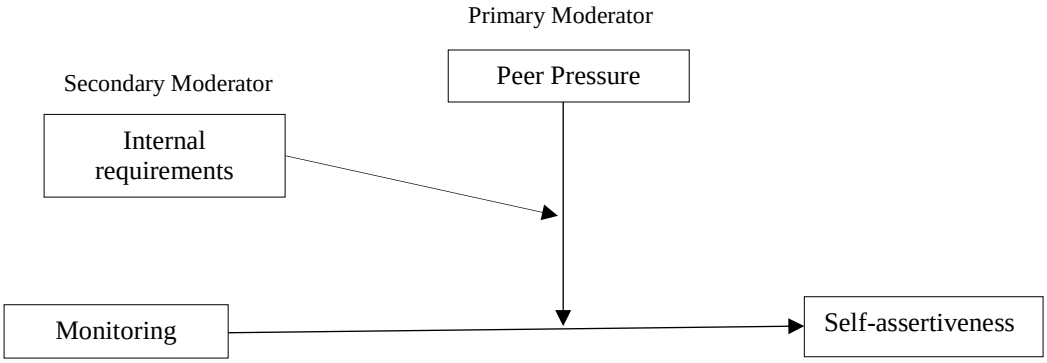

Figure 36. Significant three-way interaction diagram of a moderated moderation model (MONxPPxIR on SA)

According to the results of moderated moderation analyses, it was found that the regression coefficient for COMxPPxIR was statistically significant, (b_7 = -.268, t(220) = -2.252, p = .025) and there was a three-way interaction between communication, peer pressure, and internal requirements. It means that the magnitude of moderation by peer pressure of the effect of communication on speeding depended on internal requirements (see Figure 37). Furthermore, there was a two-way interaction between communication and peer pressure (b_4 = 1.095, t(220) = 2.203, p = .029), and communication and internal requirements (b_5 = .722, t(220) = 1.753, p = .081), and peer pressure and internal requirements (b_6 = 1.039, t(220) = 2.204, p = .029). That was, peer pressure had a moderating role on the relationship between communication and speeding, internal requirements had a moderating role on the relationship between communication and speeding, and internal requirements had a moderating role on the relationship between peer pressure and speeding.

b_7 = -.268, t(220) = -2.252, p = .025

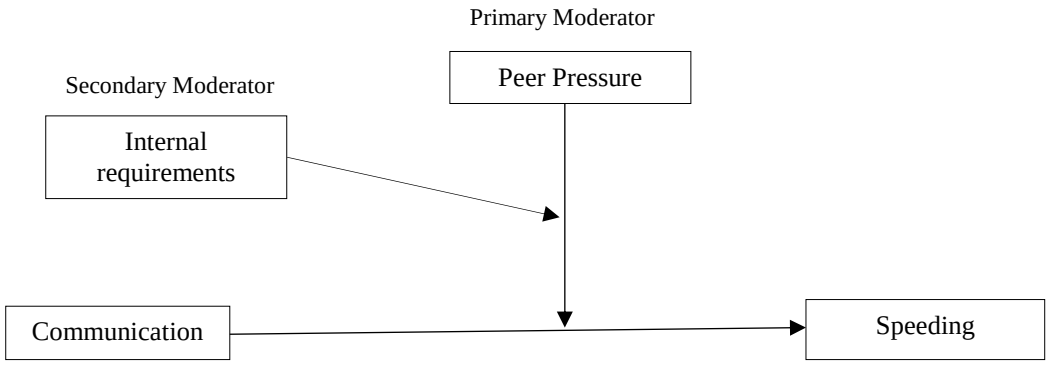

Figure 37. Significant three-way interaction diagram of a moderated moderation model (COMxPPxIR on SP)

Finally, it was found that the regression coefficient for MODxPPxIR was statistically significant, (b_7 = -.229, t(220) = -3.408, p < .001) and there was a three-way interaction between modeling, peer pressure, and internal requirements. It means that the magnitude of moderation by peer pressure of the effect of modeling on rule violations depended on internal requirements (see Figure 38). Furthermore, there was a two-way interaction between modeling and peer pressure (b_4 = 1.026, t(220) = 3.465, p < .001), and modeling and internal requirements (b_5 = .660, t(220) = .234, p = .005), and peer pressure and internal requirements (b_6 = .964, t(220) = 3.603, p < .001). That was, peer pressure had a moderating role on the relationship between modeling and rule violations, internal requirements had a moderating role on the relationship between modeling and rule violations, and internal requirements had a moderating role on the relationship between peer pressure and rule violations.

b_7 = -.229, t(220) = -3.408, p < .001

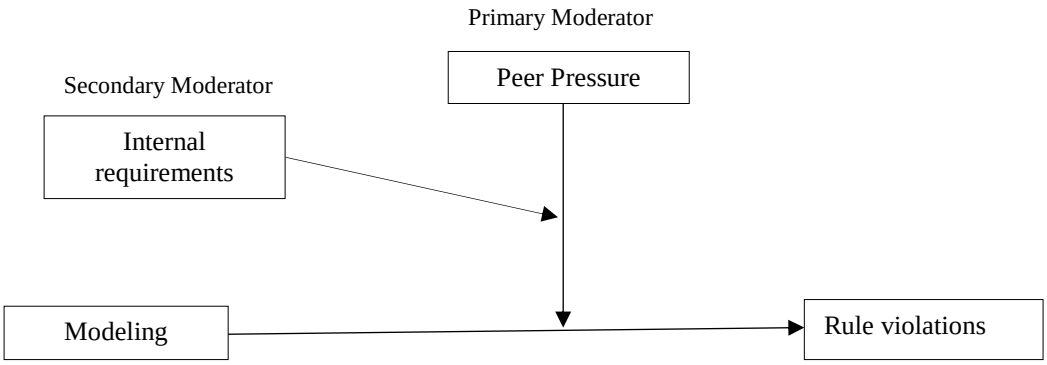

Figure 38. Significant three-way interaction diagram of a moderated moderation model (MODxPPxIR on RV)

3.5.12.The results of the Pick-a-Point Approach and the Johnson-Neyman region of significance analyses for the sample whose only fathers drive

The results of the pick-a-point approach indicated that among those "relatively low" in functionality scores [W = 2.359, $\theta_{(XM\rightarrow Y)}$ = .197, t(220), p = .093], peer pressure moderated the effect of monitoring on self-assertiveness (see Figure 39). That is, young drivers reported that they showed more self-assertive behaviors when they felt less monitoring from their fathers, felt more peer pressure, and percevied traffic environment as relatively low functional. The result of the JN region of signifcance analyses indicated that there no statistical significant transition points of functionality; however, the moderation of the effect of monitoring on self-assertiveness by peer pressure to depend on functionality (see Figure 40).

The results of the pick-a-point approach indicated that among those "relatively low" in internal requirements scores [W = 3.469, $\theta_{(XM\rightarrow Y)}$ = .186, t(220), p = .076], peer pressure moderated the effect of communication on self-assertiveness (see Figure 41). That is, young drivers reported that they showed less self-assertive behaviors when they felt more communication with their fathers, felt less peer pressure, and percevied traffic environment as relatively low internally required. According to the results of

the JN region of significance analysis, it was found that there was an interaction between communication and peer pressure between statistically significant or nonsignificant at the standardized scores of internal requirements = 3.191. Below the score 3.191 of internal requirements, there was a two-way interaction between communication and peer pressure (see Figure 42).

The results of the pick-a-point approach indicated that among those "relatively low" in internal requirements scores [W = 3.469, $\theta_{(XM \rightarrow Y)}$ = .197, t(220), p = .029], peer pressure moderated the effect of modeling on self-assertiveness (see Figure 43). That is, young drivers reported that they showed less self-assertive behaviors when they felt more modeling of their fathers, felt less peer pressure, and percevied traffic environment as relatively low internally required. Furthermore, it was foud that there was an interaction between modeling and peer pressure between statistically significant or nonsignificant at the standardized scores of internal requirements = 3.729. Below the score 3.729 of internal requirements, there was a two-way interaction between modeling and peer pressure (see Figure 44).

The results of the pick-a-point approach indicated that among those "relatively high" in internal requirements scores [W = 5.246, $\theta_{(XM \rightarrow Y)}$ = -.104, t(220), p = .082], peer pressure moderated the effect of monitoring on self-assertiveness (see Figure 45). That is, young drivers reported that they showed less self-assertive behaviors when they felt more monitoring from their fathers, felt more peer pressure, and percevied traffic environment as relatively high internally required. Moreover, there no statistical significant transition points of internal requirements; however, the moderation of the effect of monitoring on self-assertiveness by peer pressure to depend on internal requirements (see Figure 46).

The results of the pick-a-point approach indicated that among those "relatively high" in internal requirements scores [W = 5.246, $\theta_{(XM \rightarrow Y)}$ = -.293, t(220), p = .083], peer pressure moderated the effect of communication on speeding (see Figure 47). That is, young drivers reported that they showed less speeding behavior when they felt more communication with their fathers, felt less peer pressure, and percevied traffic environment as relatively high internally required. It was found that there was an interaction between communication and peer pressure between statistically significant

or nonsignificant at the standardized scores of internal requirements ≤ 2.516 and ≥ 5.791. Below the score 2.516 and above the score 5.791 of internal requirements, there was a two-way interaction between communication and peer pressure (see Figure 48).

Finally, the results of the pick-a-point approach indicated that among those "relatively low" in internal requirements scores [W = 3.469, $\theta_{(XM \rightarrow Y)}$ = .232, t(220), p = .006] and "relatively high" in internal requirements scores [W = 5.246, $\theta_{(XM \rightarrow Y)}$ = -.174, t(220), p = .048], peer pressure moderated the effect of modeling on rule violations (see Figure 49). That is, young drivers reported that they showed less rule violations when they felt more modeling from their fathers, felt less peer pressure, and percevied traffic environment as relatively low internally required. Furthermore, young drivers reported that they showed less rule violations when they felt more modeling from their fathers, felt less peer pressure, and percevied traffic environment as relatively high internally required. It was found that there was an interaction between modeling and peer pressure between statistically significant or nonsignificant at the standardized scores of internal requirements ≤ 3.903 and ≥ 5.235. Below the score 2.903 and above the score 5.235 of internal requirements, there was a two-way interaction between modeling and peer pressure (see Figure 50).

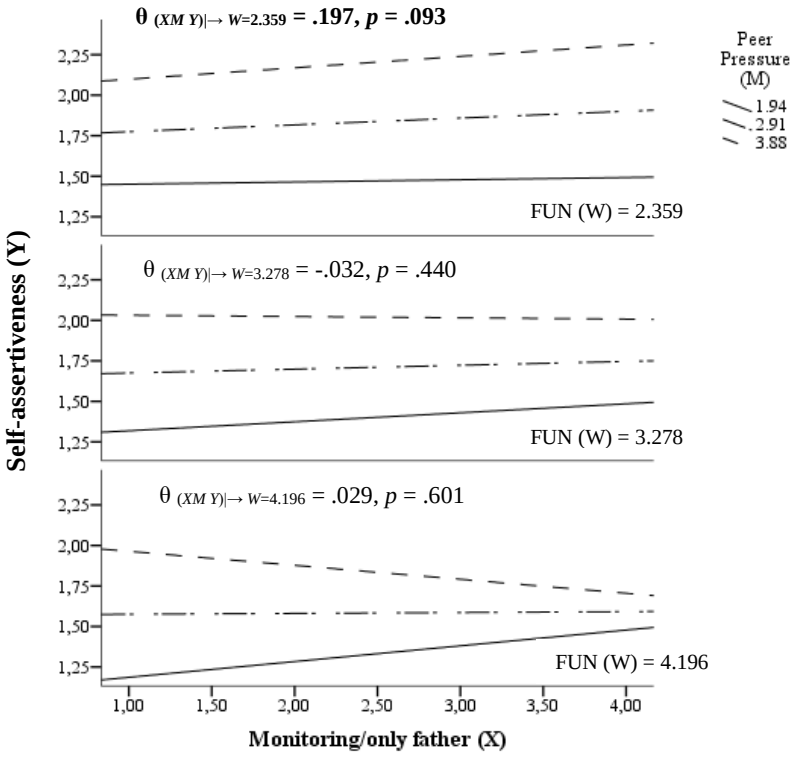

Figure 39. The conditional effect of monitoring on self-assertiveness as a function of peer pressure and functionality.

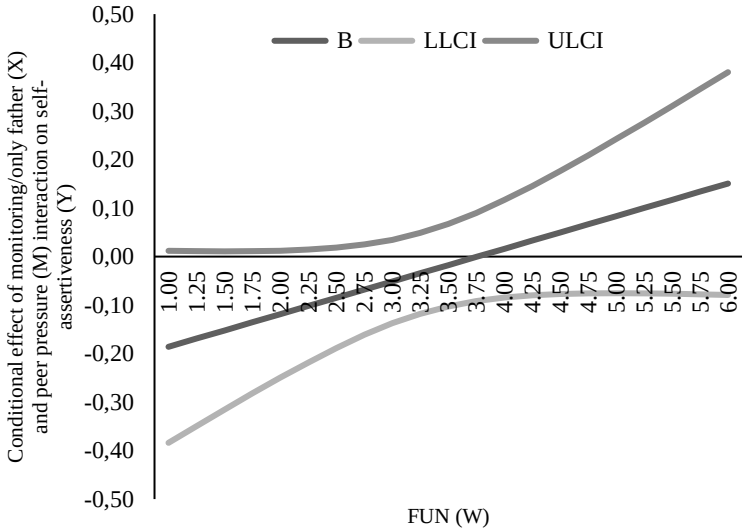

Figure 40. The conditional effect of monitoring on self-assertiveness as a function of peer pressure and functionality. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

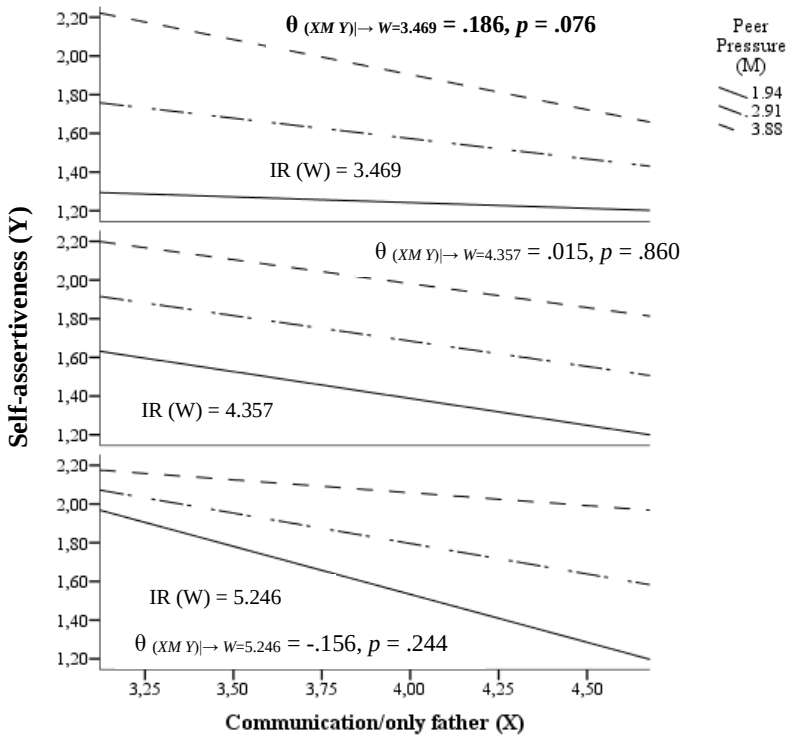

Figure 41. The conditional effect of communication on self-assertiveness as a function of peer pressure and internal requirements.

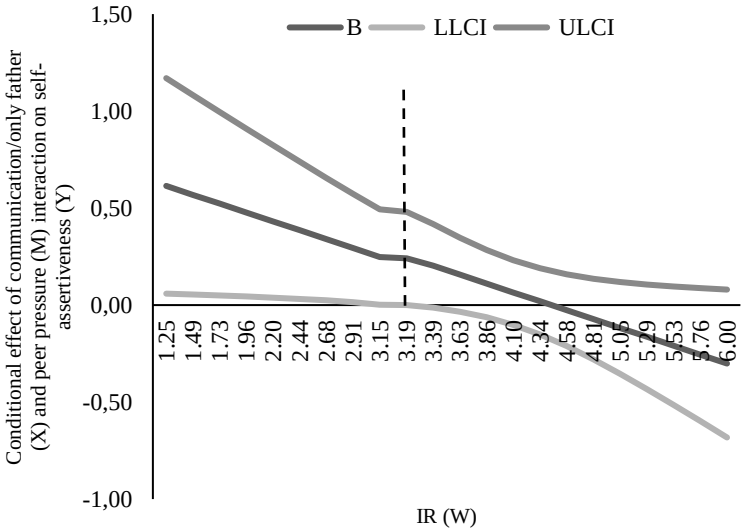

Figure 42. The conditional effect of communication on self-assertiveness as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

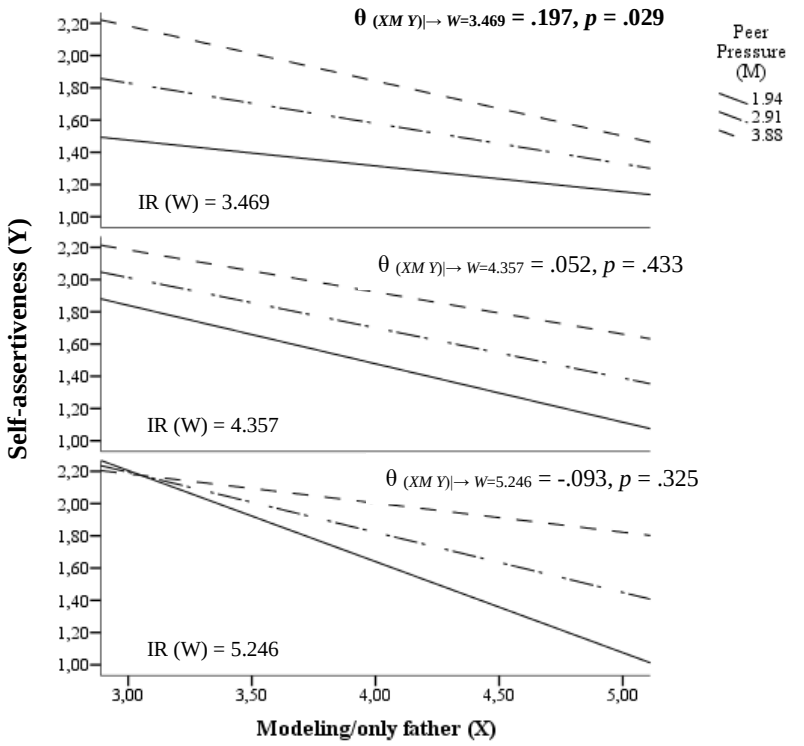

Figure 43. The conditional effect of modeling on self-assertiveness as a function of peer pressure and internal requirements.

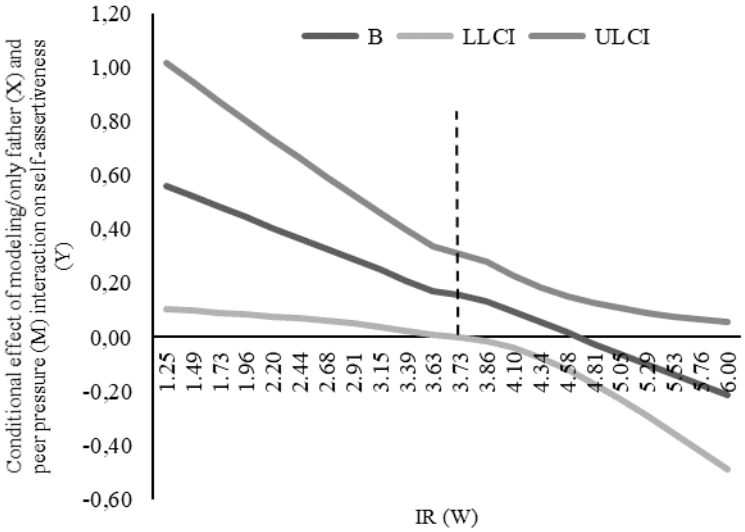

Figure 44. The conditional effect of modeling on self-assertiveness as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

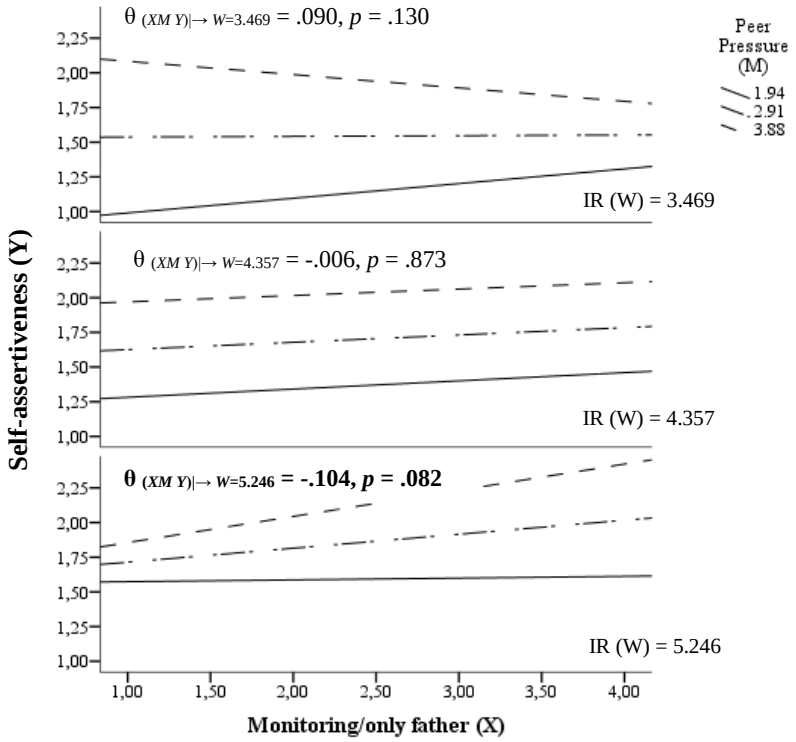

Figure 45. The conditional effect of monitoring on self-assertiveness as a function of peer pressure and internal requirements.

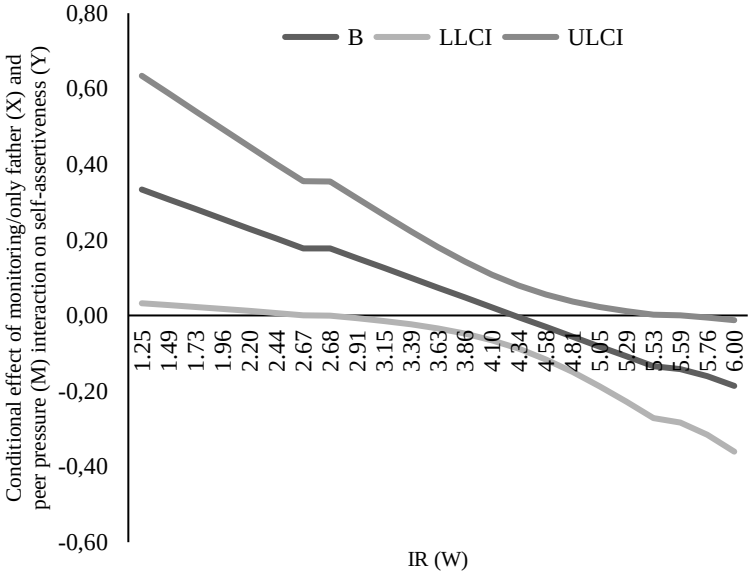

Figure 46. The conditional effect of monitoring on self-assertiveness as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

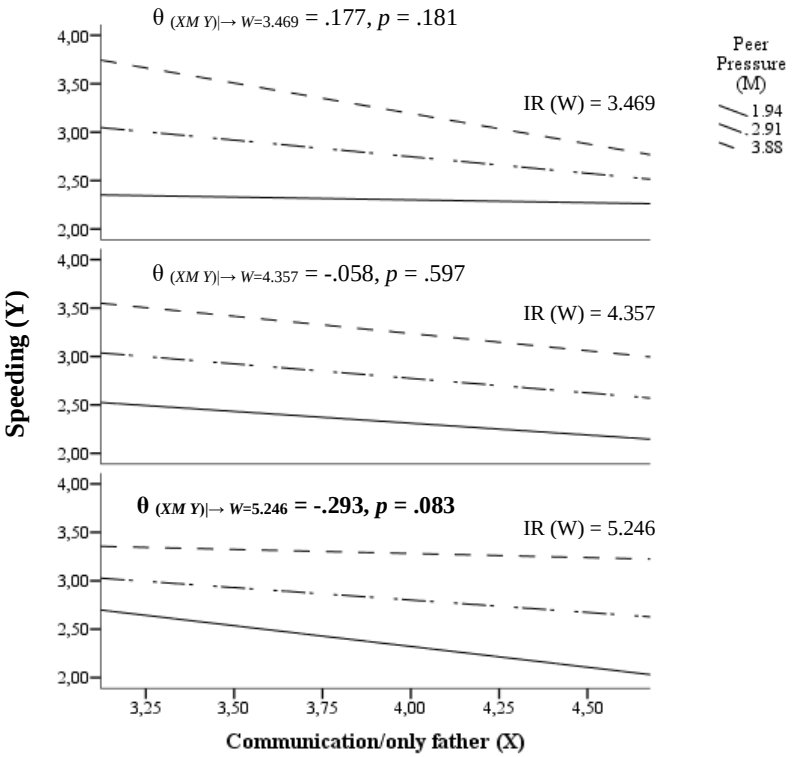

Figure 47. The conditional effect of communication on speeding as a function of peer pressure and internal requirements.

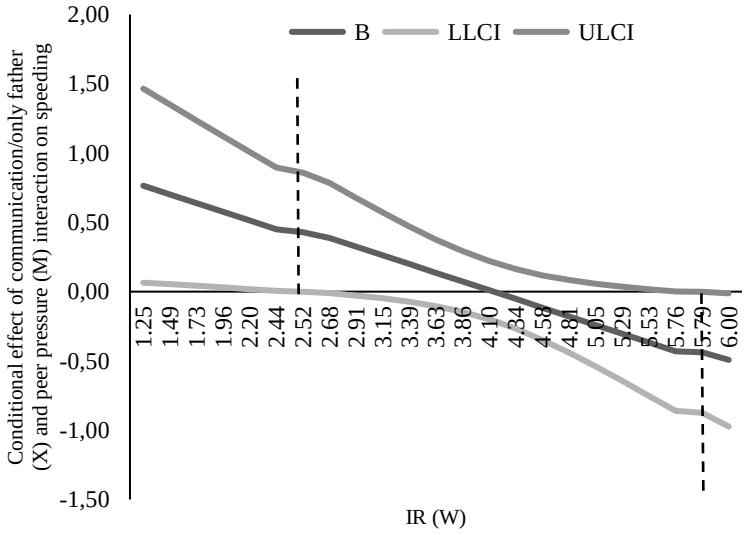

Figure 48. The conditional effect of communication on speeding as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

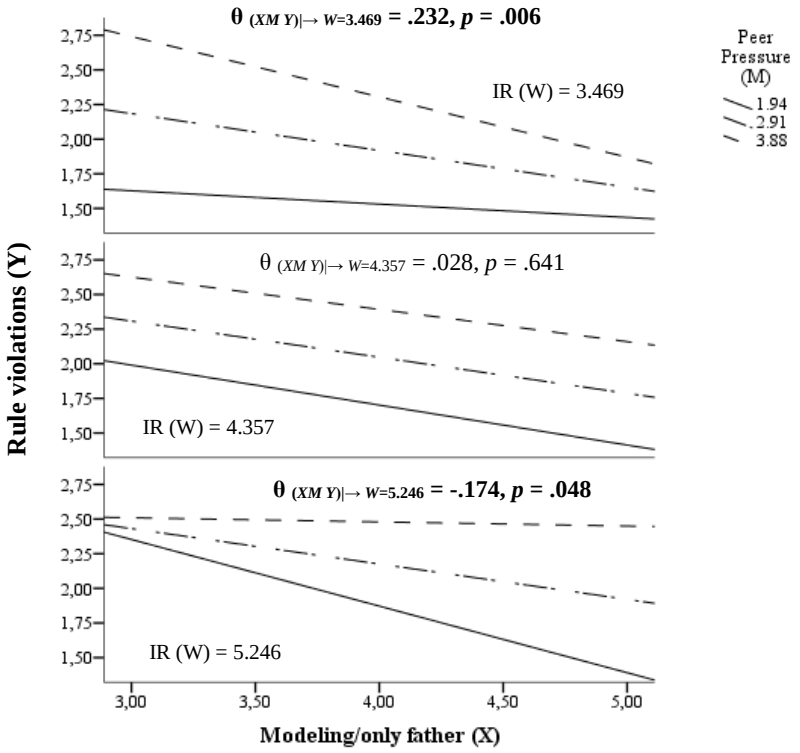

Figure 49. The conditional effect of modeling on rule violations as a function of peer pressure and internal requirements.

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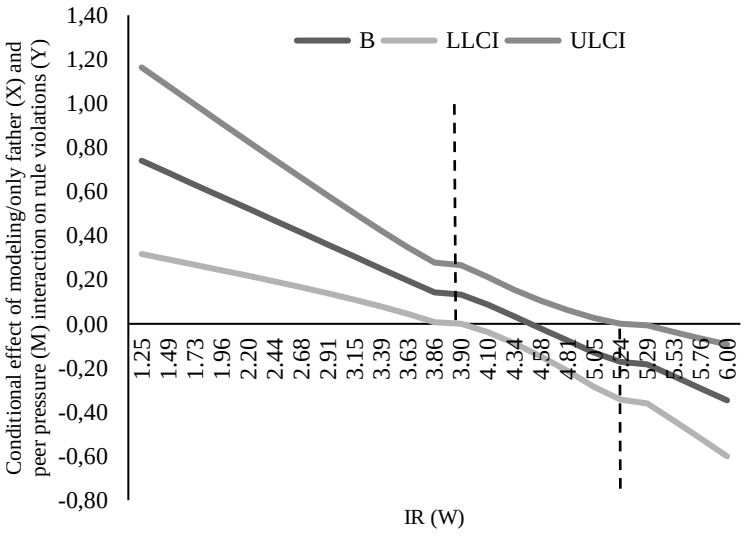

Figure 50. The conditional effect of modeling on rule violations as a function of peer pressure and internal requirements. Johnson-Neyman plot of the region of significance. B is beta coefficients. LLCI is low levels of the confidence interval and ULCI is upper levels of of the confidence interval.

CHAPTER 4

DISCUSSION

In the present study, the first aim of the present study was to translate Family Climate for Road Safety Scale, Peer Pressure Scale, and Risk-Taking Behavioral Scales into Turkish and to examine their factor structures. Seconly, investigating effect of family climate (i.e., communication, noncommitment, monitoring, and feedback for mothers and fathers; communication, modeling, monitoring, and feedback for only fathers) peer pressure, and traffic climate (i.e., external affective demands, functionality, internal requirements) on risky-taking behaviors of young drivers was another aim of the present study for whose mothers drive, fathers drive, and only fathers drive in the family. Carlson and Klein (1970) argued that familial socialization had more influence on driving behaviors than other social institutions. Therefore, family climate was put at Level 1 in interpersonal factors and peer pressure has place at Level 2. In a broader sense, traffic climate took place in cultural factors.The main aim of the present study was to investigating the moderating roles of peer pressure (primary moderator) and traffic climate (secondary moderator) on the relationship between family climate for road safety (for mothers and fathers, and only fathers) and risk-taking behaviors of young drivers in the scope of socio-ecological perspective.

In this chapter, the findings of the present study were discussed in the light of relevant literature. The findings were summarized and discussed for descriptive statistics, factor analyses of the FCRSS for mothers, fathers, and only fathers, the PPS, the TCS and the RTBS, correlation analyses, regression analyses, and moderated moderation analyses, respectively. Then limitations of the study and suggestions for future studies were discussed. Finally, suggestions for implications were presented.

4.1.Descriptive Statistics

In the present study, 328 participants responded the question "Who taught you to drive first?". 45.7% of the participants reported that they learned to drive from their fathers, 4% of the participants learned how to drive from their mothers, and 2.1% of them learned to drive from their friends. This finding indicated that the percentage of father was very high. In Turkey, there was 28 181 830 registered drivers in 2017 and 74.9% of them were male drivers and 25.1% of them female drivers according to Traffic Department of General Directorate of Public Security. Therefore, differences in the number of male and female drivers might be related to high percentage of learning to drive first from fathers.

Secondly, participants were asked about their accident history for the last 3 years including both active and passive ones and traffic fines (e.g., wrong parking, incorrect overtaking, speed violation, and others) with the accident history for both their mothers and fathers, and only their fathers as well. Participants reported that they had traffic fines due to speed violations mostly. Similarly, they reported that both their mothers and fathers had traffic fines because of speed violations compared to other fines. Similarly, participants whose only fathers drive reported that both their fathers and themselves had traffic fines due to speed violations more than other fines. According to enforcement statistics of Traffic Department of General Directorate of Public Security, 604.236 drivers had traffic fines because of exceeding the speed limit in 2018 and this number was the highest one compared to other fines. Therefore, the results showed parallelism with the statistics of having traffic fines due to exceed the speed limits in general.

4.2.Principle Component Analyses

4.2.1.Family Climate for Road Safety Scale for Mothers, Fathers and Only Fathers

The PCA was conducted for factor structure of the FCRSS for mother, father, and only father drivers. The original scale consisted of 54 items with seven dimensions namely modeling, feedback, communication, monitoring, noncommitment, messages, and limits. The results of the PCA indicated that the FCRSS for mothers consisted of 41 items with four factors namely communication, noncommitment, monitoring, and feedback. Communication dimension was related to how mothers communicate to

their children with regard to potential hazards on the road and discussing relevant issues about driving. Noncommitment dimension was associated with not investing enough time for children with regard to safe driving. Monitoring dimension was related to monitoring and controlling driving habits of their children. Finally, feedback dimension was associated with providing positive feedback related to safe driving. Although there were item differences, the FCRSS for fathers consisted of 41 items with same dimensions. The PCA results of the FCRSS for only fathers included 43 items with four factors named communication, modeling, monitoring, and feedback. It should be pointed out that although three factors (i.e., communication, monitoring, and feedback) were named samely for mothers, fathers, and only fathers, noncommitment dimension was the part of the FCRSS for mothers and fathers, modeling dimension was the part of the FCRSS for only fathers. In the study, most of the participants reported that they learned to drive from their fathers. Bandura (1971) claimed that behivor is "the product of direct experience" according to traditional theories of learning. On othe other hand, Bandura (1971) stated that observing other people's behaviors and ist consequences was the basis of learning a behavior. When fathers are the only driver parent in the family, young drivers might choose their fathers as models in terms of safety in traffic context.

4.2.2.Peer Pressure Scale

The PCA was conducted for factor structure of the PPS. The original scale consisted of 6 items. However, 4 items were used in the present study according to the results of the PCA. It should be emphasized that the item "My friends drive faster than the speed limit on the regular basis" since this item had the highest communality value. Several studies indicated that one of the most frequent traffic violations is speeding (Delhomme, 2002; Delhomme & Cauzard, 2000; Hassan & Abdel-Aty, 2013; Özkan, Lajunen, Chliaoutakis, Parker, & Summala, 2006; Peden et al., 2004). Black (1978) stated that young drivers have a tendency to violate traffic regulations such as not obeying speed limitations when their peers accompany them. According to Gormley and Fuller (2008), speeding was related to peer pressure in terms of 'to get an adrenaline rush' and to make a show. Furhermore, parallel with the results of the descriptive statistics related to traffic fines of exceeding speed limits, speeding could be one of the important problems between young drivers when evaluating their peers.

4.2.3.Traffic Climate Scale

The results of the PCA indicated that the TCS had a clear three-factor structure parallel with previous studies (Chu et al., 2019, Gehlert et al., 2014, Özkan & Lajunen, unpublished). The original scale consisted of 44 items with three factors named as external affective demands, functionality, and internal requirements in the previous studies. In the current study, the scale included 42 items and names of the three factors were used as the same. External affective demands dimension was related to requirements of emotional engagement for all road users. Functionality dimension consisted of items related to safety and mobility characteristics, and requirements for a functional traffic system. Finally, internal requirements dimension included required skilld and abilities of road users in traffic environment (Gehlert et al., 2014)

It should be noted that although the factor structure of the TCS was similar to previous studies for external affective demands and functionality. On the other hand, internal requirements dimension included 4 items namely *dynamic*, *exciting*, *fast*, and *mobile*. Sensation seeking, inexperiency, and being reckless was the most related factors affected the perfomance of young drivers' driving behaviors (Clarke et al., 2005; Cestacet al., 2011). Furthermore, young drivers were overrespresented in traffic accidents due to several variables like lack of experience, inattention, poor risk/hazard perception, thrill-seeking, sensation seeking, and risky driving behaviors (Jonah, 1986; Williams, 1998; Begg & Langley, 2001). Thus, these variables might be related to evaluate traffic climate as dynamic, exciting, fast, and mobile with regard to internal requirements dimension.

4.2.4.Risk-Taking Behavioral Scales

The original scale consisted of 15 items with three dimensions named as self-assertiveness, speeding, and rule violations. The results of the PCA indicated that the RTBS consisted of 12 items with three factors; self-assertiveness, speeding, and rule violations. As it was mentioned before, self-assertiveness was associated with expression of opinions, needs, and importance in driving context. Speeding was related to speeding behaviors in traffic. Rule violations included behaviors related to violate traffic rules. In the original scale speeding factor consisted of 6 items. On the other hand, speeding factor included 3 items in the current study. "Drive too close to the car

in front", "Bend the traffic rules in order to get ahead in traffic", and "Ignore traffic rules in order to ahead in traffic" were under the factor rule violations. It could be pointed out that among young Turkihs drivers, speeding was only related to exceed the speed limits. On the other hand, these three items showed that speeding behavior was shown in order to *get ahead* in traffic by violating or ignoring the traffic rules. In other words, young Turkish drivers percevided violating or ignoring the traffic rules via speeding in association with rule violations.

4.3.Correlations between Study Variables

A Pearson product-moment correlation coefficient was computed to assess the relationship between the study variables, namely age, gender, lifetime mileage, frequency of driving, communication, noncommitment, monitoring, feedback (for mother and father), modeling (only father), peer pressure, external affective demands, functionality, internal requirements, self-assertiveness, speeding, and rule violations.

Firstly, the correlation between demographic characteristics of the participant and study variables were investigated. Age was significantly and positive correlated with lifetime mileage and frequency of driving; and sigificantly negatively correlated with monitoring (mother), monitoring (father), communication (only father), monitoring (only father), functionality, self-assertiveness, and rule violations. Jonah (1986) claimed that it had a meaning to express independence and defying authority between younger drivers. On the other hand, they might need to be monitored less by their parents with the effect of getting older and gaining experience in traffic. Moreover, significantly negatively correlations between age and functionality should be emphasized. Functionality dimension included several adjectives like "safe", "egalitarian", "harminous", and "functional". When drivers are getting older they might have another perspective about the functionality of the traffic system in their country. From another perspective, Zihni-Üzümcüoğlu (2018) stated that items related to governance quality such as "under enfocement" and "deterring rules" might be related to negative attitudes towards governence quality and young drivers might evaluated traffic system as less functional when they become older. Finally, participants might show less assertive behaviors and rule violations depending on their

age. Younger drivers had a tendency to violate the traffic rules more than other groups (McGwinand Brown, 1999).

Secondly, being female or male was related to communication, monitoring, and feedback dimensions of the FCRSS for mother, monitoring dimension of the FCRSS for father, monitoring and feedback dimensions of the FCRSS for only father, functionality, and rule violations. On the other hand, there was a negative correlation between gender and lifetime mileage. Prato, Lotan, and Toledo (2009) found that there was a significant correlation between young male driver behaviors and their mothers and fathers' driving behavior. Moreover, young female drivers showed similar driving behavior with their mothers. Alver, Demirel and Mutlu (2014) stated that female drivers evaluted risky behaviors as more dangerous than male drivers and also female drivers thought the dangerours behaviors should be punished more heavily. On the other hand male drivers had more tendency to ignore traffic rules and safety regulations; they tended to underestimate situations in traffic and exceed the speed limits. Therefore, young male drivers involved in accidents related to motivational factors compared to young female drivers (Møller & Haustein, 2014; Özkan & Lajunen, 2006). When considering negative relationship between gender and lifetime mileage, it could be pointed out that male drivers had more miles on the road compared to female drivers (Stradling & Parker, 1996).

Finally, lifetime milegae had a positive correlation with frequency of driving and negative correlation with monitoring (mother), monitoring (father), communication (only father), functionality, and self-assertiveness. Lajunen and Summala (1995) stated that there was an association between driving experience and confiding in driving skills but negatively associated with concerning of safety. Therefore, when drivers have more experience in traffic they might feel more skilled in terms of driving and less concern of safety.Driving frequency had a negative relation with monitoring (mother), monitoring (father), feedback (father), monitring (only father), communication (only father), functionality, internal requirements, and rule violations.

Communication (mother) was significantly positively related to peer pressure, external affective demands, functionality, internal requirements, self-assertiveness, speeding, and rule violations. Several factors were associated with the risky driving behavior of

young drivers such as characteristics of the young drivers including anxiety and depression (Scott-Parker et al.,2011a, 2012a) or age and gender (Romano et al., 2008), and sensation seeking propensity (Jonah, 1997). Hence, young drivers' reactions to their mothers' communication attempts in terms of safety might be related to risky driving behaviors. Feedback (mother) was significantly positively related to functionality and internal requirements. In the study of Farah et al. (2014), parents indicated that they need to guide about how to motivate the young driver to use the feedback effectively and how to avoid conflicts with them when giving feedback. In this situation, parents who seeks to give an effective feedback to their children in terms of safe driving, functionality of the traffic climate in the country and required skills in the traffic environment.

Communication (father) was significantly negatively related to speeding and rule violations. As it was mentioned before, Bandura (1971) stated that observing other people's behaviors and ist consequences was the basis of learning a behavior. When fathers are the only driver parent in the family, young drivers might choose their fathers as models in terms of safety in traffic context. When a father's driving behaviors was based on concerning safety, it can be related to less speeding and rule violations.

When the relationship between the dimensions of the FCRSS and the TCS, positive correlations were found in general. On the other hand, there was a negative correlation between noncommitment (mother) and external affective demands. Noncommitment was related to not investing enough time for safe driving. External affective demands dimension of the TCS was related to emotional commitment in traffic environment. When young drivers percevied that their mothers had less commitment in safe driving, they might perceive traffic environment more dangerous and attribute negative meanings to traffic environment. Communication, monitoring, and feedback dimension of the FCRSS was related to safety in traffic context. Therefore, these dimensions for father and only father were negatively associated with peer pressure and risk-taking behaviors as it was expected. On the other hand, there was a positive correlation between the FCRSS dimensions for mothers and peer pressure and as well as risk-taking behaviors. Most participants reported that they learned to drive from

their fathers. Hence, driving experiences of their fathers might be more important for them while learning to drive.

Peer pressure was significantly and positively related to external affective demands, internal requirements, self-assertiveness, speeding, and rule violations. On the other hand, peer pressure was significantly negatively associated with functionality. The PPS was related to explicit and implicit influence of peer in terms of risky driving behaviors. When the items related to external affective demands dimension was considered, many situations were associted with risky and dangerous adjectives. Hence peer pressure might be related to percevie emtional commitments in traffic system as risky. Furthermore, as it was mentioned before, internal requirements dimension items were *dynamic*, *exiciting*, *fast*, and *mobile.* These items might be related to risky driving among young drivers. Functionality dimension of the TCS was related to enforcement and traffic rules, mostly. Therefore, higher scores of peer pressure might be related to perceiving traffic system as less functional. Finally, external affective demands was significantly positively related to internal requirements, and significantly negatively correlated to functionality and self-assertiveness. Previous findings in the literature indicated that (Chu et al., 2019; Gehlert et al., 2014) both external affective demands and functionality have positive association with undesired traffic related outcomes, such as violations, errors, and accidents. On the other hand, functionality was significantly negatively related to speeding in the current study. Üzümcüoğlu-Zihni (2018) found that functionality was negatively associated with violations in Turkey. Young drivers might give imprtance to obey traffic rules and show less speeding since functionality dimension consists of items like "under enforcement" which are related to governance quality. Therefore, perceiving traffic environment as more functional might be related to decrease in violations in Turkey (Üzümcüoğlu-Zihni, 2018).

4.4.Hierarchical Regression Analyses

In order to examine the effect of four dimensions (i.e., communication, noncommitment, monitoring, and feedback) of the FCRSS for mother, for father and only father (i.e., communication, modeling, monitoring, and feedback), of the PPS and three dimensions of the TCS (i.e., external affective demands, functionality, and

internal requirements) on the RTBS dimensions (i.e., self-assertiveness, speeding, and rule violations), a series of hierarchical regression analyses was conducted. For the sample whose mothers drive, as it was expected, in the first hierarchical regression analysis, noncommitment was significantly positively related to self-assertiveness. Noncommitment dimension was associated with not investing enough time for children with regard to safe driving (Taubman-Ben-Ari & Katz-Ben-ami, 2012). Therefore, young drivers might show more self-assertive behaviors when they are not invested enough commitment in terms of safe driving. Moreover, Peer pressure was significantly positively to self-assertiveness. Finally, functionality was significantly positively related to self-assertiveness. Functionality have positive association with undesired traffic related outcomes, such as violations, errors, and accidents (Chu et al., 2019; Gehlert et al., 2014). Hence, young drivers can show more self-assertive driving behaviors in traffic context when they perceive traffic environments as more functional. In the second hierarchical regression analysis noncommitment was significantly positively, and monitoring and feedback were significantly negatively related to speeding. Peer pressure was significantly positively related to speeding. In the third hierarchical regression analysis, noncommitment was significantly positively was significantly negatively related to rule violations as it was expected Peer pressure was significantly positively related to rule violations.

For the sample whose fathers drive, noncommitment was significantly negatively and feedback was significantly positively related to self-assertiveness, unexpectedly. Carlson & Klein (1970) compared only fathers' and sons' driving records and found that there was a positive correlation between traffic offense convictions, but not for collisions. The role of father in the family might be related to risky driving behaviors of young drivers. Peer pressure was significantly positively related to self-assertiveness. Functionality was significantly positively related to self-assertiveness. In the second hierarchical regression analysis, monitoring was significantly negatively related to speeding as it was expected. High level of parental monitoring was found related to lower rates of serious accidents (Shope, Waller, Rahhunathan, & Patil, 2001). Similarly, high level of monitoring of fathers might be related to less speeding behavior. Peer pressure was significantly positively related to speeding. In the third hierarchical regression analysis, interestingly, noncommitment was significantly

negatively related to rule violations. Bandura (1971) stated that observing other people's behaviors and ist consequences was the basis of learning a behavior. If fathers have unsafe acts in traffic and children observe their fathers' dangerous and risky acts in traffic environments, they might behave opposite to their fathers in traffic context. Finally, peer pressure was significantly positively related to rule violations as it was expected.

For the sample whose only fathers drive, in the first hierarchical regression analysis, modeling was significantly negatively related to self-assertiveness. Peer pressure was significantly positively related to self-assertiveness.In the second hierarchical regression analysis, modeling, monitoring, and feedback were significantly negatively related to speeding. Peer pressure was significantly positively related to speeding. In the third hierarchical regression analysis, modeling was significantly negatively related to rule violations. Peer pressure was significantly positively related to rule violations.

4.5.The Results of Simple Effects of Moderated Moderation Analyses

When the simple effects of the study varibles were considered, especially gender had a simple effect on risk-taking behaviors in most models. Several studies indicated that gender was one of the most important factors related to accident involvement (Laapotti et al., 2001; McGwin & Brown, 1999) since there was a difference between genders in terms of risk perception (Gheorghiu & Havârneanu, 2012). Thus, parallel with the previous studies, gender had a significant simple effect on risk-taking behaviors. Monitoring (mother) had a significant simple effect in the models MONxPPxEAD and MONxPPxIR on self-assertiveness; feedback (mother) had a significant simple effect in the model FBxPPxFUN on self-assertiveness. Feedback (father) had a significant simple effect in the model FBxPPxFUN; and communication (father) had a significant simple effect in the model COMxPPxIR on speeding. Furthermore, modeling (only father) had a significant simple effect in the model MODxPPxIR on self-assertiveness, speeding, and rule violations. Monitoring (only father) had a significant simple effect in the models MONxPPxFUN and MONxPPxIR in terms of self-assertiveness. Finally, communication (only father) had a simple effect in the model COMxPPxIR on self-assertiveness and speeding.

4.6. Summary of Significant Three-Way Interactions with The Pick-A-Point Approach and the JN Technique

A series of moderated moderation analyses with Hayes' PROCESS macro analysis in SPSS were conducted to investigate whether the relationship between family climate for road safety (i.e., communication, noncommitment, monitoring, and feedback for mothers and fathers; communication, modeling, monitoring, and feedback for only fathers) and risk-taking behaviors of young drivers in traffic context (i.e., self-assertiveness, speeding, and rule violations) were moderated by peer pressure to depend on traffic climate perception (i.e., external affective demands, functionality, and internal requirements) by controlling age, gender, total mileage, and frequency of driving for participants whose mothers, fathers, and only fathers drive. Summary of significant three-way interactions were given in Table 20 for the sample whose mother, fathers, and only fathers drive.

Table 20. Summary of significant three-way interactions

Models	Groups (mothers, fathers, only fathers) / Risk-taking behaviors
1. MONxPPxEAD	Mothers / Less self-assertiveness Fathers / Less self-assertiveness
2. FBxPPxFUN	Mothers /More self-assertiveness Fathers / More self-assertiveness
3. COMxPPxIR	Fathers / Less speeding Only fathers/ Less self-assertiveness, less speeding
4. NONCxPPxIR	Mothers/ More self-assertiveness, more rule violations
5. MONxPPxIR	Mothers/ Less self-assertiveness Only fathers / Less self-assertiveness
6. FBxPPxIR	Fathers / More self-assertiveness
7. MONxPPxFUN	Only fathers / More self-assertiveness
8. MODxPPxIR	Only fathers /Less self-assertiveness, less rule violations

When the model including the interaction MONxPPxEAD, according to the results of a pick-a-point approach, young drivers reported that they showed less self-assertive behaviors when they perceived more monitoring of their mothers, felt less peer pressure, and percevied traffic environment as relatively less external affective demanding. Moreover, young drivers reported that they showed less self-assertive

behaviors when they perceived more monitoring of their mothers, more feeling of peer pressure, and percevied traffic environment as relatively high external affective demanding. It was found that when the standardized external affective demands score was lower than 4.715 and higher than 5.901, peer pressure moderated the effect of monitoring on self-assertiveness and young drivers committed less serf-assertive driving behaviors in traffic. Similarly, young drivers reported that they showed less self-assertive behaviors when they perceived more monitoring of their fathers, felt less peer pressure, and percevied traffic environment as relatively less external affective demanding. The result of the JN region of signifcance analyses indicated that there no statistical significant transition points of external affective demands; however, the moderation of the effect of monitoring on self-assertiveness by peer pressure to depend on external affective demands was statistically significant and young drivers showed less self-assertive behaviors in traffic. It can be claimed that monitoring of both parents are important to decrease risky driving behaviors of young drivers. On the other hand, it should be emphasized that monitoring of mothers is effective whether peer pressure is less or more with the interaction of less external affective demanding traffic environment.

When the model including the interaction FBxPPxFUN, pick-a-point approach plots indicated that young drivers reported that they showed more self-assertive behaviors when they were given more feedback by their mothers, less felt peer pressure, and percevied traffic environment as relatively more functional. When the standardized functionality score was higher than 4.672, peer pressure moderated the effect of feedback on self-assertiveness and young drivers showed more self-assertive driving behaviors. Furthermore, young drivers reported that they showed more self-assertive behaviors when they were given more feedback by their fathers, felt more peer pressure, and percevied traffic environment as relatively high functional. The results of the JN region of significance analysis showed that when the standardized functionality score was higher than 3.635, peer pressure moderated the effect of feedback on self-assertiveness and young drivers committed more self-assertive driving behaviors. The difference between the sample whose mothers and fathers drive is the level of peer pressure. Guttman and Gesser-Edelsburg (2010) and Guttman (2013) stated that parents trusted the young driver or they had worries about damaging

their relationship with their children. Parents also reported that guidance was needed them to motivate their children while driving and to give feedback effectively and to avoid conflicts with their children with regard to feedback. Hence, conflicts in giving feedback might be perceived ineffective among young children with the effect of peer pressure and high functional traffic environment which is related to more violations (Chu et al., 2019; Gehlert et al., 2014).

When the model including the interaction COMxPPxIR, pick-a-point approach plots young drivers reported that they showed less speeding behaviors when they had more communication with their fathers, felt less peer pressure, and percevied traffic environment as relatively low internally required. According to the results of the JN region of significance analysis, it was found that below the score 3.191 of internal requirements, there was a two-way interaction between communication and peer pressure. It means that when the standardized functionality score was lower than 3.191, peer pressure moderated the effect of communication on self-assertiveness and young drivers showed less self-assertive driving behaviors in traffic. Similarly, young drivers reported that they showed less self-assertive behaviors when they felt more communication with their fathers, felt less peer pressure, and percevied traffic environment as relatively low internally required for the sample whose only fathers drive in their family. According to the results of the JN region of significance analysis, it was found that below the score 3.191 of internal requirements, there was a two-way interaction between communication and peer pressure. It means that when the standardized functionality score was lower than 3.191, peer pressure moderated the effect of communication on self-assertiveness and young drivers showed less self-assertive driving behaviors in traffic. communication in terms of potential hazards on the road, discussing subjects related to driving (Taubman-Ben-Ari & Katz-Ben-Ami, 2012). As it was exptected, when young drivers communicate with their fathers in terms of safe driving and felt less peer pressure and perceived traffic environment as less internall required (e.g., dynamic, exiciting, fast, and mobile), they showed less self-assertive behaviors. Moreover, young drivers reported that they showed less speeding behavior when they felt more communication with their fathers, felt less peer pressure, and percevied traffic environment as relatively high internally required. It should be emphasized that communication is very important between fathers and their

children in order to decrease speeding although young drivers perceive traffic environment as more internally required. Several studies indicated that one of the most frequent traffic violations is speeding (Delhomme, 2002; Delhomme & Cauzard, 2000; Hassan & Abdel-Aty, 2013; Özkan, Lajunen, Chliaoutakis, Parker, & Summala, 2006; Peden et al., 2004). Black (1978) stated that young drivers have a tendency to violate traffic regulations such as not obeying speed limitations when their peers accompany them. On the other hand, communication plays important role to decrease speeding behaviors according to current study.

When the model including the interaction NONCxPPxIR, pick-a-point approach plots indicated that young drivers reported that they showed more self-assertive behaviors and rule violations when they perceived more noncommitment from their mothers, felt more peer pressure, and percevied traffic environment as relatively more internally required as it was expected. It was foud that there was no statistical significant transition points of internal requirements; however, the moderation of the effect of noncommitment on self-assertiveness by peer pressure to depend on internal requirements was statistically significant and young drivers showed more self-assertive driving behaviors in traffic. Furthermore, it was found that there was an interaction between noncommitment and peer pressure between statistically significant or nonsignificant at the standardized scores of internal requirements $\leq$ 2.887 and $\geq$ 4.827. Below the score 2.887 and above the score 4.827 of internal requirements, there was a two-way interaction between noncommitment and peer pressure. It should be pointed out that noncommitment has to be concerned in terms safe driving via intervention programs, educative social media campaigns for mothers to increase safe commitment to traffic system by considering how young drivers percevie their skills and abilities; decision makers might establish a balance between safety and mobility via enforcements.

When the model including the interaction MONxPPxIR, pick-a-point approach plots indicated that young drivers reported that they showed less self-assertive behaviors when they perceived more monitoring from their mothers, felt less peer pressure, and percevied traffic environment as relatively less internally required. Furthermore, when the standardized internal requirements score was lower than 3.544, peer pressure

moderated the effect of monitoring on self-assertiveness and young drivers engaged in less self-assertive driving behaviors. Taubman-Ben-Ari and Katz-Ben-Ami (2012) found that there was an association between low level of parental feedback and monitoring with high level of negative models from peer and higher scores of reckless driving. Parallel with this finding, young drivers showed more self-assertive behaviors when the traffic system was perceived as less functional than 3.544 with the effect of feedback and peer pressure interaction. Similarly, young drivers reported that they showed less self-assertive behaviors when they felt less monitoring from their fathers, felt more peer pressure, and percevied traffic environment as relatively high internally required when the only driver in the family is father. Moreover, there no statistical significant transition points of internal requirements; however, the moderation of the effect of monitoring on self-assertiveness by peer pressure to depend on internal requirements and young drivers showed more self-assertive behaviors in traffic.

When the model including the interaction FBxPPxIR, according to the results of a pick-a-point approach, young drivers reported that they showed more self-assertive behaviors when they were given more feedback by their fathers, felt more peer pressure, and percevied traffic environment as relatively high internally required. Furthermore, it was foud that when the standardized internal requirements score was higher than 4.912, peer pressure moderated the effect of feedback on self-assertiveness and young drivers engaged in more self-assertive driving behaviors. As it was mentioned before, it was found that there was an association between low level of parental feedback and monitoring with high level of negative models from peer and higher scores of reckless driving (Taubman-Ben-Ari & Katz-Ben-Ami, 2012). On the other hand, conflicts in giving feedback might be perceived ineffective among young children with the effect of peer pressure and high internally required traffic environment.

When the model including the interaction MONxPPxFUN, according to the results of a pick-a-point approach, young drivers reported that they showed more self-assertive behaviors when they felt less monitoring from their fathers, felt more peer pressure, and percevied traffic environment as relatively low functional when the only driver in the family is father. The result of the JN region of signifcance analyses indicated that

there no statistical significant transition points of functionality; however, the moderation of the effect of monitoring on self-assertiveness by peer pressure to depend on functionality and young drivers showed more self-assertive behaviors in traffic. Several studies indicated that high level of parental monitoring was associated with less likely to engage in risky driving behaviors; whereas, when parental monitoring was less, violations and car accidents increased (Beck et al., 2001; Bingham and Shope, 2004; Graber et al., 2006; Hartos et al., 2000). Moreover, it was found that there was an association between low level of parental monitoring with high level of negative models from peer and higher scores of reckless driving (Taubman-Ben-Ari & Katz-Ben-Ami, 2012). Thus, young drivers engaged in more self-assertive behaviors in traffic.

Finally, when the model including the interaction MODxPPxIR, according to the results of a pick-a-point approach, young drivers reported that they showed less self-assertive behaviors when they felt more modeling of their fathers, felt less peer pressure, and percevied traffic environment as relatively low internally required. According to the results of the JN plots, it was foud that below the score 3.729 of internal requirements, there was a two-way interaction between modeling and peer pressure. That was, when the standardized internal requirements score was lower than 3.729, peer pressure moderated the effect of modeling on self-assertiveness and young drivers behaved less self-assertive in traffic. Furthermore, young drivers reported that they showed less rule violations when they felt more modeling from their fathers, felt less peer pressure, and percevied traffic environment as relatively low internally required. Moreover, young drivers reported that they showed less rule violations when they felt more modeling from their fathers, felt less peer pressure, and percevied traffic environment as relatively high internally required. It was found that below the score 2.903 and above the score 5.235 of internal requirements, there was a two-way interaction between modeling and peer pressure. It means that when the standardized internal requirements score was lower than 3.903 and higher than 5.235, peer pressure moderated the effect of modeling on rule violations and young drivers committed less rule violations in traffic. It should be emphasized that the moderation of the effect of monitoring on self-assertiveness by peer pressure to depend on functionality and young drivers showed more self-assertive behaviors in traffic.

4.7.Limitations of the Present Study and Suggestions for Future Studies

The limitations of the current study were mainly about the instruments, demographic characteristics of the sample, and the sample size. Self-report measures might have possible disadvantages in terms of reliability and external validity since self-report measures were more vulnerable to social desirability (Paulhus, 1991). Moreover, Lajunen, Corry, Summala and Hartley (1997) stated that participants showed bias of impression management about traffic violations like self-reported speeding and the number of accidents in order to look more favorable to others. In the current study, participants might responded the relevant questions with the effect of this bias. Secondly, gender differences were not focused on the present study. However, the literature indicated that there was a difference between male and female drivers in terms of risky driving. Moreover, there was a difference between young male and female drivers in terms of their relationship with parents in driving context. Therefore, gender differences should be focused for further studies. Moreover, the present study did not include only mother drivers. However, it should be examined in the future studies when investigating the moderation roles of peer pressure and traffic climate on the relationship between family climate for road safety and risk-taking behaviors. Another limitation of the present study was that it did not allowed to compare groups based on the FCRSS. Although the factor structures of the FCRSS for mothers, for fathers, and only fathers had similar factor structures, the items were not same for the dimensions. For further studies, total sample was examined by using same items under same dimensions to compare the groups. In the current study, only young drivers evaluate their parents in terms of family climate for road safety. However, it might be compared how young drivers perceive their parents' safety behaviors with how parents evaluate themselves by considering their relationship with their children in terms of safety. Finally, the present study had a small sample size and effect sizes of the moderated moderation analyses might be affected by small sample size.

4.8. Conclusions and Suggested Implications

Young drivers' risk-taking driving behaviors can be evaluated as the product of who they are and what is their environment (OECD, 2006). Although family climate and peer pressure as interpersonal factors were studied with regard to risky driving of

young drivers, traffic climate as a cultural factor has not been investigated in this context based on Bronfenbrenner's (1979) socio-ecological model. Bronfenbrenner (1979) claimed that the interaction between human organism and environment are the key elements of human development. Bronfenbrenner (1979) stated that the *ecological environment* consists of four systems named as *micro-*, *meso-*, *exo-*, and *macrosystems*. Therefore, the current study focused on interaction between family climate for road safety(Interpersonal Level 1 at mesosystem), peer pressure (Interpersonal Level 2 at mesosystem), and traffic climate (Cultural Level at macrosystem) in terms of risk-taking behaviors of young drivers based on Bronfenbrenner's (1979) socio-ecological model.

The first aim of the present study was to translate Family Climate for Road Safety Scale, Peer Pressure Scale, and Risk-Taking Behavioral Scales into Turkish and to examine their factor structures. Seconly, investigating effect of family climate, peer pressure, and traffic climate on risky-taking behaviors of young drivers is another aim of the present study for whose mothers drive, fathers drive, and only fathers drive in the family. The main aim of the present study is to investigating the moderating roles of peer pressure (primary moderator) and traffic climate (secondary moderator) on the relationship between family climate for road safety (for mothers and fathers, and only fathers) and risk-taking behaviors of young drivers in the scope of socio-ecological perspective.

The present study aimed investigate the effect of family climate, peer pressure, and traffic climate on risky-taking behaviors of young drivers. The main aim of the present study was to investigate the moderating roles of peer pressure (primary moderator) and traffic climate (secondary moderator) on the relationship between family climate for road safety (for mothers and fathers, and only fathers) and risk-taking behaviors of young drivers in the scope of socio-ecological perspective. Previous studies related to family climate for road safety mainly focused on parents together without separating mothers and fathers. Thus, this study provided how young drivers evaluated their mothers and fathers in terms of road safety. Secondly, there were several studies focused on the interaction between family climate and peer pressure on risk-taking behaviors of young drivers. However, this study was the first that investigated the the

moderating roles of peer pressure (primary moderator) and traffic climate (secondary moderator) on the relationship between family climate for road safety (for mothers and fathers, and only fathers) and risk-taking behaviors of young drivers in the socio-ecological approach. Thus, in order to decrease risk-taking behaviors among young drivers, interventions can be applied for both interpersonal factors and cultural factors.

Several studies indicated that parental practices had a critical role to reduce risky driving between young drivers (Ginsburg, Durbin, García-España, Kalicka, &Winston, 2009; Simons-Morton, Quimet, & Catalano, 2008). Moreover, parents can monitor and limit which friends can be invited into the car in order to regulate driving behaviors of their children (Hartos, Eitel, & Simons-Morton, 2001). In addition to parental practices and controlling the peers, broader strategies might be developed by considering young drivers' perception of traffic climate of the country. Özkan and Lajunen (2011) cliamed that changing in societal and cultural factors is not easy. On the other hand, traffic is an open system that provides active, interactive, and continous environment for all road users (Özkan & Lajunen, 2011). For instance, young drivers and their parents can be informed together about the importance of commitment to road safety by driver instructors. Moreover, media campaigns can be organized by focusing parent-child relationship in terms of safety driving. Educational programs might be presented for parents to provide information how they direct and control driving behaviors of their children by considering their peers.

In borader context, Özkan and Lajunen (2015) suggested that maintatining *the balance* between safety and mobility has importance in traffic environment and the goals related to traffic safety should be established carefully by policy makers and planners for all road users at each level. Thus, policies related to young drivers' risk taking behaviors should be decided based on their perspectives about the traffic system in a holistic view. To sum, specific strategies could be improved based on the interaction between interpersonal and cultural factors. In Table 26, possible suggestions were given in order to reduce risk-taking behaviors among young drivers.

Table 21. Suggestions based on significant three-way interactions on risk-taking behaviors

Models	Groups (mothers or fathers) / Risk-taking behaviors	Possible suggestions
MONxPPxEAD	Mothers / Less self-assertiveness Fathers / Less self-assertiveness	Encourage both parents to keep monitoring their children in terms of safe driving by controling their peers; providing more calm and harmonious traffic environment via enforcements
FBxPPxFUN	Mothers /More self-assertiveness Fathers / More self-assertiveness	Increasing awareness of parents to give feedback about safety in traffic by considering interventions based on functional traffic system with balance between safety and mobility
COMxPPxIR	Fathers / Less speeding Only fathers/ Less self-assertiveness, less speeding	Education and intervention programs related to he importance of communication; fathers should communicate with their children about overestimation about their driving skills
NONCxPPxIR	Mothers/ More self-assertiveness, more rule violations	Intervention programs, educative social media campaigns for mothers to increase safe commitment to traffic system by considering how young drivers percevie their skills and abilities; decision makers might establish a balance between safety and mobility via enforcements
MONxPPxIR	Mothers/ Less self-assertiveness Only fathers / Less self-assertiveness	Education programs for parents to teach how to monitor their children and intervention strategies could be provided to control young drivers' needs to express themselves in dangerous traffic environment with the effect of peer pressure
FBxPPxIR	Fathers / More self-assertiveness	Increasing awareness of fathers to give feedback about safety in traffic by considering interventions based on internal requirements with balance between safety and mobility; feedback should be provided in consistency by parents and social media campaigns might focus on the importance of feedback
MONxPPxFUN	Only fathers / More self-assertiveness	Fathers should be informed about take a responsibility to monitor their children in order to increase safe driving; decision makers should consider enforcements based on functional traffic system with balance between safety and mobility
MODxPPxIR	Only fathers /Less self-assertiveness, less rule violations	Motivating fathers to be a good model for their children in terms of obeying the traffic rules and increase awareness towards safety among young drivers

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APPENDICES

A: . Approval Of The Metu Human Subjects Ethics Committee

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02 OCAK 2018

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Prof.Dr. Türker ÖZKAN;

Danışmanlığını yaptığınız doktora öğrencisi Özlem ERSAN "**Türkiye'deki Genç Sürücüler arasında Kişilik Özellikleri, Aile İklimi, Akran Etkisi, Trafik Güvenliği İklimi ile Riskli SAürüş Davranışının İlişkisi"** başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay **2017-SOS-226** protokol numarası ile **02.01.2018-30.12.2018** tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Ş. Halil TURAN
Başkan V

Prof. Dr. Ayhan SOL
Üye

Prof. Dr. Ayhan Gürbüz DEMİR
Üye

Doç. Dr. Yaşar KONDAKÇI
Üye

Doç. Dr. Zana ÇITAK
Üye

Yrd. Doç. Dr. Pınar KAYGAN
Üye

Yrd. Doç. Dr. Emre SELÇUK
Üye

B: Informed Consent Form

Gönüllü Katılım Formu

Bu çalışma, Orta Doğu Teknik Üniversitesi (ODTÜ) Psikoloji Bölümü öğretim üyelerinden Prof. Dr. Türker Özkan danışmanlığında, Psikoloji Bölümü lisansüstü öğrencisi Özlem Ersan tarafından, Trafik ve Ulaşım Psikolojisi Doktora Programı kapsamında yürütülen doktora tezi çalışmasıdır. Çalışmanın temel amacı; yol güvenliği kapsamında aile iklimi ile genç sürücülerin riskli sürüş davranışı arasındaki ilişkiyi arkadaş/akran etkisi ve trafik iklimi algısı kapsamında incelemektir. Çalışmaya katılım tamamıyla gönüllüdür. Çalışma süresince sizden kimlik belirleyici hiçbir bilgi istenmemektedir. Cevaplarınız tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir; elde edilecek bilgiler bilimsel yayımlarda kullanılacaktır.

Çalışma sırasında doldurulması talep edilecek anket, genel olarak kişisel rahatsızlık verecek herhangi bir ayrıntı içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz çalışmayı yarıda bırakmakta serbestsiniz. Böyle bir durumda çalışmada sorumlu kişiye, çalışmadan ayrılmak istediğinizi söylemeniz yeterli olacaktır. Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için Psikoloji Bölümü öğrencilerinden Özlem Ersan (TEL: 03122107682; E-posta: eozlem@metu.edu.tr) ile iletişime geçebilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip çıkabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum. (Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

Ad Soyad Tarih İmza

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C: Demographic Information Form

A1. Yaşınız:

A2. Cinsiyetiniz:

□ Erkek □ Kadın

A3. Bölümünüz/ İşiniz:

A4. Aşağıdakilerden hangisi sosyo- ekonomik statünüzü tanımlar?

□ Alt □ Ortanın altı □ Orta

□ Ortanın Üstü □ Üst

A5. Ehliyetiniz var mı? □ Hayır □ Evet

A6. Ebeveynlerinizden kimler aktif olarak araç kullanmaktadır? □ Anne □ Baba (her ikisi de aktif araç kullanıyorsa ikisini de işaretletiniz).

A7. Kaç yıldır ehliyet sahibisiniz? _____ yıl

A8. Geçen yıldan bu yana yaklaşık olarak toplam kaç kilometre araç kullandınız?_____km

A9. Bütün hayatınız boyunca yaklaşık olarak toplam kaç kilometre araç kullandınız? _____km

A10. Genel olarak, ne sıklıkla araç kullanırsınız?

□ Hemen hemen her gün □ Haftada 3-4 gün □ Haftada 1-2 gün

□ Ayda birkaç kez □ Çok nadir

A11. Araç kullanmayı ilk kimden öğrendiniz?

□ Anne

□ Baba

□ Abla

□ Abi

□ Kardeş

□ Arkadaş

□ Direksiyon eğitmeni

□ Diğer:

A12. Son üç yılda kaç kez araç kullanırken aktif olarak (sizin bir araca, bir yayaya veya herhangi bir nesneye çarptığınız durumlar) kaza yaptınız? (hafif kazalar dâhil)_____ kez

a) Son üç yılda kaç kez anneniz araç kullanırken aktif olarak (bir araca, bir yayaya veya herhangi bir nesneye çarptığı durumlar) kaza yaptı? (hafif kazalar dâhil)_____ kez

b) Son üç yılda kaç kez babanız araç kullanırken aktif olarak (bir araca, bir yayaya veya herhangi bir nesneye çarptığı durumlar) kaza yaptı? (hafif kazalar dâhil)_____ kez

A13. Son üç yılda kaç kez araç kullanırken pasif olarak (bir aracın ya da bir yayanın size çarptığı durumlar) kaza geçirdiniz? (hafif kazalar dâhil)_____ kez

a) Son üç yılda anneniz kaç kez araç kullanırken pasif olarak (bir aracın ya da bir yayanın kendisine çarptığı durumlar) kaza geçirdi? (hafif kazalar dâhil)_____ kez

b) Son üç yılda babanız kaç kez araç kullanırken pasif olarak (bir aracın ya da bir yayanın kendisine çarptığı durumlar) kaza geçirdi? (hafif kazalar dâhil)_____ kez

A14. Son üç yılda aşağıdaki trafik cezalarını kaç kere aldığınızı belirtiniz.

Yanlış park etme:_____ Hatalı sollama:_____ Hız ihlali:_____ Diğer:_____

a) Son üç yılda annenizin aşağıdaki trafik cezalarını kaç kere aldığını belirtiniz. Yanlış park etme:_____ Hatalı sollama:_____ Hız ihlali:_____ Diğer:_____

b) Son üç yılda babanızın aşağıdaki trafik cezalarını kaç kere aldığını belirtiniz. Yanlış park etme:_____ Hatalı sollama:_____ Hız ihlali:_____ Diğer:_____

D: Family Climate For Road Safety Scale for Mother

Lütfen aşağıda yer alan her maddeyi <u>eksiksiz</u> bir biçimde size en uygun gelecek şekilde <u>1</u> (hiçbir zaman) ve <u>5</u> (her zaman) puan arasında değerlendiriniz. Verdiğiniz puanı daire içine alarak değerlendirmenizi yapabilirsiniz.

	Hiçbir zaman	Nadiren	Bazen	Sık sık	Her zaman
1.Annem araç kullanırken zaman sıkıntısı çekmemek için iyi zaman planlaması yaparlar.	1	2	3	4	5
2.Annem bana yolda olası problemleri öngörmeyi öğretir.	1	2	3	4	5
3. Annem yolda aylaklık etmememe dikkat ederler.	1	2	3	4	5
4. Ailemde, yolda yapılan hatalar ve kıl payı atlatılan kazalarla ilgili annemle açıkça konuşuruz; böylece onlardan öğrenebilirim.	1	2	3	4	5
5.Annem yolda gereksiz risk aldığımda bunu bana belirtir.	1	2	3	4	5
6.Annem trafik kurallarına uyarak örnek oluşturur.	1	2	3	4	5
7.Arabayı her aldığımda, geç kalırsam annemi arayıp bilgilendirmem gerekir.	1	2	3	4	5
8.Annemle araç kullanma hakkında her şeyi açıkça konuşuruz.	1	2	3	4	5
9.Annemin benden nasıl araç kullanmam gerektiği konusundaki beklentilerini biliyorum.	1	2	3	4	5
10.Annem her trafik kuralına uymak sıkıcı olarak görür.	1	2	3	4	5
11.Annem, yolda tehlikeli bir şey yapsam bile çoğu zaman araç kullanmam hakkında bir şey söylemez.	1	2	3	4	5
12.Annem güvenli araç kullanmamı gerçekten önemser.	1	2	3	4	5
13. Arabayı her aldığımda, nereye gittiğimi anneme söylemem gerekir.	1	2	3	4	5
14.Güvenli ve dikkatli araç kullandığımda annem beni över.	1	2	3	4	5
15.Annem sadece yakalanmak istemediği için güvenli sürüş kurallarını takip eder.	1	2	3	4	5
16. Annem tehlikeli araç kullandığımı düşündüklerinde bunu bana söyler.	1	2	3	4	5
17.Annemin dikkatli araç kullanma konusunda açık kuralları vardır.	1	2	3	4	5
18.Arabayla dışarı çıkmak için her zaman annemin iznini almak zorundayım.	1	2	3	4	5
19.Araç kullanmam annemin işine yarasa da (alışverişe gitmek, birini almak) dikkatsiz araç kullanmama izin vermez.	1	2	3	4	5
20.Annemin acelesi olsa bile güvenli bir şekilde araç kullanır.	1	2	3	4	5
21. Arabayı aldığım her zaman, eğer gideceğim yer değiştiyse arayıp anneme haber vermem gerekir.	1	2	3	4	5

22. Bazen annem, sarı ışık yandığında hızlanmam için beni teşvik eder.	1	2	3	4	5
23.Annem yolda hata yaptıklarında bunu kabul etmekten hoşlanmaz.	1	2	3	4	5
24.Annem güvenli araç kullanımı konusuna çok bağlı değildir.	1	2	3	4	5
25.Arabayı her aldığımda, nereye kimle gittiğimi anneme haber vermem gerekir.	1	2	3	4	5
26.Güvenli araç kullandığım için annem beni tebrik eder.	1	2	3	4	5
27.Güvenli araç kullanmam konusunda annemle aramda yazılı olmayan bir anlaşma vardır.	1	2	3	4	5
28.Annem güvenli araç kullanmanın çok önemli olduğuna inanır.	1	2	3	4	5
29. Annem bana nasıl güvenli araç kullanacağımı öğretmek için zaman ayırmaz.	1	2	3	4	5
30. Annem güvenli araç kullanma konusunda rol modeldir.	1	2	3	4	5
31.Annem güvenli araç kullanmak hakkında konuşmalarına rağmen çok güvenli araç kullanmaz. 32.Eğer annem güvenli araç kullanmadığımı anlarsa araç kullanmama sınır koyabilir.	1	2	3	4	5
33. Annem yolda yaşanabilecek olası tehlikelerle ilgili benimle konuşur.	1	2	3	4	5
34.Araç kullanmam hakkındaki aile sözleşmesinin çerçevelenmesinde payım vardır.	1	2	3	4	5
35.Annem güvenli araç kullandığımdan emin olduğunda beni cesaretlendirir ve tebrik eder.	1	2	3	4	5
36. Annemle farklı araç kullanma durumlarıyla ilgili açıkça konuşabilirim.	1	2	3	4	5
37.Bazen annem trafik kurallarını göz ardı etmem için beni teşvik eder.	1	2	3	4	5
38. Annem nasıl araç kullandığımla ilgilenir.	1	2	3	4	5
39.Annem kaza ile sonuçlanmasa bile trafik ihlallerini çok ciddiye alır.	1	2	3	4	5
40. Annem, yalnızca kaza gibi bir şey olursa güvenli araç kullanıp kullanmadığıma dikkat eder.	1	2	3	4	5
41.Annem eğer birileri güvenli araç kullanmadığı hakkında şikayetlenirlerse bundan hoşlanmaz.	1	2	3	4	5
42. Hız yapmak istemediğim için eve geç kaldığımda annem bunu kabul etmeye can atar.	1	2	3	4	5
43.Annem trafik kurallarına uymadığım takdirde araç kullanmamı kısıtlayacaklarını açıkça belirtti.	1	2	3	4	5
44. Tehlikeli araç kullandığımda annem bunu görmezden gelir.	1	2	3	4	5
45. Annem güvenli araç kullandığımı hissederlerse arabayı almama daha çok izin verir.	1	2	3	4	5
46.Annemle yoldaki tehlikeli durumların nasıl önleneceğini ve bu durumlardan nasıl uzak durulacağını evde konuşuruz.	1	2	3	4	5
47.Annem dikkatli sürücüler olmadığı halde bana dikkatli araç kullanmamı söyler.	1	2	3	4	5
48.Annemin güvenli araç kullanmam konusundaki beklentileri benim için açıktır.	1	2	3	4	5

49. Her güvenli araç kullandığımda annemden olumlu geri dönüşler alıyorum.	1	2	3	4	5
50.Annem stresli veya yorgun olsa bile trafik kurallarına uyar.	1	2	3	4	5
51.Yolda karşılaştığım tehlikeli durumları annemle paylaşırım.	1	2	3	4	5
52.Annem güvenli araç kullanmanın bir yere zamanında varmaktan daha önemli olduğunu açıkça belirtir.	1	2	3	4	5
53.Güvenli araç kullandığımda annemin benimle gurur duyduğunu hissediyorum.	1	2	3	4	5
54.Arabayı her aldığımda anneme ne zaman eve geleceğimi haber vermem gerekir.	1	2	3	4	5

E: Family Climate For Road Safety Scale for Father

Lütfen aşağıda yer alan her maddeyi <u>eksiksiz</u> bir biçimde size en uygun gelecek şekilde <u>1</u> (hiçbir zaman) ve <u>5</u> (her zaman) puan arasında değerlendiriniz. Verdiğiniz puanı daire içine alarak değerlendirmenizi yapabilirsiniz.

	Hiçbir zaman	Nadiren	Bazen	Sık sık	Her zaman
1.Babam araç kullanırken zaman sıkıntısı çekmemek için iyi zaman planlaması yaparlar.	1	2	3	4	5
2.Babam bana yolda olası problemleri öngörmeyi öğretir.	1	2	3	4	5
3. Babam yolda aylaklık etmememe dikkat ederler.	1	2	3	4	5
4. Ailemde, yolda yapılan hatalar ve kıl payı atlatılan kazalarla ilgili babamla açıkça konuşuruz; böylece onlardan öğrenebilirim.	1	2	3	4	5
5.Babam yolda gereksiz risk aldığımda bunu bana belirtir.	1	2	3	4	5
6.Babam trafik kurallarına uyarak örnek oluşturur.	1	2	3	4	5
7.Arabayı her aldığımda, geç kalırsam babamı arayıp bilgilendirmem gerekir.	1	2	3	4	5
8.Babamla araç kullanma hakkında her şeyi açıkça konuşuruz.	1	2	3	4	5
9.Babamın benden nasıl araç kullanmam gerektiği konusundaki beklentilerini biliyorum.	1	2	3	4	5
10.Babam her trafik kuralına uymak sıkıcı olarak görür.	1	2	3	4	5
11.Babam, yolda tehlikeli bir şey yapsam bile çoğu zaman araç kullanmam hakkında bir şey söylemez.	1	2	3	4	5
12.Babam güvenli araç kullanmamı gerçekten önemser.	1	2	3	4	5
13. Arabayı her aldığımda, nereye gittiğimi babama söylemem gerekir.	1	2	3	4	5
14.Güvenli ve dikkatli araç kullandığımda babam beni över.	1	2	3	4	5
15.Babam sadece yakalanmak istemediği için güvenli sürüş kurallarını takip eder.	1	2	3	4	5
16. Babam tehlikeli araç kullandığımı düşündüklerinde bunu bana söyler.	1	2	3	4	5
17.Babamın dikkatli araç kullanma konusunda açık kuralları vardır.	1	2	3	4	5
18.Arabayla dışarı çıkmak için her zaman babamın iznini almak zorundayım.	1	2	3	4	5
19.Araç kullanmam babamın işine yarasa da (alışverişe gitmek, birini almak) dikkatsiz araç kullanmama izin vermez.	1	2	3	4	5
20.Babamın acelesi olsa bile güvenli bir şekilde araç kullanır.	1	2	3	4	5
21. Arabayı aldığım her zaman, eğer gideceğim yer değiştiyse arayıp babama haber vermem gerekir.	1	2	3	4	5

22. Bazen babam, sarı ışık yandığında hızlanmam için beni teşvik eder.	1	2	3	4	5
23.Babam yolda hata yaptığında bunu kabul etmekten hoşlanmaz.	1	2	3	4	5
24.Babam güvenli araç kullanımı konusuna çok bağlı değildir.	1	2	3	4	5
25.Arabayı her aldığımda, nereye kimle gittiğimi babama haber vermem gerekir.	1	2	3	4	5
26.Güvenli araç kullandığım için babam beni tebrik eder.	1	2	3	4	5
27.Güvenli araç kullanmam konusunda babamla aramda yazılı olmayan bir anlaşma vardır.	1	2	3	4	5
28.Babam güvenli araç kullanmanın çok önemli olduğuna inanır.	1	2	3	4	5
29. Babam bana nasıl güvenli araç kullanacağımı öğretmek için zaman ayırmazlar.	1	2	3	4	5
30. Babam güvenli araç kullanma konusunda rol modeldir.	1	2	3	4	5
31.Babam güvenli araç kullanmak hakkında konuşmalarına rağmen çok güvenli araç kullanmaz. 32.Eğer babam güvenli araç kullanmadığımı anlarsa araç kullanmama sınır koyabilir.	1	2	3	4	5
33. Babam yolda yaşanabilecek olası tehlikelerle ilgili benimle konuşur.	1	2	3	4	5
34.Araç kullanmam hakkındaki aile sözleşmesinin çerçevelenmesinde payım vardır.	1	2	3	4	5
35.Babam güvenli araç kullandığımdan emin olduğunda beni cesaretlendirir ve tebrik eder.	1	2	3	4	5
36. Babamla farklı araç kullanma durumlarıyla ilgili açıkça konuşabilirim.	1	2	3	4	5
37.Bazen babam trafik kurallarını göz ardı etmem için beni teşvik eder.	1	2	3	4	5
38. Babam nasıl araç kullandığımla ilgilenir.	1	2	3	4	5
39.Babam kaza ile sonuçlanmasa bile trafik ihlallerini çok ciddiye alır.	1	2	3	4	5
40. Babam, yalnızca kaza gibi bir şey olursa güvenli araç kullanıp kullanmadığıma dikkat eder.	1	2	3	4	5
41.Babam eğer birileri güvenli araç kullanmadığı hakkında şikayetlenirlerse bundan hoşlanmaz.	1	2	3	4	5
42. Hız yapmak istemediğim için eve geç kaldığımda babam bunu kabul etmeye can atar.	1	2	3	4	5
43.Babam trafik kurallarına uymadığım takdirde araç kullanmamı kısıtlayacaklarını açıkça belirtti.	1	2	3	4	5
44. Tehlikeli araç kullandığımda babam bunu görmezden gelir.	1	2	3	4	5
45. Babam güvenli araç kullandığımı hissederlerse arabayı almama daha çok izin verir.	1	2	3	4	5
46.Babamla yoldaki tehlikeli durumların nasıl önleneceğini ve bu durumlardan nasıl uzak durulacağını evde konuşuruz.	1	2	3	4	5
47.Babam dikkatli sürücüler olmadığı halde bana dikkatli araç kullanmamı söyler.	1	2	3	4	5
48.Babam güvenli araç kullanmam konusundaki beklentileri benim için açıktır.	1	2	3	4	5

49. Her güvenli araç kullandığımda babamdan olumlu geri dönüşler alıyorum.	1	2	3	4	5
50.Babam stresli veya yorgun olsa bile trafik kurallarına uyar.	1	2	3	4	5
51.Yolda karşılaştığım tehlikeli durumları babamla paylaşırım.	1	2	3	4	5
52.Babam güvenli araç kullanmanın bir yere zamanında varmaktan daha önemli olduğunu açıkça belirtir.	1	2	3	4	5
53.Güvenli araç kullandığımda babamın benimle gurur duyduğunu hissediyorum.	1	2	3	4	5
54.Arabayı her aldığımda babama ne zaman eve geleceğimi haber vermem gerekir.	1	2	3	4	5

F: Peer Pressure Scale

Lütfen aşağıdaki soruları arkadaş çevrinizi göz önünde bulundurarak 1 (kesinlikle katılmıyorum) ve 5 (kesinlikle katılıyorum) arasında puan vererek cevaplandırınız.

	Kesinlikle katılıyorum	Çoğunlukla katılıyorum	Ne katılıyorum ne de katılmıyorum	Çoğunlukla katılmıyorum	Kesinlikle katılmıyorum
1.Arkadaşlarım araç kullanırken sürekli cep telefonu kullanırlar.	**1**	**2**	**3**	**4**	**5**
2.Arkadaşlarım zaman zaman emniyet kemerini takmamamda sakınca görmezler.	**1**	**2**	**3**	**4**	**5**
3.Arkadaşlarım sürekli hız limitinin üzerinde araç kullanırlar.	**1**	**2**	**3**	**4**	**5**
4.Arkadaşlarım araç kullanmadan önce bir bardak alkol almamda sakınca görmezler.	**1**	**2**	**3**	**4**	**5**
5.Arkadaşlarım bazen öndeki sürücüye yakın araç kullanırlar.	**1**	**2**	**3**	**4**	**5**
6.Arkadaşlarım araba kullanmadan önce az miktarda uyuşturucu kullanmamda sakınca görmezler.	**1**	**2**	**3**	**4**	**5**

G: Traffic Climate Scale

Aşağıda, ülkemizdeki trafik sistemini, ortamını ve atmosferini tanımlamak için bazı kelimeler verilmiştir. Bu kelimelerin, ülkemizdeki trafik durumunu yansıtıp yansıtmadığı hakkındaki düşüncenizi size göre doğru olan seçeneği karalayarak belirtiniz. Her bir soru için cevap seçenekleri: 1 = Hiç tanımlamıyor, 2 = Tanımlamıyor, 3 = Pek az tanımlıyor, 4 = Biraz tanımlıyor, 5 = Tanımlıyor, 6 = Çok tanımlıyor

	1	2	3	4	5	6		1	2	3	4	5	6
1.Tehlikeli	O	O	O	O	O	O	23.Karşılıklı anlayışa dayalı	O	O	O	O	O	O
2.Dinamik	O	O	O	O	O	O	24.Planlı	O	O	O	O	O	O
3.Karmaşık	O	O	O	O	O	O	25.Üzerinizde baskı yapıcı	O	O	O	O	O	O
4.Saldırgan	O	O	O	O	O	O	26.Olanları telafi etmeye yönelik	O	O	O	O	O	O
5.Heyecan verici	O	O	O	O	O	O	27.Caydırıcı kurallar içeren	O	O	O	O	O	O
6.Hızlı	O	O	O	O	O	O	28. Riskli	O	O	O	O	O	O
7.Stresli	O	O	O	O	O	O	29. Kaotik	O	O	O	O	O	O
8.Monoton	O	O	O	O	O	O	30.Sabır gerektiren	O	O	O	O	O	O
9. Şansa bağlı	O	O	O	O	O	O	31.Tedirgin edici	O	O	O	O	O	O
10. Tetikte olmanızı gerektiren	O	O	O	O	O	O	32.Uyanık olmayı gerektiren	O	O	O	O	O	O
11. Kadere bağlı	O	O	O	O	O	O	33.Beceri gerektiren	O	O	O	O	O	O
12. Tedbirli olunmasını gerektiren	O	O	O	O	O	O	34.Ahenkli	O	O	O	O	O	O
13. Deneyim gerektiren	O	O	O	O	O	O	35.Zaman kaybettiren	O	O	O	O	O	O
14. Çabukluk gerektiren	O	O	O	O	O	O	36.Sinir bozucu	O	O	O	O	O	O
15. Trafik kurallarına uymanızı isteyen	O	O	O	O	O	O	37.Eşitlikçi	O	O	O	O	O	O
16. Yaptığınızın yanınıza kâr kaldığı	O	O	O	O	O	O	38.Güvenli	O	O	O	O	O	O
17. Değersiz olduğunuz hissini veren	O	O	O	O	O	O	39.İşlevsel	O	O	O	O	O	O
18. Hareketli	O	O	O	O	O	O	40. Akışkan	O	O	O	O	O	O
19.Gerginliklere neden olan	O	O	O	O	O	O	41.Trafik kuralları bilgisi gerektiren	O	O	O	O	O	O
20.Önleyici tedbirler içeren	O	O	O	O	O	O	42.Davranışlarınızı yönlendiren	O	O	O	O	O	O
21.Denetim altında	O	O	O	O	O	O	43.Ne olacağı belli olmayan	O	O	O	O	O	O
22.Bir yerden bir yere kolayca seyahat edilen	O	O	O	O	O	O	44.Yoğun	O	O	O	O	O	O

H: Risk-Taking Behavioural Scales

Lütfen aşağıda yer alan her maddeyi <u>eksiksiz</u> bir biçimde size en uygun gelecek şekilde, araç kullandığınız zamanları göz önünde bulundararak, <u>1</u> (hiçbir zaman) ve <u>5</u> (her zaman) puan arasında değerlendiriniz. Verdiğiniz puanı daire içine alarak değerlendirmenizi yapabilirsiniz.

	Hiçbir zaman	Nadiren	Bazen	Sık sık	Her zaman
1.Diğerleri benden bunu yapmamı beklediği için dikkatsizce araç kullanmak	1	2	3	4	5
2.Diğerlerine yeteri kadar sert olduğumu göstermek için hızlı araç kullanmak	1	2	3	4	5
3.Diğerlerine arabaya hakim olduğumu (idare edebildiğimi) göstermek için hızlı araç kullanmak	1	2	3	4	5
4.Arkadaş/akran baskısı sebebiyle trafik kurallarını ihlal etmek	1	2	3	4	5
5.Karşı cins bundan zevk aldığı için hızlı araç kullanmak	1	2	3	4	5
6.Yerleşim alanlarında hız limitini aşmak (10 km/s'den daha fazla)	1	2	3	4	5
7.Kırsal yollarda hız limitini aşmak (10 km/s'den fazla)	1	2	3	4	5
8.Hız limitinde giden aracı sollamak	1	2	3	4	5
9.Öndeki araca çok yakın bir şekilde araç kullanmak	1	2	3	4	5
10.Trafikte ilerleyebilmek adına trafik kurallarını esnetmek	1	2	3	4	5
11.Trafikte ilerleyebilmek adına trafik kurallarını görmezden gelmek	1	2	3	4	5
12.Kırmızıya dönmek üzere olan sarı ışıkta ilerlemek	1	2	3	4	5
13.Boş bir yolda kırmızı ışık ihlali yapmak	1	2	3	4	5
14.Tek yönlü bir sokakta ters yönde araç kullanmak	1	2	3	4	5
15.Takip etmesi karmaşık/anlaşılmaz olduğunda trafik kurallarını ihlal etmek	1	2	3	4	5

I: Turkish Summary / Türkçe Özet

Giriş

Dünya Sağlık Örgütü'nün (DSÖ) Yol Güvenliği Küresel Durumu Raporu'na (2018) göre, 2016 yılında 1.35 milyon karayolu trafik ölümü meydana gelmiştir. Rapora göre trafik kazaları, 15-29 yaş arasındaki gençler arasında ana ölüm nedeni olarak değerlendirilmektedir. Buna ek olarak, trafik yaralanmaları dünya çapında tüm yaş gruplarında sekizinci önde gelen ölüm nedeni haline gelmiştir. Emniyet Genel Müdürlüğü Trafik Dairesi Başkanlığı, 2018 yılında Türkiye'de 428 311 kaza meydana geldiğini, trafik kazaları nedeniyle toplam 6675 kişinin öldüğünü ve 307 701 kişinin yaralandığını belirtmiştir. Türkiye İstatistik Kurumunu'nun (TÜİK) Trafik Kazası İstatistik Raporu (2018), trafik kazalarına karışan, ölen ve yaralanan sürücüleri yaş gruplarına göre sınıflandırmasına bakılacak olursa, trafik kazaları nedeniyle 2018 yılında 18-20 yaş arası 369 kişi, 21-24 yaş arası 490 kişi hayatını kaybetmiştir. Ayrıca, 18 ile 20 yaşları arasında 25 995 yaralı ve 21 ile 24 yaşları arasında 32 515 yaralı kişi sayısı belirtilmiştir.

Morrissey ve Mello (2014), genç sürücüler karıştığı kazalarda yüksek ölüm oranlarıyla ilgili önemli faktörler olduğunu belirtmiştir. Bu faktörler, sürüş deneyiminin olmaması, alkol tüketiminden sonra aracın kullanılması, cep telefonu kullanılması, arabadaki yolcuların varlığı veya emniyet kemerinin kullanmaması gibi rahatsız edici durumlardan oluşmaktadır. Bu nedenle, bu faktörler genç sürücüler arasında ölüm oranlarında rol oynamaktadır. Ayrıca, Vassallo, Smart, Sanson, Cockfield, Harris, McIntyre ve Harrison (2008), alkol tüketiminin ve esrar kullanımının ergenler arasında riskli sürüş ile ilgili olduğunu belirtmiştir. Bu faktörler deneyim eksikliği, dikkatsizlik, zayıf risk/tehlike algısı, heyecan arayışı, duyum arayışı ve riskli sürüş davranışları gibi kişilik ile ilgili faktörlerden oluşmaktadır (Begg & Langley, 2001; Jonah, 1986; Willams 1998). Genç sürücülerin riskli sürüş davranışları, kim olduklarının ve çevrelerinin ne olduğunun bir ürünü olarak değerlendirilebilir (OECD, 2006). Bu nedenle, ebeveynlerin etkisi ve akran baskısı, genç sürücülerin trafik bağlamında risk alma davranışları açısından dış faktörler olarak değerlendirebilir (OECD, 2006).

Özkan ve Lajunen (2011), dış faktörlerin genişlemesinin iç faktörleri doğrudan veya dolaylı olarak etkilediğini ve yol kullanıcılarının güvenlik düzeyini belirlediğini belirtmiştir. Dahası, yazarlar bu faktörlerin etkileşimli olduğunu ve günlük yaşamda meydana geldiğini de vurgulamıştır. Bu nedenle, genç sürücülerin risk alma davranışlarını gösterme eğilimi, trafik bağlamında sosyo-ekolojik model kapsamında (Bronfenbrenner, 1979) dış faktörler (ebeveyn faktörleri, akran baskısı ve trafik iklimi) arasındaki etkileşim yoluyla incelenebilir.

Genç Sürücülerin Sosyo-Ekolojik Bakış Açısına Dayalı Risk Alma Davranışları İle İlgili Kişilerarası Ve Kültürel Faktörler

von Bertalanfyy (1968) bir sistemi "etkileşimde duran bir dizi unsur"olarak tanımlamıştır. Özkan ve Lajunen (2015), bir "sistem" in, herhangi bir şeyleri gruplandırma olasılığı varsa, herhangi bir ilişki ile her şeyi gruplandırmaktan oluştuğunu ve bu kümelenmenin bir "sistem"olarak değerlendirilebileceğini belirtmiştir. Sistemler küçük veya büyük olabilir ve kendi sınırları içinde alt sistemleri içerebilir. Sınırların 'hayali çizgileri', elemanların sistemin içinde ve dışında kalmasına izin verir (Özkan & Lajunen, 2015). Sistemdeki sınırın çerçevesi "açık" veya "kapalı"olabilir. Kapalı sistemlerde, çevre ile bir izolasyon vardır ve gerekli tüm unsurlar sağlandıkça etkileşim devam etmektedir. Dünyamızda, kurumsal şirketler gibi tamamen kapalı sistemler nispeten azdır (Özkan & Lajunen, 2015). Öte yandan, Özkan ve Lajunen (2015), trafik sisteminin yol kullanıcıları arasındaki aktif ve pasif etkileşimlerle ilgili çeşitli unsurları içerdiğinden, trafiğin insan yaşamındaki en açık sistemlerden biri olduğunu vurgulamıştır.

Sistem çevreleri, ilgili teoriler kapsamında çeşitli biçimlerde tanımlanabilir ve Bronfenbrenner'in sosyal-ekolojik teorisi (1979) bunlardan biridir. Bronfenbrenner (1979), insan organizması ve çevre arasındaki etkileşimin, insani gelişimin temel unsurları olduğunu iddia etmektedir. Bronfenbrenner (1979), ekolojik çevrenin mikro, mezo, ekzo ve makro sistemler olarak adlandırılan dört sistemden oluştuğuna dikkat çekmiştir. İlk olarak, mikro sistemler, fiziksel ve maddi unsurlar da dahil olmak üzere belirli koşullar altında, gelişmekte olan bir kişi ile ilişkili belirli bir etkinlik, rol ve kişilerarası ilişki örüntüsü çerçevesinde tanımlanmıştır. İkinci olarak, mezosistemler, iki veya daha fazla ortam arasındaki ilişkileri içerir ve bir çocuk için ev, okul, akran

grubu ilişkileri gibi ortamlardan oluşurken; gelişmekte olan kişinin aktif katılımını gerektiren bir yetişkin için ise aile, iş ve sosyal yaşam gibi çevrelerden oluşmaktadır. Ekzosistemlerde, gelişmekte olan kişinin aktif katılımına gerek yoktur; bununla birlikte, gelişmekte olan bir kişi sistem ortamındaki olayları etkiler veya etkilenebilir. Makrosistemler, altkültürde veya tüm kültür seviyelerinde, inanç sistemleri veya ideoloji de dâhil olmak üzere alt seviyeden sistemlerde (yani mikro, mezo ve ekzo) tutarlılıklar yoluyla var olmuş veya olabilecek sistemlerdir. Bu dört sistem, kişilerarası faktörler, kurumsal ve kültürel unsurlar olan belirli faktörlerin rolleri altında değerlendirilebilir (Özkan & Lajunen, 2015). Runyan'a (2003) göre, bireylerin biyolojik unsurları ile gelişimsel ve sosyo-davranışsal unsurlar kişinin kendi içindeki faktörlerle ilişkilidir. En az iki kişinin etkileşimi ile farklı ortamlarda ortaya çıkan kişilerarası faktörler, okullar ve işyerleri gibi birden fazla kuruluşun kurumsal unsurlarıyla ilişkilidir. Son olarak, kültürel unsurlar, sosyal normlar ve değerler ve insan davranışları veya organizasyonlarla ilgili hükümet politikalarının yönlendirilmesi ve yükümlülükleri aracılığıyla daha geniş anlamda değerlendirilmiştir. Bu çalışmada, genç sürücülerin risk alma davranışlarının, yol güvenliği için aile iklimi ve akran baskısının mezosistemlerde; ve trafik ikliminin ise makrosistemlerdeki etkisi kapsamında incelenmesi amaçlanmıştır.

Genç Sürücülerin Risk Alma Davranışları

Sümer, Lajunen ve Özkan (2005), riskli sürüş davranışını "bir kişinin tehlikeli sollama, kırmızı ışıkta geçmesi, aşırı hız vb. gibi trafik kazalarına karışma olasılığını artıran davranışlar " olarak tanımlamışlardır. Jonah (1986) ve Williams (1998), yakın takip, alkol etkisi altında araç kullanma ve madde kullanımı gibi diğer davranışları da riskli sürüş davranışları olarak eklemiştir.

Genç sürücülerin trafik güvenliğine karşı daha olumlu tutumlar gösterdikleri zaman daha az riskli sürüş davranışları gösterdikleri bulunmuştur (Ulleberg & Rundmo, 2003). Genç sürücüler arasında risk alma davranışı ölçmek için kullanılan ölçeklerden biri olan Risk-Alma Davranışsal Ölçekleri, Ulleberg ve Rundmo (2000) tarafından geliştirilmiştir. Ölçek, 15 maddeden oluşan üç boyut içermektedir: kendini onaylama, hızlanma ve kural ihlalleri. Kendini onaylama boyutu, kişinin kendi görüşlerinin, ihtiyaçlarının ve sürüş bağlamında öneminin ifade edilmesiyle ilişkilidir. Hız boyutu

ise trafikte hız davranışı ile ilişkilidir. Son olarak kural ihlalleri olarak adlandırılan boyut, trafik kurallarının ihlali ile ilgili davranışları içermektedir. Bu çalışmada, genç sürücülerin riskli sürüş davranışlarını araştırmak için Risk-Alma Davranışsal Ölçekleri kullanılmıştır.

Davranışların merkezi belirleyicileri, tutumlar, algılanan risk, sosyal normlar ve algılanan davranış kontrolü gibi çeşitli değişkenleri içermektedir. Ayrıntılı olarak, trafik güvenliğine yönelik tutumların agresif sürüş davranışlarının, hızlı sürüş ve beyana dayalı ölçümlerine dayalı kazaya dahil olma ile ilişkili olduğu bulunmuştur (Parker & Manstead, 1996; West & Hall, 1997; Parker ve ark., 1998). Ayrıca, diğer yaş gruplarıyla karşılaştırıldığında, genç sürücüler algılanan riskler göz önüne alındığında trafikte olası riskleri hafife alma eğilimindedir. Genç sürücülerin riskli sürüş davranışları "sorun" (Jessor & Jessor, 1977) veya "pervasız" davranışlar (Arnett, 1992, 1995) olarak değerlendirildiğinde, altta yatan nedenler vurgulanmalıdır. Genç sürücüler, yetişkin benzeri statüye sahip olma isteği sebebiyle riskli sürüş gibi sorunlu davranışlarda bulunurlar (Jessor & Jessor, 1977). Buna ek olarak, genç sürücüler trafikteki tehlikeleri daha az bütünsel algılamaya (Milech ve ark., 1989; Deery, 1999) ve kendi sürüş becerilerini abartmaya eğilimlidirler (Moe, 1986).

Curry, Peek-Asa, Hamann ve Mirman (2015) yaptıkları derlemede, ebeveynlerin çocuklarının gelişimi üzerinde önemli bir etkiye sahip olduğu belirtilmektedir. Çocuklarına duyarlı olan, gelişim sürecine dayalı olarak uygun davranışsal sınırlar belirleyen ve sıkı disiplinden kaçınan ebeveynler, çocuklarının gelişimi üzerinde olumlu bir etkiye sahiptir. Ayrıca, daha düşük ciddi kaza oranlarıyla yüksek düzeyde ebeveyn izlemesinin ilişkili olduğu bulunmuştur (Shope, Waller, Rahhunathan & Patil, 2001). Ebeveyn etkisi ile ilgili bir başka çalışma, ebeveynlerinin araç kullanma konusunda özel kuralları olduğunda genç sürücülerin daha az agresif bir şekilde araç kullandığını ve trafik kurallarını daha fazla uyguladıklarını bildirme olasılığının olduğunu ve akranları tarafından daha az dikkatlerinin dağıtıldığını göstermiştir (Beck, Shattuck ve Raleigh, 2001).

Ayrıca, riskli sürüş konusunda akran etkisi göz önünde bulundurulduğunda, genç sürücüler kendi gruplarında kabul edilmek için bir motivasyona sahip olduğu da vurgulanmalıdır. Örneğin, Weston (2016), akran etkisine karşı yüksek duyarlılığın

(sosyal prestij ve akranlara ulaşma) daha fazla beyana dayalı riskli sürüş ihlalleri ile ilişkili olduğunu bulmuştur. Ebeveynlerin ve akran baskısının etkisine ek olarak, bir davranış, yalnızca yasal olarak değil, aynı zamanda gayri resmi olarak da ihlallerin tanımını etkileyen kültürel ve çevresel faktörler yoluyla "kabul edilebilir" ve "normal" hale gelir (Manstead, 1998). Karayolu trafik güvenliği ile ilgili dış etkenlerin anlaşılması, risk algısı ve trafik güvenliğine yönelik tutumlar olmak üzere iki önemli kavram hakkında bilgi sağlayabilir (Nordfjarn, Şimşekoğlu & Rundmo, 2014). Bu nedenle, genç sürücülerin trafik iklimini daha geniş bir bağlamda nasıl algıladıkları, trafikteki risk alma davranışlarıyla ilgili olabilir.

Aile İklimi

Curry, Peek-Asa, Hamann ve Mirman (2015) incelemesinde yazarlar, ebeveynlerin çocuklarının gelişimi üzerinde önemli bir etkiye sahip olduklarını belirtti. Çocuklarına duyarlı olan ebeveynler, gelişim sürecine dayalı olarak uygun davranışsal sınırlar belirler. Yazarlar ayrıca, genetik ve çevresel faktörlerin paylaşılmasının, ebeveyn bilgisinin ve model alma davranışının, ebeveynlik tarzının ve çocuklarının sürüş bağlamında davranışlarını izlemenin önemini vurgulamışlardır. Ebeveynin dahil olması sürüş bağlamında önemli bir rol oynadığından, ebeveyn-çocuk ilişkisini anlamak için temel yaklaşımlardan bahsedilmelidir. Bu nedenle, sosyal öğrenme teorisi (Bandura, 1977) bu bağlamda söz konusu olabilir. Sosyal öğrenme teorisine göre, model alma çocukların davranışlarını şekillendiren ana faktördür. Örneğin, ebeveynler kuralları ihlal ettiğinde, alkol tükettiğinde veya sigara içtiğinde, çocukları da ebeveynleri gibi benzer davranış kalıpları gösterir (Corvo & Carpenter, 2000; White, Smith, Koss & Figueredo, 2000).

Shope, Waller, Rahhunathan ve Patil (2001), yüksek düzeyde ebeveyn gözetiminin daha düşük ciddi kaza oranlarıyla ilişkili olduğunu bulmuştur. Sosyal Öğrenme teorisine ek olarak, Taubman-Ben-Ari ve Katz-Ben-Ami (2013), güvenlik iklimine odaklanarak aile bağlamı ile ilgili farklı bakış açıları kullandılar. "Güvenlik iklimi" kavramı, çalışanların kurum güvenliği rolü ile ilgili algıları olarak tanımlanmıştır. Bu algılar kurumların politikaları, prosedürleri, uygulamaları, güvenlikle ilgili öncelikleri ile ilişkilidir (Zohar, 1980) . Zohar (1980), işçilerin güvenlik önceliği ile ilgili algılarının ve beklentilerinin, denetçilerini gözlemleyerek geliştirildiğini belirtmiştir.

Güvenlik iklimi kavramı, trafik bağlamında kazalar ve yaralanmalar gibi güvenlik davranışını ve güvenlikle ilgili sonuçları tahmin etmek için önemli bir anlama sahiptir(örn: Christian ve ark., 2009; Nahrgang ve ark., 2008). Benzer şekilde, Taubman-Ben-Ari ve Katz-Ben-Ami (2013), güvenlik ikliminin aile boyutlarına dayalı genç sürücüler üzerindeki etkisini incelemek için bu açıklamayı aile bağlamında uygulamış ve yol güvenliği için "aile iklimi" adında yeni bir kavram belirlemişlerdir. Yol güvenliği için aile iklimi; model alma, geri bildirim, iletişim, gözetim, güvenliğe bağlılık, mesajlar ve sınırlar olarak yedi boyuttan oluşmaktadır

İletişim boyutu, çocuklarla sürüş davranışı, risk alma ve ebeveynlerin yoldaki potansiyel tehlikeleri açıklama eğilimi hakkında açık ve doğrudan iletişimin önemini ve çocuklarıyla sürüş konusunda açık tartışmanın aile bağlamında riskli sürüşü içermesiyle ilişkilidir. Diğer boyut - gözetim, gençlerin sürüş davranışları ve alışkanlıkları hakkında ebeveyn gözetimi ile ilgilidir. Güvenliğe bağlılık boyutu, yol güvenliği ve güvenlik eğitimi için zaman ayırmak, trafik kurallarına uymak ile ilgili gerekli iletişime yatırım yapmak olarak açıklanabilir. Mesajlar boyutu, ebeveynlerin güvenlik ile ilgili net mesajlarından oluşur. Bu nedenle, çocuklar sürüş ile ilgili mesajları açıkça anlayabilirler. Sınırlar olan son boyut ise ebeveynlerin çocuklarının sürüş davranışlarına koyduğu sistematik ve açık sınırları içerir. Ayrıca, ebeveynler çocuklarını trafik ihlalleri konusunda sınır belirleyerek disipline edebilirler (Taubman-Ben-Ari & Katz-Ben-Ami, 2012).

Prato, Lotan ve Toledo (2009), genç erkek sürücü davranışları ile annelerinin ve babalarının sürüş davranışları arasında anlamlı bir ilişki olduğunu bulmuştur. Ayrıca çalışmanın bulgularına göre genç kadın sürücüler anneleriyle benzer sürüş davranışları göstermiştir. Bianchi ve Summala (2004), ebeveynlerin çocuklarının trafik kazasına katılımını açıklamak için etkisi olduğunu belirtmiştir. Çalışmada, çocuk-ebeveyn çiftleri Sürücü Davranışları Anketi'ni doldurmuştur (Reason ve ark., 1990) ve babaların sürüş davranışları açısından oğulları ve kızları üzerinde etkisi olduğu; bununla birlikte, annelerin de kızları üzerinde oğullarından daha fazla etkisi olduğu çalışmanın bulguları arasındadır. Bazı çalışmaların ebeveynin cinsiyeti, akran etkisi ve riskli sürüş arasındaki ilişkiye odaklandığı bilinmektedir. Örneğin, ebeveynlerin genç kızları üzerinde oğullardan daha fazla kontrole sahip oldukları bulunmuştur (örn:

Barnes, Reifman, Farrell & Dintcheff, 2000; Borawski ve ark., 2003; Li, Feigelman & Stanton, 2000). Öte yandan, kaza durumlarında ebeveynlerin rolleri çalışmalarda daha az dikkat çekmiştir (Ferguson, Williams, Chapline, Reinfurt & Leonardis, 2001).

Sonuç olarak, yol güvenliği ile ilgili aile iklimi boyutları, bu çalışmada genç sürücüler arasında risk alma davranışlarını araştırmak için önemli kişilerarası faktörlerden biri olarak kabul edilmektedir. Ebeveynlerin cinsiyeti göz önüne alındığında, genç sürücülerin babalarını ve annelerini güvenlik açısından nasıl değerlendirdikleri konusunda farklılıklar olabilir. Bu nedenle, bu farklılıklar farklı risk alma davranışlarıyla ilişkili olabilir. Bu çalışmanın amaçlarından biri genç sürücülerin annelerini ve babalarını yol güvenliği için aile iklimi kapsamında sürüş güvenliği konusunda nasıl algıladıklarını incelemektir.

Akran Baskısı

Akran baskısı, akranların davranışlarını onaylamaları veya onaylamamaları için arkadaşlarına sosyal baskı uygulama yeteneği olarak tanımlanır. İnsanlar izolasyondan kaçınma eğiliminde olduklarından, sosyal çevrelerinde kabul edilebilir bir şekilde davranmaktadırlar (Lashbrook, 2000). Scott-Parker, Watson ve King (2009), riskli sürüş ile Aker'in sosyal öğrenme teorisi, sosyal kimlik teorisi ve heyecan arayışı arasındaki ilişkiyi incelemek için bir anket geliştirmiş; çalışmanın sonuçlarına göre, sürüş davranışlarının taklit edilmesinin ve akranlar tarafından beklenen ödül ve cezaların riskli sürüşü önemli ölçüde öngördüğü bulunmuştur. Dahası, Berkowitz (2004), algılanan akran baskısının, kişinin davranışları üzerinde daha büyük bir etkisi olduğunu belirtmiştir. Taubman-Ben-Ari ve Katz-Ben-Ami (2012), genç sürücüler arasında riskli sürüş üzerindeki akran etkisine ilişkin sosyal çevrenin çeşitli yönlerinin katkısını araştırmıştır. Riskli sürüş için akran baskısını incelemek için yapılan ili çalışmada bulgular, pervasız sürüş alışkanlıkları ile akran baskısı arasında bir ilişki olduğunu ve bu da daha yüksek pervasız sürüş ile ilişkili daha yüksek akran baskısı anlamına geldiğini gösteriştir. Ayrıca, daha düşük algılanan popülerlik, riskli sürüş eğiliminin azalmasıyla ilişkili olarak bulunmuştur. Gardner ve Steinberg (2005), akranların gençler arasında riskli davranışlarda önemli bir rol oynadığını vurgulamıştır. Bu nedenle, ergenler risk eğilimli arkadaşları nedeniyle yetişkinlerden daha riskli davranışlar gösterebilirler. Buna ek olarak, yazarlar ergenlerin grup

bağlamında riskli davranışları yalnız olduklarından daha kolay gösterdiklerini belirtmişlerdir. Cinsiyet farklılıkları göz önüne alındığında, genç kadın sürücüler erkek arkadaşlarının hız davranışlarını destekleyeceğini bildirirken kız arkadaşlarının aşırı hız davranışlarını onaylamayacağını belirtmişlerdir. Erkekler ise erkek arkadaşlarının hızlanma niyetlerini destekleyeceğini beyan etmiştir (Horvath, Lewis ve Watson, 2012).

Taubman-Ben-Ari ve Katz-Ben-Ami (2012), genç sürücüler arasında riskli sürüş üzerindeki akran etkisine ilişkin sosyal çevrenin çeşitli yönlerinin katkısını araştırdığında bulgular, pervasız sürüş alışkanlıkları ile akran baskısı arasında bir ilişki olduğunu ve bu da daha yüksek pervasız sürüş ile ilişkili daha yüksek akran baskısı anlamına geldiğini göstermiştir. Buna ek olarak, daha düşük algılanan popülerlik, riskli sürüş eğiliminin azalmasıyla ilişkili olarak bulunmuştur.

Ayrıca, Mirman, Albert, Jacobsohn ve Winston (2012), ebeveynlik ve riskli sürüş arasındaki ilişkiyi akran yolcunun arabulucu rolü ile incelemeyi amaçlamıştır. İlgili sonuçlar, ebeveynleri güçlü gözlemciler ve kural koyucular olarak algılamanın daha az riskli sürüşle ilişkili olduğunu göstermiştir. Özetle, akranların varlığı ve genç sürücüler arasında bir grupta kabul görmek önemli motivasyonel ve kişilerarası faktörler olarak değerlendirilebilir ve bazı durumlarda riskli sürüş ile sonuçlanabilir. Bu çalışmada, akran baskısı, genç sürücülerin trafik bağlamında risk alma davranışlarını anlamak için başka bir dış faktör olarak dahil edilmiştir.

Trafik Güvenliği İklimi

Trafik kazalarında, insan faktörleri tek veya katkıda bulunan bir yakınsal faktör olarak değerlendirilmektedir (Evans, 2004; Lajunen, 1997; Rumar, 1985). Bu insan faktörleri, sürücü davranışı (yani "sürücüler genellikle ne yapar") ve sürücü performansı (yani "sürücüler ne yapabilir") olan iki bileşende kategorize edilebilir (Elander ve ark., 1993). Lajunen (1997), sürücü davranışının ve sürücü performansının sürüş deneyimine dayalı kazalarla ilgili olduğunu belirtmiştir.

Evans (2004), trafik sistemindeki uygulamaların temel amacının, güvenliği artırmak ve hareketliliği teşvik ederek belirli bir zamanda hedef hedefe ulaşmak için kaza sayısını ve yakın kazaları azaltmak olduğunu belirtmiştir. Evans'a (2004) göre, ülkeler

kaza riskini en aza indirerek hareketliliği ilk sıraya koymuştur. Ward, Linkenbach, Keller ve Otto (2010), trafik bağlamında ölüm, yaralanma ve kaza sayısı gibi istenmeyen sonuçları azaltma girişimlerinin yollarda trafik güvenliği hedeflerine ulaşmak için yeterince etkili olmadığını belirtmiştir. Bu sebeple, istenen güvenlik seviyesine ulaşmak için, trafik iklimi perspektifi güvenlik açısından dikkate alınmalıdır.

Kültür ve iklim kavramları birbirinin yerine kullanılsa da, bu kavramların trafik bağlamında farklı anlamları vardır. Kültür, insanlar, iş, örgütler ve toplum için inanç ve değerlerden oluşur (Özkan & Lajunen, 2011). Ayrıca, daha nitel bir yaklaşım ve nispeten istikrarlı olarak değerlendirilir. Öte yandan, iklim, kurumsal üyeler için ortak olan duygu ve davranışların ifadesini içerir. Dahası, iklim daha niceliksel bir yaklaşımdır ve etkileşimler iklimi şekillendirir (Özkan & Lajunen, 2011). Leviäkangas'a (1998) göre, trafik güvenliği kültürü "sürücülerin yanı sıra araçların ve altyapının becerilerini, tutumlarını ve davranışlarını etkileyen tüm faktörlerin toplamını" içermektedir. Trafik güvenliği kültürü yol güvenliği tutum ve davranışları açısından incelendiğinde, Gehlert, Hagemeister ve Özkan (2014) yol güvenliği için "bir kaza olasılığı, risk algılaması değişkenleri ile ilgili olarak vurgulanan, trafik ihlali ya da trafik uygunluk/stili" şeklinde bir tanımlama yapmıştır. Bu nedenle, trafik iklimi "yol kullanıcılarının "(örn. sürücüler) belirli bir zamanda belirli bağlamda (yani ülkenin) trafiğikle ilgili tutumları ve algılarını" içermektedir (Özkan & Lajunen, 2011).

Trafik güvenliği iklimi, sürücülerin trafik iklimi hakkındaki algılarını, ülkelerindeki trafiğe yönelik tutumları açısından çeşitli ifadeler ve sıfatlar aracılığıyla Trafik İklimi Ölçeği (TİÖ) ile ölçülmektedir. TİÖ, Özkan ve Lajunen (yayımlanmamış1) tarafından Türk örneğinde geliştirilmiş ve test edilmiştir. Profesyonel olmayan sürücülerle yapılan ilk çalışmada beş faktör belirlenmiş ve işlevsellik, dışsal-duygusal talepler, içsellik, kontrol edilemezlik ve rekabetçilik olarak adlandırılmıştır. İkinci çalışmada, örneklem profesyonel olmayan sürücülerle kamyon ve otobüs şoförleri örneklem olarak seçilmiştir. Çalışmanın sonuçları, işlevsellik, dışsallık, içsellik ve rekabetçilik olmak üzere dört faktörün olduğunu göstermiştir. Üçüncü çalışmada, sonuçlar agresif ihlallerin ve olağan ihlallerin içsellikle olumsuz ilişkili olduğunu ve hataların

işlevsellik ve dışsallık tarafından olumlu olarak tahmin edildiğini göstermiştir; oysa hatalar içsellikle negatif ilişki göstermiştir (Özkan & Lajunen, unpublished2). Ayrıca, TİÖ, Alman örneğinde bisikletçiler, yayalar, araç sürücüleri ve yayalar gibi farklı yol kullanıcı grupları aracılığıyla da kullanılmıştır. Çalışmada, sonuçlar üç faktörlü yapı olduğu ortaya konmuştur; dış-duygusal talepler, içsellik ve işlevsellik şeklinde bu üç alt boyut tanımlanmıştır. Trafiğe dahil olan yol kullanıcıları için dış-duygusal talepler gerekli olan duygusal bağlılık olarak tanımlanırken, işlevsellik fonksiyonel trafik sistemi ile ilişkildir. İç gereksinimler boyutu ise yol kullanıcıları beceri ve yeteneklerine odaklanarak trafiğin başarılı bir parçası olması olarak tanımlanmıştır (Gehlert, Hagemeister, & Özkan, 2014).

İlgili literatür, hem aile ikliminin hem de akran baskısının genç sürücülerin risk alma davranışları üzerindeki etkisinin araştırıldığını göstermiştir. Öte yandan, çok az sayıda çalışma, genç sürücülerin trafik iklimi hakkındaki değerlendirmelerini trafikte risk alma davranışları açısından incelemiştir. Genç sürücülerin ülkelerinin trafik iklimini nasıl algıladıkları ile sürüş davranışları arasında bir ilişki olabileceği varsayılabilir. Örneğin, trafik dışarıdan duygusal talep olarak algılandığında, daha fazla ihlal gösterilebilir. Ayrıca, trafik bağlamı yüksek sürüş becerileri gerektirir olarak algılandığında, sürücüler trafikte gerekli becerilere göre araç kullanabili (Özkan & Lajunen, yayımlanmamış). Zihni-Üzümcüoğlu (2018), trafiği daha işlevsel olarak algıladığında sürücülerin daha az ihlal gösterdiğini tespit etmiştir

Özetle, yol güvenliği için aile iklimi ile akran baskısı ve risk alma davranışları arasındaki ilişki araştırılmıştır. Buna ek olarak genç sürücülerin risk alma davranışlarını incelemek için, hem mezosistemdeki kişilerarası faktörleri hem de makro sistemdeki kültürel faktörleri trafik güvenliği iklimi ile incelemek gerekir.

Çalışmanın Amacı

İlgili literatür ışığında, bu çalışmanın ilk amacı, yol güvenliği için Aile iklimi ölçeği, akran baskısı ölçeği ve Risk alma davranış Ölçeklerini Türkçe'ye çevirmek ve faktör yapılarını incelemektir. İkinci olarak, aile ikliminin, akran baskısının ve trafik ikliminin genç sürücülerin risk alma davranışı üzerindeki etkisini ailede annesi araç kullananlar, ailede babası araç kullananlar ve ailede sadece babası araç kullananlara

göre incelemektir. Carlson ve Klein (1970), ailesel sosyalleşmenin sürüş davranışları üzerinde diğer sosyal kurumlardan daha fazla etkiye sahip olduğunu savunmuştur. Bu nedenle, bu çalışma kapsamında aile iklimi kişilerarası faktörlerde Seviye 1'de ve akran baskısı Seviye 2'de yer almaktadır. Daha geniş anlamda ise , trafik iklimi kültürel faktörlerde değerlendirilmeye alınmıştır.Bu çalışmanın temel amacı, akran baskısının (birincil moderatör) ve trafik ikliminin (ikincil moderatör) yol güvenliği için aile iklimi (anneler ve babalar için ve sadece babalar için) ve genç sürücülerin risk alma davranışları arasındaki ilişki üzerindeki düzenleyici rollerini sosyo-ekolojik perspektif kapsamında araştırmaktır.

Bu çalışmanın doğası keşifsel temelli olsa da daha az akran baskısı ve daha işlevsel trafiğin, yol güvenliği için aile iklimi ile genç sürücülerin riskli sürüş davranışları arasındaki ilişkiyi azaltması beklenmektedir. Başka bir deyişle, genç sürücüler, annelerinin ve babalarının araç kullanma ile ilgili güvenli bir tutuma sahip olduklarını algıladıklarında daha az riskli sürüş davranışları göstereceklerdir. Diğer taraftan, daha fazla akran baskısı hisseden ve trafiği daha az işlevsel algılayan ve anne ile babasının trafik güvenliğine dair daha az öneme sahip olduğunu düşünen genç sürücüler daha riskli sürüş davranışları gösterebilir.

Yöntem

Katılımcılar

Bu çalışmada, ilk aşamada elde edilen veriler kontrol edilerek yaş ve toplam kilometre açısından aykırı değerler tespit edilmiştir. Bu nedenle, aykırı değerlerden sonra 400 katılımcı çalışmaya dahil edilmiştir. Bu çalışmada 182 kadın (%45.5) ve 218 erkek (%54.5) sürücü vardır. Katılımcıların yaş ortalaması 21.29 (SS = 1.78) ve yaş aralığı 18 ile 25 arasındadır. Yaşam süresi kilometresinin ortalaması ise 35795.93 (SS = 75205.23) olarak belirtilmiştir.

Ölçümler

Yol Güvenliği Kapsamında Aile İklimi Ölçeği

Yol güvenliği kapsamında aile iklimi ölçeği (Taubman-Ben-Ari & Katz-Ben-Amı, 2013), genç sürücülerin ebeveynlerinin güvenli sürüş ile ilgili değerleri, algıları,

öncelikleri ve uygulamaları ile ilgili algılarını ölçmek için geliştirilmiştir. Bu çalışmada, katılımcılardan anneleri ve babaları için ölçeği ayrı ayrı tamamlamaları istenmiştir. Her bir ifadeye verilen yanıtlar, 1'den (hiç değil) 5'e (çok fazla) 5 puanlanmış ve Likert tipi ölçek kullanılmıştır. Bu çalışmanın sonuç bölümünde, bu faktörlerin Cronbach alfa seviyeleri sunulmuştur.

Akran Baskısı Ölçeği

Akran baskısı ölçeği (Carpentier, Brijs, Brijs, Daniels ve Wets, 2014), akranların hem örtülü hem de açık etkilerini dikkate alma eğilimini ölçmek için geliştirilmiştir. Öğeler, Parker, Manstead ve Stradlin (2010) tarafından geliştirilen 'hızlanma ölçeğine yönelik sosyal normlar' gibi mevcut ölçekler aracılığıyla üretilmiştir. Bu ölçek, hem örtük (örneğin, "arkadaşlarım sürüş sırasında cep telefonlarını düzenli olarak kullanıyor") hem de açık (örneğin, "arkadaşlarım her zaman emniyet kemerinizi takmazsanız umursamıyor") akran baskısının etkilerini değerlendirmeyi amaçlamıştır. Katılımcılardan 5 puanlık Likert ölçeklerinde ilgili maddelere katılma seviyelerini ifade etmeleri istenmiştir(1 = tamamen ayrıştırma, 5 = tamamen aggree). Bu çalışmanın sonuç bölümünde, bu faktörlerin Cronbach alfa seviyeleri sunulmuştur.

Trafik İklimi Ölçeği

Trafik iklim ölçeği Özkan ve Lajunen (yayınlanmamış) tarafından geliştirilmiştir ve trafikteki olası durumlarla ilgili 44 ifade veya sıfat içermektedir. Ölçeğin üç boyutu vardır: dış duygusal gereksinimler, işlevsellik ve iç gereksinimler. Katılımcılardan, maddelerin ülkelerindeki trafiği 6 puanlık bir ölçek üzerinden bu ifade ve sıfatları kullanarak trafiği ne kadar tanımladığını değerlendirmeleri istenmiştir. Bu faktörlerin Cronbach alfa seviyeleri sonuç bölümünde sunulmuştur.

Risk Alma Davranışları Ölçeği

Risk alma davranışları ölçeği, genç sürücüler arasında riskli sürüş davranışlarını ölçmek için Ulleberg ve Rundmo (2000) tarafından geliştirilmiştir. Ölçek, 15 maddeden oluşan üç boyut içerir: kendini onaylama, hızlanma ve kural ihlalleri. Katılımcılardan, 5 puanlık Likert ölçeğine dayanarak 1 (asla) ile 5 (çok sık) arasında değişen trafik bağlamında farklı risk alma eylemlerini ne sıklıkta gösterdiklerini

belirtmeleri istenmiştir. Bu çalışmanın sonuç bölümünde, bu faktörlerin Cronbach alfa seviyeleri sunulmuştur.

Yordam

Veri toplama süreci birkaç aşamadan oluşmuştur. İlk olarak, anket paketi için etik izin Orta Doğu Teknik Üniversitesi Etik Kurulu'ndan alınmıştır. Daha sonra, anketlerin İngilizce versiyonu çeviri prosedürü için araştırmacılara gönderilmiştir. Sinan Alper, Özgün Özkan ve Özlem Ersan anketleri ileri geri çeviri yöntemleri ile Türkçe'ye çevirmiştir. Çeviri işleminden sonra, anket paketi Qualtrics adlı çevrimiçi anket programına dahil edilmiş ve olası katılımcılar için özel bir bağlantı üzerinden dağıtılmıştır. Bağlantı daha sonra sosyal medya kanalları gibi çeşitli platformlar aracılığıyla paylaşılmıştır. Katılımcılar, bu çalışmanın amacına paralel olarak gerekli koşullara göre seçilmiştir. İlk olarak, katılımcıların yaş aralığı 18 ila 25 arasındadır. Ayrıca, katılımcıların sürücü ehliyetine sahip olması gerekmektedir. Son olarak, anket paketi sürücü davranışlarıyla ilgili öğeleri içerdiğinden, katılımcıların yaşamları boyunca en az 2500 km araç kullanmaları beklenmiştir. Katılımcılar, ailelerinin sürüş davranışları ve riskli sürüş davranışları gibi kritik konularla ilgili anketleri doldurduklarından, anonim olmama konusunda rahatsızlık duyabilirler. Bu nedenle, gizlilik konusunda katılımcılara garanti verilmiştir. Katılımcılar, demografik bilgi formu, hem anneleri hem de babaları için Aile İklimi Kapsamında Yol Güvenliği Ölçeği, Akran Baskısı Ölçeği, Trafik İklimi Ölçeği ve Risk Alma Davranışları Ölçeği dahil olmak üzere anket paketini doldurmuşlardır. Katılımcılar, Aile İklimi Kapsamında Yol Güvenliği Ölçeği'ni dolduruken ailede kimin araç kullandığına göre doldurmuştur. Annesi araç kullananlar sadece annesi için bu ölçeği doldururken, babası araç kullananlar sadece babası içim, her iki ebeveyn araç kullanıyorsa ikisi için de ölçeği doldurmuştur. Diğer ölçekler bu çalışmaya katılan tüm katılımcılar tarafından tamamlanmıştır.

İstatistiksel Analizler

Katılımcıların kendilerinin, annelerinin ve babalarının kaza geçmişlerinin sıklığını araştırmak için tanımlayıcı istatistikler uygulanmıştır. Daha sonra, anneler için, aynı örneklemdeki babalar için, sadece babalar için Aike İklimi Kapsamında Yol Güvenliği

Ölçeği, Akran Baskısı Ölçeği, Trafik İklimi Ölçeği ve Risk Alma Davranışları Ölçeğinin faktör yapılarını incelemek için için Promax rotasyon tekniği ile temel bileşen analizi yapılmıştır. Çalışma değişkenleri arasındaki ilişkiyi incelemek için korelasyon analizleri uygulanmıştır. Sonra, hiyerarşik regresyon analizi, bir dizi düzenleyici düzenleme analizi yapılmıştır. Anlamlı etkileşimler, pick-a-point yaklaşımı ve Johnson-Neyman tekniği olan iki yaklaşımla gösterilmiştir.

Pick-A-Point Yaklaşımı Ve Johnson-Neyman Tekniği

Pick-a-point yaklaşımı, akran baskısının aile ikliminin çeşitli trafik iklimi değerlerine bağlı genç sürücülerin risk alma davranışları üzerindeki etkisini kontrol edip etmediğini belirlemek amacıyla ikincil bir moderatör olarak trafik ikliminin hangi değerlerinin seçildiğini göstermek için kullanılmıştır. Johnson-Neyman (JN) tekniği, yol güvenliği için aile ikliminin, önemli etkileşimleri çizerek trafik iklimine bağlı olmak için akran baskısı ile risk alma davranışları üzerinde önemli koşullu etkisini göstermek için kullanılmıştır. JN tekniği, anneleri, babaları ve sadece babaları araç kullanan katılımcılar için trafik iklimine bağlı olarak akran baskısının sürekliliği içindeki risk alma davranışları üzerinde yol güvenliği için aile ikliminin "önem bölgesini" (Hayes, 2013, s. 240) tanımlamak için kullanılmıştır. Başka bir deyişle, akran baskısının yol güvenliği ve risk alma davranışları için aile iklimi arasındaki ilişki üzerindeki düzenleyici rolünün, trafik iklimindeki belirli kesme noktalarına dayanıp dayanmadığını göstermek amacıyla kullanılmıştır.

Bulgular ve Tartışma

Tanımlayıcı istatistikler

Bu çalışmada, 328 katılımcı "araç kullanmayı kimden öğrendiniz?" sorusunu cevaplamıştır. Cevaplarına göre, katılımcıların %45.7'si babalarından, %30.5'i sürücü eğitmeninden, %7.3'ü büyük kardeşlerinden, %7'si annelerinden, %4'ü diğer insanlardan (örneğin akrabalar, eşler, video oyunları vb.) , %3'ü ablalarından, %2.1'i arkadaşlarından ve %0.3'ü sırasıyla küçük kardeşlerinden araba kullanmayı öğrendiğini belirtmiştir. Ayrıca, katılımcılara aktif ve pasif kazalar ve trafik cezaları (yanlış park etme, yanlış sollama, hız ihlali ve diğerleri) dahil olmak üzere son 3 yıldaki kaza geçmişi hakkında sorular sorulmuş ve hem annelerinin hem de babalarının

kaza geçmişi ve sadece babalarının kaza geçmişi istenmiştir. Emniyet Genel Müdürlüğü Trafik Daire Başkanlığı'na göre Türkiye'de 2017 yılında 28 adet 181 830 kayıtlı sürücünün, %74,9'u erkek, %25,1'i kadın sürücüden oluşmuştur. Bu nedenle, erkek ve kadın sürücü sayısındaki farklılıklar, ilk önce babalardan araba kullanmayı öğrenmenin yüksek yüzdesiyle ilişkili olabilir. Katılımcılar, çoğunlukla hız ihlalleri nedeniyle trafik cezaları aldıklarını bildirmiştir. Benzer şekilde, hem annelerinin hem de babalarının diğer para cezalarına kıyasla hız ihlalleri nedeniyle trafik cezaları olduğunu bildirmişlerdir. Benzer şekilde, sadece babaları sürücü olan katılımcılar, hem babalarının hem de kendilerinin hız ihlalleri nedeniyle diğer para cezalarından daha fazla trafik cezası aldığını bildirmiştir. Emniyet Genel Müdürlüğü Trafik Dairesi istatistiklerine göre, 2018 yılında hız sınırını aşması nedeniyle 604 236 sürücü trafik cezası almış ve bu sayı diğer para cezalarına göre en yüksek oran olmuştur. Bu nedenle, sonuçlar genel olarak hız sınırlarını aşması nedeniyle trafik cezalarına sahip olma istatistikleriyle paralellik göstermiştir.

Temel Bileşen Analizleri

Aile İklimi Kpasamında Yol Güvenliği Ölçeği annesi ve babası araç kullananlar ve ailede ebeveyn olarak sadece babası araç kullananlar tarafından ayrı ayrı doldurulmuştur. Annesi araç kullananlar için Aile İklimi Kapsamında Yol Güvenliği Ölçeği'ne uygulanan temel bileşen analizinin sonuçlarına göre dört faktörlü bir yapı elde edilmiş ve bu faktörler sırasıyla iletişim, güvenliğe bağlanmama, gözetim ve geri bildirim olarak isimlendirilmiştir. Benzer şekilde babası araç kullananlar için Aile İklimi Kapsamında Yol Güvenliği Ölçeği'ne uygulanan temel bileşen analizine göre dört faktörlü bir yapı elde edilmiş ve bu faktörler sırasıyla iletişim, güvenliğe bağlanmama, gözetim ve geri bildirim olarak isimlendirilmiştir. Sadece babası araç kullanan katılımcılar için Aile İklimi Kapsamında Yol Güvenliği Ölçeği'ne uygulanan temel bileşen analizinin sonuçlarına göre dört faktörlü bir yapı elde edilmiş ve bu faktörler sırasıyla iletişim, model alma, gözetim ve geri bildirim olarak isimlendirilmiştir. Çalışmada, katılımcıların çoğu babalarından araba kullanmayı öğrendiklerini bildirmiştir. Bandura (1971), davranışın geleneksel öğrenme teorilerine göre "doğrudan deneyimin ürünü" olduğunu iddia etmiştir. Öte yandan Bandura (1971), diğer insanların davranışlarını ve sonuçlarını gözlemlemenin bir davranışı

öğrenmenin temeli olduğunu da belirtmiştir. Babalar ailedeki tek sürücü ebeveyni olduğunda, genç sürücüler babalarını trafik bağlamında güvenlik açısından model olarak seçebilirler.

Akran Baskısı Ölçeği tek faktörden oluşmuştur. Birçok çalışma, en sık trafik ihlallerinden birinin hız davranışı olduğunu göstermiştir (Delhomme, 2002; Delhomme & Cauzard, 2000; Hassan & Abdel-Aty, 2013; Özkan, Lajunen, Chliaoutakis, Parker ve Summala, 2006; Peden ve ark., 2004). Black (1978), genç sürücülerin akranları onlara eşlik ettiğinde hız sınırlamalarına uymamak gibi trafik düzenlemelerini ihlal etme eğiliminde olduğunu belirtmiştir. Gormley ve Fuller'a (2008) göre, hız, 'adrenalie bağlı acele etmek' ve bir gösteri yapmak açısından akran baskısı ile ilişkilidir. Ayrıca, hız limitlerini aşmayla ilgili trafik cezaları ile ilgili tanımlayıcı istatistiklerin sonuçlarına paralel olarak, hız, genç sürücüler arasında akranlarını değerlendirirken önemli sorunlardan biri olabilir.

Trafik İklimi Ölçeği ise önceki çalışmalara paralel olarak üç faktörlü yapı göstermiş ve faktörler dış duygusal gereksinimler, işlevsellik ve iç gereksinimler olarak isimlendirilmiştir. İç gereksinimler boyutu, dinamik, heyecan verici, hızlı ve mobil olmak üzere 4 maddeyi içermektedir. Duyu arayışı, deneyimsizlik ve pervasız olmak, genç sürücülerin sürüş davranışlarının mükemmelliğini etkileyen en ilgili faktörlerdir (Clarke ve ark., 2005; Cestac et al., 2011). Ayrıca, genç sürücülerin deneyim eksikliği, dikkatsizlik, kötü risk/tehlike algısı, heyecan arayışı, arayan hissi ve riskli sürüş davranışları (Jonah, 1986; Williams, 1998; Begg & Langley, 2001) gibi birçok değişken trafik kazalarında daha çok yer almasıyla ilişkilidir. Bu nedenle, bu değişkenler, iç gereksinimler açısından trafik iklimini dinamik, heyecan verici, hızlı ve mobil olarak değerlendirmekle ilişkili olabilir.

Son olarak Risk Alma Davranışları Ölçeği de orjinal ölçeğe benzer olarak üç faktörlü yapıdan oluşmuş ve faktörler kendini onaylama, hızlanma ve kural ihlalleri olarak adlandırılmıştır. Genç Türk sürücüler arasında hız faktörünün sadece hız sınırlarını aşmakla ilgili olduğu belirtilebilir. Öte yandan, trafik kurallarını ihlal ederek veya göz ardı ederek trafikte ilerlemek için hız davranışının gösterilmesi kural ihlalelleri ile ilişkili bulunmuştur. Başka bir deyişle, genç Türk sürücüler, kural ihlalleri ile

bağlantılı olarak aşırı hız yoluyla trafik kurallarını ihlal ettiklerini veya görmezden geldiklerini belirtmiştir.

Korelasyon Analizleri

Korelasyon analizi araştırmanın değişkenleri, anne ve babası araç kullananlar için için yaş, cinsiyet, ömür boyu kilometre, sürüş sıklığı, iletişim, güvenliğe bağlanmama, gözetim, geri bildirim (anne ve baba), bunlara ek olarak model alma (sadece babası araç kullananlar), akran baskısı, dış duygusal talepler, işlevsellik, iç gereksinimleri, kendini onaylama, hız ve kural ihlalleri arasındaki ilişkiyi incelemek amacıyla yapılmıştır.

İlk olarak, katılımcıların demografik özellikleri ile çalışma değişkenleri arasındaki korelasyon incelenmiştir. Yaş pozitif ve anlamlı olarak ömür boyu kilometre ve sürüş frekansı ile orantılıdır. İkincisi, kadın ya da erkek olmak, anne için iletişim, gözetim ve geri bildirim boyutları ile, baba için gözetim, sadece baba için gözetim ve geri bildirim boyutları, işlevsellik ve kural ihlalleri ile olumlu yönde ilişkili bulunmuştur. Öte yandan, cinsiyet ve ömür boyu kilometre arasında negatif bir ilişki vardır. Ömür boyu kilometre ile sürüş sıklığı arasında olumlu, gözetim (anne), gözetim (baba), iletişim (sadece baba), işlevsellik ve kendini onaylama ile olumsuz ilişki bulunmuştur. İletişim (anne), akran baskısı, dış duygusal talepler, işlevsellik, iç gereksinimler, kendini onaylama, hızlanma ve kural ihlalleri ile olumlu ilişki göstermiştir. Geri bildirim (anne), işlevsellik ve iç gereksinimler ile anlamlı ve olumlu bir şekilde ilişkili bulunmuştur. İletişim (baba), hızlanma ve kural ihlalleri ile anlamlı ve olumsuz ilişkili göstermiştir. Akran baskısı, dış duygusal talepler, iç gereksinimler, kendini onaylama, hızlanma ve kural ihlalleri ile anlamlı ve olumlu bir ilişki göstermiştir. Öte yandan, akran baskısı işlevsellik ile anlamlı ve olumsuz bir ilişki göstermiştir.

Hiyerarşik Regresyon Analizleri

Annesi araç kullanan katılımcılar için güvenliğe bağlanmama, kendini onaylama ile anlamlı ve olumlu bir şekilde ilişkili bulunmuştur. Güvenliğe bağlanmama boyutu, güvenli sürüş konusunda çocuklar için yeterli zaman ayırmamakla ilişkiliydi (Taubman-Ben-Ari & Katz-Ben-ami, 2012). Bu nedenle, genç sürücüler, güvenli sürüş açısından annelerinde yeterince güvenliğe bağlanma görmediklerinde daha iddialı

davranışlar gösterebilirler. Akran baskısı, kendini onaylama ile anlamlı ve olumlu yönde ilişki göstermiştir. İşlevsellik, kendini onaylama ile anlamlı ve olumlu bir şekilde ilişkili bulunmuştur. İşlevsellik, ihlaller, hatalar ve kazalar gibi istenmeyen trafik çıktıları ile olumlu bir ilişkiye sahiptir (Chu ve ark., 2019; Gehlert ve ark., 2014). Bu nedenle, genç sürücüler, trafik ortamını daha işlevsel olarak algıladıklarında trafik bağlamında daha iddialı sürüş davranışları gösterebilirler. Güvenliğe bağlanmama anlamlı ve olumlu yönde hızla, gözetim ve geri bildirimanlamlı ve olumsuz şekilde hızla ilişki göstermiştir. Güvenli bağlanmama ayrıca anlamlı ve olumlu yönde kural ihalleleri ile ilişkili bulunmuştur. Akran baskısı ile kural ihalleri arasında ise anlamlı ve olumlu yönde ilişki bulunmuştur.

Babası araç kullananlar katılımcılar için, güvenli bağlanmama kendini onaylama ile negatif ilişki gösterirken, geri bildirim beklenmedik şekilde kendini onaylama ile pozitif ilişki göstermiştir. Carlson & Klein (1970) babaların ve oğullarının sürüş kayıtlarını incelediğinde trafik cezalarının baba ve oğulda benzerlik gösterdiğini rapor etmiştir. Akran baskısı beklendiği üzere kendini onaylama ile pozitif ilişki göstermiştir. Ayrıca işlevsellik de kendini onaylama ile pozitif ilişkili bulunmuştur. Gözetim ve hız davranışı arasındaki ilişkiye bakıldığında bu ilişkinin olumsuz olduğu gözlemlenmiştir. Ebeveynin gözetiminin yüksek seviyede olması ciddi kazalarda düşük oran ile ilişkili bulunmuştur (Shope, Waller, Rahhunathan, & Patil, 2001). Öte yandan akran baskısı ile hız arasında olumlu yönde bir ilişki vardır. Çalışmanın bekletilerinin aksine güvenliğe bağlanmama ile kural ihlalleri arasında olumsuz bir ilişki bulunmuştur. Bandura (1971) diğer insanların davranışlarını ve o davranışlarının sonuçlarınıbir davranışı öğrenmenin temeli olduğunu vurgulamıştır. Bu durumda eğer aile içinde araç kullanan baba güvenli olmayan davranışlar sergiliyorsa ve genç sürücüler bu güvensiz ve tehlikeli davranışlarının sonuçlarını gözlemliyorsa, babalarının aksine daha güvenli davranışlar sergileme eğilimi gösterebilirler. Son olarak, akran baskısı ile kural ihlalleri arasında anlamlı ve olumlu bir ilişki bulunmuştur.

Sadece babası araç kullanan katılımcılar için model alma boyutu kendini onaylama davranışı ile olumsuz bir ilişki göstermiştir. Akran baskısı ise kendini onalyama ile olumlu bir ilişki göstermiştir. Model alma, gözetim ve geri bildirim boyutları ise

beklendiği üzere hız davranışı ile olumsuz yönde bir ilişki göstermiştir. Aksine, akran baskısı ise hız davranışı ile pozitif bir ilişki göstermiştir. Son olarak model alma kural ihlalleri ile negatif ilişki gösterirken, akran baskısı kural ihlalleri ile pozitif yönde bir ilişki göstermiştir.

Düzenleyici Düzenleme Analizleri

MONxPPxEAD etkileşimini içeren modelde, pick-a-point yaklaşımının sonuçlarına göre, genç sürücüler, annelerinin daha fazla gözetimini algıladıklarında, daha az akran baskısı hissettiklerinde ve trafik ortamını nispeten daha az dışsal duygusal talep olarak algıladıklarında daha az iddialı davranışlar gösterdiklerini bildirmişlerdir. Dahası, genç sürücüler, annelerinin daha fazla gözetimini, daha fazla akran baskısı hissetmelerini ve trafik ortamını nispeten yüksek dışsal duygusal talep olarak algıladıklarında daha az kendini onaylama davranışı gösterdiklerini bildirmişlerdir. Benzer şekilde, genç sürücüler, babalarının daha fazla gözetimini algıladıklarında, daha az akran baskısı hissettiklerinde ve trafik ortamını nispeten daha az dışsal duygusal talep olarak algıladıklarında daha az iddialı davranışlar gösterdiklerini bildirmişlerdir. Genç sürücülerin riskli sürüş davranışlarını azaltmak için her iki ebeveynin de gözetiminin önemli olduğu iddia edilebilir. Öte yandan, daha az dışsal duygusal talepkar trafik ortamının etkileşimi ile akran baskısının daha az veya daha fazla olup olmadığı konusunda annelerin gözetiminin etkili olduğu vurgulanmalıdır.

FBxPPxFUN etkileşimini içeren modelde, pick-a-point yaklaşım grafikleri, genç sürücülerin anneleri tarafından daha fazla geri bildirim verildiğinde daha fazla kendine güvenen davranışlar gösterdiklerini, daha az akran baskısı hissettiklerini ve trafik ortamını nispeten daha işlevsel olarak algıladıklarını belirtmiştir. Buna ek olarak, genç sürücüler, babaları tarafından daha fazla geri bildirim verildiğinde daha fazla kendine güvenen davranış gösterdiklerini, daha fazla akran baskısı hissettiklerini ve trafik ortamını nispeten yüksek işlevsel olarak algıladıklarını bildirmiştir. Guttman ve Gesser-Edelsburg (2010) ve Guttman (2013), ebeveynlerin genç sürücüye güvendiğini fakat geribildirim vermenin çocuklarıyla olan ilişkilerine zarar verme konusunda endişeleri olduklarını belirtmişlerdir . Ebeveynler ayrıca, sürüş sırasında çocuklarını motive etmek ve etkili bir şekilde geri bildirim vermek ve geri bildirim konusunda çocuklarıyla çatışmaları önlemek için rehberliğe ihtiyaç duyduklarını bildirmişlerdir.

Bu nedenle, geri bildirim sağlamadaki çatışmalar, daha fazla ihlalle ilişkili olan akran baskısı ve yüksek işlevsel trafik ortamının etkisi ile genç sücürüler etkisiz olarak algılanabilir (Chu ve ark., 2019; Gehlert ve ark., 2014).

COMXPPXIR etkileşimini içeren bir modelde, pick-a-point yaklaşımı, genç sürücülerin babalarıyla daha fazla iletişim kurduklarında daha az hız davranışı gösterdiklerini, daha az akran baskısı hissettiklerini ve trafik ortamını nispeten düşük bir dahili ihtiyaç olarak algıladıklarını bildirmiştir. Benzer şekilde, genç sürücüler, babalarıyla daha fazla iletişim kurduklarında, daha az akran baskısı hissettiklerinde daha az kendini onaylama davranışı gösterdiklerini bildirmişlerdir. Yoldaki potansiyel tehlikeler açısından iletişim, sürüş ile ilgili konuların tartışılması (Taubman-Ben-Ari & Katz-Ben-Ami, 2012) genç sürücülerin güvenli araç kullanması kapsamında önemlidir. Görüldüğü gibi, genç sürücüler babalarıyla güvenli sürüş açısından iletişim kurduklarında ve daha az akran baskısı hissettiklerinde ve trafik ortamını daha az iç gereklilik olarak algıladıklarında (örneğin, dinamik, mevcut, hızlı ve mobil), daha az kendini onaylama davranışları göstermiştir. Dahası, genç sürücüler, babalarıyla daha fazla iletişim hissettiklerinde daha az hız davranışı gösterdiklerini, daha az akran baskısı hissettiklerini ve trafik ortamını nispeten yüksek içsel gereklilik algıladıklarını bildirmişlerdir. Birçok çalışma, en sık trafik ihlallerinden birinin hızlandığını göstermiştir (Delhomme, 2002; Delhomme & Cauzard, 2000; Hassan & Abdel-Aty, 2013; Özkan, Lajunen, Chliaoutakis, Parker ve Summala, 2006; Peden ve ark., 2004). Black (1978), genç sürücülerin akranları onlara eşlik ettiğinde hız sınırlamalarına uymamak gibi trafik düzenlemelerini ihlal etme eğiliminde olduğunu belirtmiştir. Öte yandan, bu çalışmaya göre, iletişim hız davranışlarının azaltılmasında önemli bir rol oynamaktadır.

NONCxPPxIR etkileşimini içeren modelde, pick-a-point yaklaşım grafikleri, genç sürücülerin annelerinden daha fazla güvenliğe bağlanmama algıladıklarında, daha fazla akran baskısı hissettiklerinde ve trafik ortamını nispeten daha fazla içsel gerekliliği yüksek algıladıklarında daha çok kendini onaylama davranışı ve kural ihlalleri gösterdiklerini bildirmişlerdir. Genç sürücülerin becerilerini ve yeteneklerini nasıl algıladıklarını göz önünde bulundurarak, müdahale programları aracılığıyla güvenli sürüş, annelerin trafik sistemine güvenli bağlılığı artırmaları için eğitici sosyal

medya kampanyaları açısından çekimserliğin endişe duyması gerektiğine dikkat edilmelidir; karar vericiler, güvenlik ve hareketlilik arasında bir denge kurabilirler.

MONxPPxIR etkileşimini içeren modelde, pick-a-point yaklaşım grafikleri, genç sürücülerin annelerinden daha fazla gözetim algıladıklarında, daha az akran baskısı hissettiklerinde ve trafik ortamını nispeten daha az içsel olarak algıladıklarında daha az iddialı davranışlar gösterdiklerini bildirmiştir. Taubman-Ben-Ari ve Katz-Ben-Ami (2012), düşük düzeyde ebeveyn geri bildirimi ile yüksek düzeyde olumsuz akran modelleri ve daha yüksek pervasız sürüş puanları ile gözetim arasında bir ilişki olduğunu göstermiştir.

FBxPPxIR etkileşimini içeren modelde, pick-a-point yaklaşımının sonuçlarına göre, genç sürücüler, babaları tarafından daha fazla geri bildirim verildiğinde daha fazla akran baskısı hissettiklerinde ve trafik ortamını nispeten yüksek içsel gerekli algıladıklarında daha fazla kendini onaylayan davranışlar gösterdiklerini belirtmişlerdir.

MONXPPXFUN etkileşimini içeren model, bir pick-a-point yaklaşımının sonuçlarına göre, genç sürücüler, babalarından daha az gözetim hissettiklerinde, daha fazla akran baskısı hissettiklerinde ve trafik ortamını nispeten düşük işlevsel olarak algıladıklarında daha çok kendini onaylama davranışı göstermişlerdir. Bazı çalışmalar, yüksek düzeyde ebeveyn gözetiminin riskli sürüş davranışlarına girme olasılığının daha düşük olduğunu, ebeveyn gözetiminin daha az olduğu zaman ihlallerin ve kazaların arttığını göstermiştir (Beck ve ark., 2001; Bingham ve Shope, 2004; Graber ve ark., 2006; Hartos ve ark., 2000).

Son olarak, MODxPPxIR etkileşimini içeren modelde, pick-a-point yaklaşımının sonuçlarına göre, genç sürücüler babalarından daha fazla model alma hissettiklerinde daha az akran baskısı hissettiklerini ve trafik ortamını nispeten düşük içsel gereklilik içeren çevre olarak algıladıklarını belirttiklerinde daha az kural ihlali gösterdiklerini bildirdiler.

Mevcut Çalışmanın Sınırlamaları ve Gelecekteki Çalışmalar İçin Öneriler

Bu çalışmanın sınırlamaları esas olarak araçlar, örneklemin demografik özellikleri ve Örneklem büyüklüğü ile ilgilidir. Beyana dayalı ölçümler, güvenilirlik ve dış geçerlilik açısından olası dezavantajlara sahip olabilir, çünkü beyana dayalı ölçümler sosyal isternirliğe karşı daha savunmasızdır (Paulhus, 1991). Bu çalışmanın bir başka kısıtlaması, grupların karşılaştırılmasına izin verilmemesidir. Annesi, babası ve sadece babası araç kullanan katılımcılar için her ne kadar benzer faktör yapıları çıksa da karşılaştırma için birebier içeriklere sahip değildir. Daha ileri çalışmalar için, toplam örneklem ile, grupları karşılaştırmak için aynı boyutlardaki aynı öğeler kullanılarak araştırma yapılabilir. Son olarak, bu çalışma küçük bir örneklem büyüklüğüne sahiptir ve düzenleyici düzenleme analizlerinin etki boyutları küçük örneklem boyutundan etkilenebilir. İleriki çalışmalarda daha büyük örneklem ile grup karşılaştırması yerine toplam örneklemde etki boyutları incelenebilir.

Sonuçlar ve Önerilen Uygulamalar

Bazı çalışmalar, ebeveyn uygulamalarının genç sürücüler arasındaki riskli sürüşü azaltmada kritik bir rol oynadığını göstermiştir (Ginsburg, Durbin, García-España, Kalicka ve Winston, 2009; Simons-Morton, Quimet ve Catalano, 2008). Ayrıca, ebeveynler çocuklarının sürüş davranışlarını düzenlemek için hangi arkadaşların arabaya davet edilebileceğini izleyebilir ve sınırlayabilir (Hartos, Eitel ve Simons-Morton, 2001). Ebeveyn uygulamalarına ve akranları kontrol etmeye ek olarak, genç sürücülerin ülkenin trafik iklimi algısı göz önüne alındığında daha geniş stratejiler geliştirilebilir.

Özkan ve Lajunen (2011), toplumsal ve kültürel faktörlerde değişimin kolay olmadığını belirtmiştir. Öte yandan trafik, tüm yol kullanıcıları için aktif, etkileşimli ve sürekli bir ortam sağlayan açık bir sistemdir (Özkan & Lajunen, 2011). Örneğin, genç sürücüler ve ebeveynleri, sürücü eğitmenleri tarafından yol güvenliğine olan bağlılığın önemi hakkında birlikte bilgilendirilebilir. Ayrıca, medya kampanyaları, ebeveyn-çocuk ilişkilerine sürüş güvenliğine odaklanarak organize edilebilir. Ebeveynlere, akranlarını göz önünde bulundurarak çocuklarının sürüş davranışlarını

nasıl yönlendirdikleri ve kontrol ettikleri hakkında bilgi vermeleri için eğitim programları sunulabilir.

Daha geniş bağlamında Özkan ve Lajunen (2015), trafik ortamında güvenlik ve hareketlilik arasındaki dengenin sürdürülmesinin önemli olduğunu ve trafik güvenliği ile ilgili hedeflerin her seviyedeki tüm yol kullanıcıları için politika yapıcılar ve planlamacılar tarafından dikkatli bir şekilde oluşturulması gerektiğini öne sürmüşlerdir. Bu nedenle, genç sürücülerin risk alma davranışlarına ilişkin politikalara, trafik sistemi hakkındaki bakış açılarına dayanarak bütünsel bir bakış açısıyla karar verilmelidir. Özetlemek gerekirse, kişilerarası ve kültürel faktörler arasındaki etkileşime dayanarak belirli stratejiler geliştirilebilir.

G.Curriculum Vitae

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Social Psychology,
M.S., 2012-2014
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Psychology,
B.S., 2007-2012

WORK EXPERIENCE

Middle East Technical University, Department of Psychology, Ankara, Turkey
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Funded by European Union Horizon 2020 research and innovation program under the Marie Skłodowska-Curie

Kosovo Association of Motorization - AMRKS, Pristina, Kosovo
Visiting Scholar, October 2017- November 2017
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PROJECTS

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Traffic Safety Cultures and the Safe Systems Approach – Towards a Cultural Change Research and Innovation Agenda for Road Safety (TraSaCu), European Union Horizon
2020 research and innovation program under the Marie Skłodowska- Curie grant agreement No 645690, Prof. Dr. Türker Özkan (Project Coordinator)

RESEARCH INTERESTS

Risky driving; family climate for road safety; young drivers; handicapped parking violation; cross-cultural traffic safety; research methods in traffic and transportation psychology; domestic violance; gender-related system justification; psychology of women and gender

PUBLICATIONS

Fındık, G., Kaçan, B., Solmazer, G., **Ersan, Ö**., Üzümcüoğlu, Y., Azık, D., Lajunen, T., Öz,
B., Özkan, T., Pashkevich, A., Pashkevich, M., Danelli-Mylona, V., Krasniqi, E. B., Krasniqi, M., Makris, E., Shubenkova, K., & Xheladini, G. (2020). A comparison of

the relationship between individual values and aggressive driving in five countries. *Journal of Transportation Safety & Security,* 1-23.

Ersan, Ö., Üzümcüoğlu, Y., Azık, D., Fındık, G., Kaçan, B., Solmazer, G., Lajunen, T., Öz,
B., Özkan, T., Pashkevich, A., Pashkevich, M., Danelli-Mylona, V., Krasniqi, E. B., Krasniqi, M., Makris, E., Shubenkova, K. ve Xheladini, G. (2020). Cross-cultural differences in driver aggression, aberrant, and positive driver behaviors. *Transportation Research Part F, 71,* 88-97.

Solmazer, G., Azık, D., Fındık, G., Üzümcüoğlu, Y., **Ersan, Ö**., Kaçan, B., Lajunen, T., Öz, B., Özkan, T. & Pashkevich, M. (2020). Cross-cultural differences in pedestrian behaviors in relation to values: a comparison of five countries. *Accident Analysis & Prevention, 138,* 105459.

Ersan, Ö., Üzümcüoğlu, Y., Azık, D., Fındık, G., Kaçan, B., Solmazer, G., Lajunen, T., Öz,
B., Özkan, T., Pashkevich, A., Pashkevich, M., Danelli-Mylona, V., Krasniqi, E. B., Krasniqi, M., Makris, E., Shubenkova, K. ve Xheladini, G. (2019) The relationship between self and other in driving anger and driver behaviors across countries. *Transportation Research Part F, 66,* 122-138.

Kaçan, B., Fındık, G., Üzümcüoğlu, Y., Azık, D., Solmazer, G., **Ersan, Ö**., Lajunen, T., Öz,
B., Özkan, T., Pashkevich, A., Pashkevich, M., Danelli-Mylona, V., Krasniqi, E. B., Krasniqi, M., Makris, E., Shubenkova, K. ve Xheladini, G. (2019). Driver profiles based on values and traffic safety climate and its relationship with driver behavior. *Transpostation Research Part F, 64,* 246-259.

RESEARCH IN PROGRESS

Üzümcüoğlu, Y., **Ersan, Ö.,** Kaçan, B., Solmazer, G., Azık., D., Fındık, G., Lajunen, T., Öz,
B., Özkan, T., Pashkevich, A., Pashkevich, M., Danelli-Mylona, V., Krasniqi, E. B., Krasniqi, M., Makris, E., Shubenkova, K., & Xheladini, G. (under review). The development of the mini Traffic Climate Scale.

Azık, D., Solmazer, G., **Ersan, Ö.,** Kaçan, B., Fındık, G., Üzümcüoğlu, Y., Lajunen, T., Öz,
B., Özkan, T., Pashkevich, A., Pashkevich, M., Danelli-Mylona, V., Krasniqi, E. B., Krasniqi, M., Makris, E., Shubenkova, K., & Xheladini, G. (in preparation). Road users' perceptions about road infrastructure, trip characteristics and daily trip experiences: Comparison of countries

ORAL AND POSTER PRESENTATIONS

Ersan, Ö. & Üzümcüoğlu Zihni, Y. (2018, January). Traffic situation in Kosovo. 5th International Conference "Road Safety Audit and Reduction of Traffic Accidents", Prishtina, Kosovo.

Ersan, Ö. & Öner-Özkan, B. (2015, July). The Effect of Justifying Gender-Related System on Justification of Domestic Violence against Teenage Girls in Turkey. The 14th European Congress of Psychology, Milan, Italy.

Ersan, Ö. & Öner-Özkan, B. (2014, July). Justification of Domestic Violence against Teenage Girls in Turkey. The 28th International Congress of Applied Psychology, Paris, France.

Ersan, Ö., Alper, S., & Koçer, B. (2014, May). Engelli Park Yeri İhalinin Nedenleri (Justification of Handicapped Parking Violation). 5. Karayolu Trafik Güvenliği Sempozyumu, Ankara, Turkey.

Ersan, Ö. & Özkan, T. (2018, November). Üniversite Restoranlarının Kurumsal Güvenlik Kültürünün Beş Seviyesi Temelinde Değerlendirilmesi (Examination of University Restaurants based on Five Level of Organizational Safety Culture). 20. Ulusal Psikoloji Kongresi (20th National Psychology Congress), Ankara, Turkey.

EXPERT REPORTS

Özkan, T., Üzümcüoğlu, Y,…, **Ersan, Ö.,**...…,Erkuş, U. U. (2016). Türkiye Analizi: Takip Çalışması 2016 Sürücü ve Ön Koltuk Yolcularının Emniyet Kemeri Kullanımı. 1-289.
http://www.trafik.gov.tr/SiteAssets/Yayinlar/Kitaplar/Emniyet_Kemeri_2016.pdf

EU REPORTS

Azık., D., **Ersan, Ö**., Fındık, G., Kaçan, B., Özkan, T., Solmazer, G.,Üzümcüoğlu. Y., Pashkevich, A., Pashkevich, M., Danelli-Mylona, V., Georgogianni, D., Krasniqi, E. B.,
Krasniqi, M., Lajunen, T., Makris, E., Öz, B., Shubenkova, K., & Xheladinic, G. (2018).
Draft of Change Management Strategy (Deliverable 4.2) for Traffic Safety Cultures and the Safe Systems Approach Towards a Cultural Change Research and Innovation Agenda for Road Safety (TraSaCu) Project.

Azık., D., **Ersan, Ö**., Findik, G., Kaçan, B., Solmazer, G**.,** Üzümcüoğlu. Y., Danelli-Mylona,
V., Delli, G., Dhrami, K., Gaygısız, E., Georgogianni, D., Janku, E., Krasniqi, E. B., Krasniqi,
M., Lajunen, T. Makris, E., Öz, B., Özkan, T., Pashkevich, A., Pashkevich, M., Salamon, B., Shubenkova, K. van Strijp-Houtenbos, M., Volynets, A., & Xheladinic, G. (2018). Model of traffic cultures and impact (Deliverable 4.1) for Traffic Safety Cultures and the Safe Systems Approach Towards a Cultural Change Research and Innovation Agenda for Road Safety (TraSaCu) Project, 1-228.

Ersan, Ö., Findik, G., Furian, G., Georgogianni, D., Kaiser, S., Lajunen, T., Makris, V., Pashkevich, A., Solmazer, G., Üzümcüoğlu, Y., & Vlk, T. (2017). Traffic Safety Culture in
Practice Commitment and Compliance (Deliverable 3.1) for Traffic Safety Cultures and the Safe Systems Approach Towards a Cultural Change Research and Innovation Agenda for Road Safety (TraSaCu) Project, 1-132.

MEMBERSHIPS AND PROFESSIONAL SERVICE

Trafik ve Ulaşım Araştırmaları Dergisi
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Psy331. Testing and Measurement in Psychology, Lecturer: Assist. Prof. Yonca Toker

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H. Thesis Permission Form / Tez İzin Formu

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The Moderating Roles Of Peer Pressure And Traffic Climate On The Relationship Between Family Climate For Road Safety And Risky Driving Behaviors Among Young Drivers

TEZİN TÜRÜ / DEGREE: **Yüksek Lisans** / Master ☐ **Doktora** / PhD ☒

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