The effect of parenting styles on children's risk perception on roads

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Abstract

Although there is evidence of a significant impact of the family on children's safety and risky behaviors, few studies have examined this issue in detail. Children under the age of 10, although they rarely participate in traffic completely independently, are a vulnerable population from a traffic safety perspective. In addition to the number of children who die in incidents, some of them suffer from lifelong disabilities. Besides various educational methods and making safe school zones, there is a need to pay attention to the impact of parents on children's understanding of traffic safety. In this study, the effect of parent on children's perception of safety and danger on roads is investigated. For this purpose, through an interview, children aged 6-9 years were asked to identify 11 unsafe traffic behaviors. Parenting styles and demographic information were collected from their parents through a questionnaire. The results showed that children's risk perception is related to age, gender, and socio-economic status. In addition, children's ability to perceive risk is associated with negative parenting styles (corporal punishment and poor monitoring). The results of this study highlight the effects of parents' education on children's awareness of road safety. The importance of parenting styles and other factors affecting children's understanding of traffic risks should be informed to families. It is also important to establish the necessary infrastructure to increase children's safety by promoting parenting skills through beneficial policies and holding training workshops for parents.

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1.   Introduction

Primary school children are on roads for commuting to school, every day. They are a group of road users as occupants, pedestrians, cyclists, or scooters and skaters. Primary school children are vulnerable from a transportation safety perspective and they are more at risk than adults (Trifunović, Pešić, Čičević, & Antić, 2017). Road crashes are one of the most serious threats to children in the modern world, and most pedestrian injuries occur when a child intends to cross the road (Ampofo- Boateng & Thomson, 1991; Southwell, Carsten, & Tight, 1990). Those aged 5 to 9-years experience four times more crashes on roads than adults, given the extent to which people are exposed to traffic (Thomson, 2005). In general, interacting with traffic is complex and children do not have the complete abilities to deal with it. According to 2019 statistics, the number of people under the age of 15 who have crashed in the UK is 13,584, with pedestrian incidents being the leading cause of death (Britain, 2019). In the United States, in 2018, for every 100,000 people, 857 children under the age of 10 died in crashes (DiBlasio, 1987). In 2016, 3,210 people under the age of 16 were hospitalized in Australia due to injuries resulting from crashes, and most of the deaths were related to car occupants and pedestrians (Homel, 1988). In Canada in 2007, 58% of deaths in children aged 9 to 5 years were due to crashes (Elvik, 2004; Yanchar, Warda, Fuselli, Society, & Committee, 2012). According to the head of the Department of Child Health of the Ministry of Health of Iran, 40% of child deaths are due to children's crashes (Iran). These statistics raise particular concerns about children's road safety and highlight their vulnerability as road users.

So far, some studies have been conducted to find the factors affecting children's traffic safety (e.g. (Bojesen & Rayce, 2020; Meir & Oron-Gilad, 2020). For example (Meir & Oron-Gilad, 2020) explored how pedestrians' hazard perception skills in complex traffic scenes vary with age and experience. Alonso, Esteban, Useche, and Colomer (2018) established that age and observed misbehaviors (positively), and attitudes towards road safety and risk perception (negatively), are associated with children's road risky behaviors. Their study showed that, together with demographic factors, road-safety training is effective in children's road behavior. Although classroom-based interventions using testimonials may have the potential to increase knowledge of traffic risk factors, translating knowledge into safe traffic behavior is challenging (Bojesen & Rayce, 2020).

Koekemoer, Van Gesselleen, Van Niekerk, Govender, and Van As (2017) found that the rate of children's negligent behavior on the road are related to age, their exposure to traffic, their knowledge of safe behaviors and the amount of safety training given to them. Their findings also indicated that the factors related to the severity of children's crashes are age, gender, their knowledge of safety on the road, and their negligent behavior on the road. In addition, they found that children who live in disadvantaged families are more at risk of pedestrian injury.

In Iran, some traffic rules and signs are taught to children in the textbook in the third grade of elementary school (10-year-old children). There are also some traffic training parks in some cities where schools and parents can take

their children if they wish. Children in these parks are trained in road safety for only 2 hours. The presence of all children in traffic training parks is not possible due to their low capacity. Compared to Western countries, there are no school crossing supervisors in Iran, and the parents often do this. Some studies focus on the important role of training in children's traffic behavior. One of the first studies of children's road safety was in 1984 by Young and Lee. In this study, an effective way was found to design a road crossing simulator to educate children. This method involved a pretend road adjacent to a real road. The findings of this study show that children aged 5-10 years are able to understand the simulation and this method can be useful (Lee, Young, & McLaughlin, 1984). Benjamin K. Barton (2007) by changing the pretend road from a one-way road to a two-way crossing and adding some details investigated the effects of children's individual differences (age, gender, and inhibitory control) and parental supervision on behavior of children as pedestrian. It was also observed that children behave more safely after training, which indicates the immediate effectiveness of the training. The results of this simple training show that parents, teachers, and other adults can improve children's pedestrian skills effectively, and without complex teaching methods (Barton, Schwebel, & Morrongiello, 2007). Thomson et al. (1998) studied the effects of parents training children to cross roads. In this study, the focus was on risk education due to the complex traffic planning, visual barriers and diagonal path selection by children. Their results showed that parents are valuable resources in safety education to children. Understanding the deficiency of children in evaluating traffic situations may

contribute to interventions designed to increase their awareness to potential hazards (Meir & Oron-Gilad, 2020). Zeuwts, Cardon, Deconinck, and Lenoir (2018) examined the effects of an intervention on children cyclists' hazard perception. In that study children took part in a brief hazard-perception intervention in which video clips of dangerous traffic situations were presented. The results demonstrated that a brief training is able to improve children's awareness of risky situations on roads.

So far, various studies regarding children's safety have been discussed. However, Morrongiello and Barton (2009) examined safety from the perspective of parental supervision, parents' behavior, and their attitudes about children's ability to cross the road. They recorded how parents and children behaved before and during crossing the intersection, and found that parent's behavior depended on the child's age and gender, so that they had a greater level of supervision over young children and behave more safe when crossing with boys. Due to traffic conditions being held constant in that study, no relationship was found between monitoring and traffic conditions, so this was examined by Barton and Huston (2012). In their study, a set of scenarios (commercial / residential and high / low traffic volume) was used to show that the choice of parental supervision of children depends on the risk level on the road, and that the child's age and parent's risk perception are significant predictors of parental supervision choices. In a more detailed study Lam (2001) identified five factors that were significantly associated with parents' risk perceptions regarding child pedestrian safety: child age, parent gender, employment status of parents, living situation, and parent accident

experience. This study demonstrated that parents' perceptions of risk are very important in children's safety. This group of studies shows that differences in children and parents (age, gender, risk perception, etc.), and environmental characteristics (volume of traffic and location) are all factors determining parental supervision on the road.

Parents have a variety of responsibilities in raising their children from an early age. They are the first to influence their children with their behaviors. However, Adams (2001) argued that parents are often unaware of the best ways to train children. He also emphasized that parents have the best opportunity to improve their children's traffic skills. They are in a situation where their children are more willing to learn from them. Thus, parents should be aware of the importance of children's safety, and to educate them to be on the road safely.

Considering studies on children safety, various factors affect children's traffic skills. Factors such as age, gender, socioeconomic status, traffic experiences, training and parental supervision amongst others. Teaching traffic skills to children and modifying traffic rules in school zones could increase children's safety on the road. However, one factor that is expected to affect children's road risk perception is the parenting style. Previously, the effect of parenting styles on various behavioral and psychological aspects of children has been studied. It has been shown that inconsistency, severe punishments, poor monitoring, and lack of rewarding behaviors by parents are predictors of children's externalizing problems (Dadds, 1995; Patterson, Reid, & Dishion, 1992). Research has shown that negative parenting styles lead to children's aggression in future (Haskett &

Willoughby, 2007), and positive parenting is associated with less behavioral problems in children (Gryczkowski, Jordan, & Mercer, 2010). Researchers have considered the impact of parenting styles on a wide range of outcomes, for example, academic achievement (e.g. Masud, Thurasamy, & Ahmad, 2015; Pinquart, 2017; Rivers, Mullis, Fortner, & Mullis, 2012) delinquency (e.g. Bronte-Tinkew, Moore, & Carrano, 2006) and substance use (e.g. Bronte-Tinkew et al., 2006; H. W. Mak & Iacovou, 2019). Studies have shown that parenting stress and parenting style have impacts on children behavior problems (M. C. K. Mak, Yin, Li, Cheung, & Oon, 2020) which could lead to difficulties in later life. Parenting styles affect children's self-esteem (Pinquart & Gerke, 2019), externalizing and internalizing problems (Zubizarreta, Calvete, & Hankin, 2019), sleep habits (Tyler, Donovan, Scupham, Shiels, & Weaver, 2019), obesity (Pace, Aiello, & Zappulla, 2019), health risk behaviors (Liu, 2020) and worry (Shen, Luo, Fu, Qie, & Wang, 2020). However, so far, the effects of parenting styles on understanding children's traffic risk perception have not been studied. The importance of this subject is due to the frequent communication of parents with children, which seems to be able to affect children's risk perception. So it is expected that, if parents were aware of this impact, they would be able to improve risk perception of their children.

Therefore, despite the significant amount of research regarding children's road safety education and parenting styles on a range of outcomes, in the present study, children's understanding of road safety is investigated from a parenting style perspective. In the following, the method of data collection is

explained and the results are presented using hierarchical clustering and decision tree. At the end, the analysis and conclusion will be presented.

2. Methodology

2.1. Data Collection

In this study, a number of questionnaires were given to parents through schools and a short interview was conducted with their children. The schools and students in each school were selected randomly. The schools were also selected from different socio-economic situations. In this study, 1011 children aged 6 to 9 years and one of their parents who was more involved with the child participated. Each child was given a code by which the child and his/her parent were identified. These codes were used to enhance the reliability of the parents' self-reported data.

The parent questionnaire includes the Alabama Parenting Questionnaire (APQ) (Frick, 1991), personal information (age, education, income and number of child accidents), experiences of the child as a road user, and training given to the child. To measure parenting styles, the APQ was used, which includes negative scales (poor monitoring, inconsistent discipline, corporal punishment) and positive scales (positive parenting and involvement). This questionnaire was translated from English to Persian, then evaluated to ensure conceptual and cultural consistency in a pilot study. KMO and Bartlett's test were used to evaluate data for factor analysis, using SPSS software. The KMO ratio for this analysis was 0.821, and the value of Bartlett's test was significant at the level of 0.001. After applying a varimax rotation, the content of the five factors was extracted based on the load factors higher than 0.3. Due to a lack of load factor, five questions

(5, 8, 26, 29 and 32) were not placed in any categories. The Cronbach's alpha coefficients were also calculated for the extracted factors (Alpha Coefficients; Involvement: 0.73, Positive parenting: 0.79, Poor monitoring: 0.60, Inconsistent discipline: 0.64, Corporal punishment: 0.63). The goodness of fit indices of classifying APQ were calculated. High values of CFI (0.947), GFI (0.962) and AGFI (0.948) indicate that the model explains the variance of the data well. Also, the lower the RMSEA (0.028) and PCLOSE (1.000), the better the fit.

To assess children's risk perception, 11 animations of safe and unsafe traffic behavior were designed. The animations included 11 videos, each lasting between 10 and 18 seconds. Five child psychologists and four safety experts were consulted to ensure that the issue of animations is appropriate and relevant to the traffic safety of children. In the beginning, a general explanation was given to children. Each child should recognize and express safe and unsafe behavior in each animation.

The content of the animations included understanding the danger of putting the hand out of the car window, getting out of the rear passenger from the door on the road side, distracting the driver, wearing dark clothes at night on the road, not holding the hand of an adult on the road, using headphones or mobile phones in the road, understanding the blind spot in the corner, understanding the blind spot in the uphill, understanding the blind spot in blocking cars parked on the road, playing in the road, and how to cross the road safely by bicycle. The interview was conducted in such a way that each animation was shown to the child, and in the case of distinguishing safe

behavior from unsafe, the child was given a score. Each child scored between 0 and 11. Parents reported how much they teach safe behaviors on roads to their children with scores for this question ranging from 5 (highest score) to 1 (lowest score).

2.2. Modeling

In this study, the hierarchical clustering algorithm (Ward linkage) (Ward Jr, 1963) was used to classify children's risk perception. Within the sample, 37.4% of children were familiar and 62.6% were unfamiliar with traffic risks. The Classification And Regression Tree (CART) model is used to determine the most important parameters affecting children's risk perception (Breiman, Friedman, Olshen, & Stone, 1984).

2.2.1. Variables

In this study, a model was used to identify the most important factors affecting children's familiarity with road safety using a decision tree. This study used 16 independent variables which are given below:

- Child's grade
- Child's gender
- Household income
- Parent's level of education
- Involvement
- Positive parenting
- Poor monitoring
- Inconsistent discipline
- Corporal punishment
- The child transportation by car
- The child transportation on foot
- The child transportation by public transport
- The child transportation by motorcycle
- The child transportation by bicycle
- Training
- Number of child accidents

3. Results

3.1. Demographic Characteristics

In this study, 181 preschool (6-year-olds), 302 first elementary (7-year-olds), 283 second elementary (8-year-olds), and 245 third elementary (9-year-olds) participated in the interview (Mean: 7.59 years, Variance: 1.086). They were 509 girls and 502 boys. Most of the parents (83%) who participated in the research were females. Parents were classified in five age groups: 45 years and older (8%), 40 to 44 years (19%), 35 to 39 years (41%), 30 to 34 years (25%), and 23 to 29 years (7%). Parents' education was divided into three level: master's degree or higher (15%), bachelor's and associate degree (47%), high school diploma or less (38%). The household income was divided into four categories based on the monthly income: affluent (21%), good (33%), average (27%), and poor (19%). This classification was done using different income deciles in Iran. Thus, the tenth and ninth deciles are the affluent category, the eighth and seventh deciles are the good income category, the sixth and fifth deciles are the average income category, and the fourth and lower deciles are considered the poor economic class. In this study, parents were asked about their child's exposure to traffic using the Likert scale. Parents' reports showed that 58% of children are on the road almost every day as pedestrians, and 59% of them are in the car almost every day. Table 1 shows the extent to which children are exposed to traffic as pedestrians, occupants of car, public transport vehicles, motorcycles, and bicycles.

Table 1. Children's exposure to traffic

Mode of transport	Almost every day (%)	Some days of the week (%)	Once or twice in two weeks (%)	Once or twice a month (%)	Never (%)
Pedestrian	58	18	8	11	5
Car	59	28	6	5	2
Public transport	4	5	8	45	38
Motorcycle	6	6	3	10	75
Bicycle	0	3	2	6	89

3.2. Risk Perception of Children

In this study, 70% of data were used as training data and 30% were used for modeling testing. Decision trees of training and test data related to children's risk perception are presented in Figure 1 and Figure 2, respectively. In the model obtained using the decision tree, 13 nodes and 7 leaves are observed. In the first stage, the root data are divided into two categories based on the variable of the child's grade. Primary and preschool children are probably 75.8% unaware of the dangers on the road and the probability of the risk perception of children in the second and third grades of elementary school is 51.5%. Among the children of the second and third grades (node number 2) as well as the first grade and preschool (node number 1), the amount of parents' income is a parameter affecting in separating children. First-graders and preschoolers who live in affluent and good-economic statues are more likely to know safe behaviors perceive the on the road than children with low- and middle-income backgrounds (31.9 and 16.1%). Second- and third-graders living in poor economic conditions are 65.3% likely to not perceive such risks, while children who are not economically disadvantaged are 55.4% likely to be aware of risks on roads.

In node 6, gender is a factor which separate children in terms of risk perception on road.

Boys are 63.8% likely to be aware of the risks, while girls are 52.8% likely unaware of them. In node 7, it can be seen that parents whose poor monitoring index is less than 8, their children are probably 72.5% with the ability of risk perception, otherwise their children 55.3% will probably not perceive these risks. An important factor in the classification of girls in node 8 is the extent to which parents use corporal punishment. If this index in girls' parents exceeds four, the child probably has about 66% insufficient knowledge of road risks, otherwise 52.2% is probably able to perceive the risks on roads.

The important parameters of children's familiarity with traffic risks model, which has 16 variables, were normalized, sorted, and estimated in terms of their significance. The results show that the first and second important parameters in predicting the probability of being able to perceive risks in children are grade and parents' household income with 100% and 78% of importance, respectively. The rate of child transportation on foot also plays a role in separating children with 30.9% importance. After that, parents' education level with 26.7% and the child's gender with 19.9% is also important factors in their traffic risk perception. Among parenting styles, the rate of corporal punishment of the child (22%), the rate of poor monitoring (20.2%), and the rate

of parental involvement (17.6%) influenced children's risk perception.
Accuracy of this model is 68.8% based on training data and it is 66.4% based on test data.

The model precision is 47.7% and 50.5% based on training and test data, respectively.
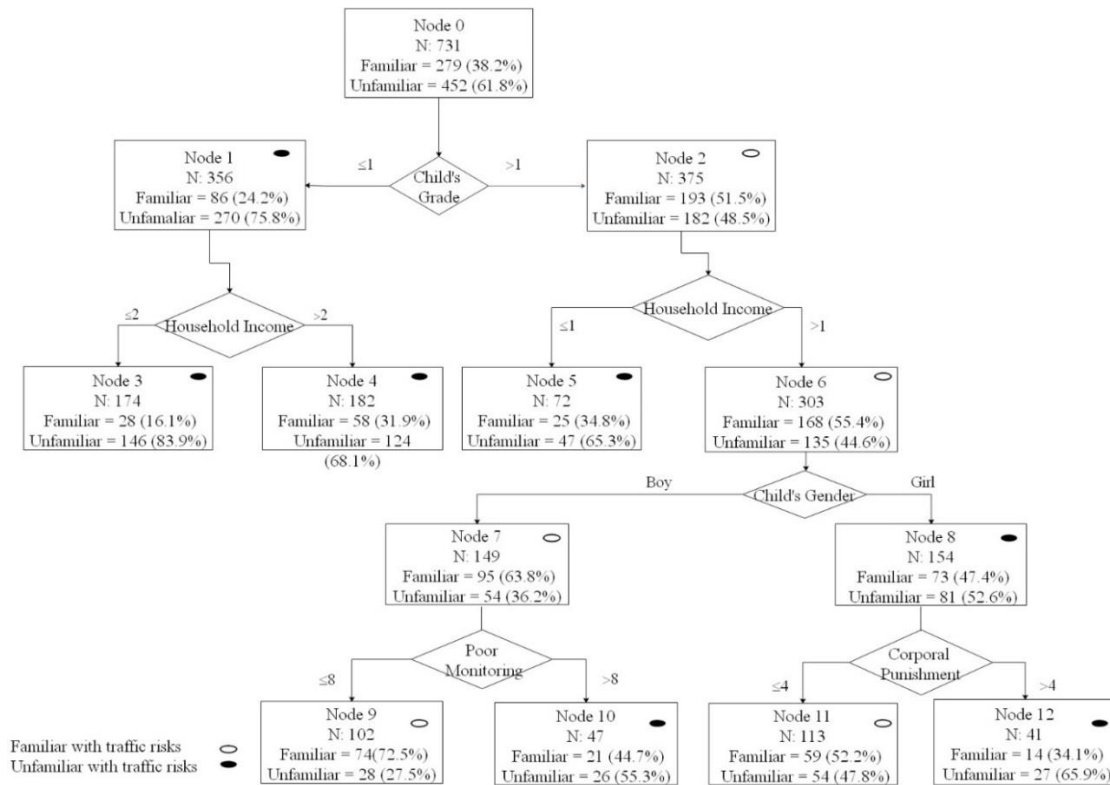

Figure 1. Decision tree of children's risk perception (training data)
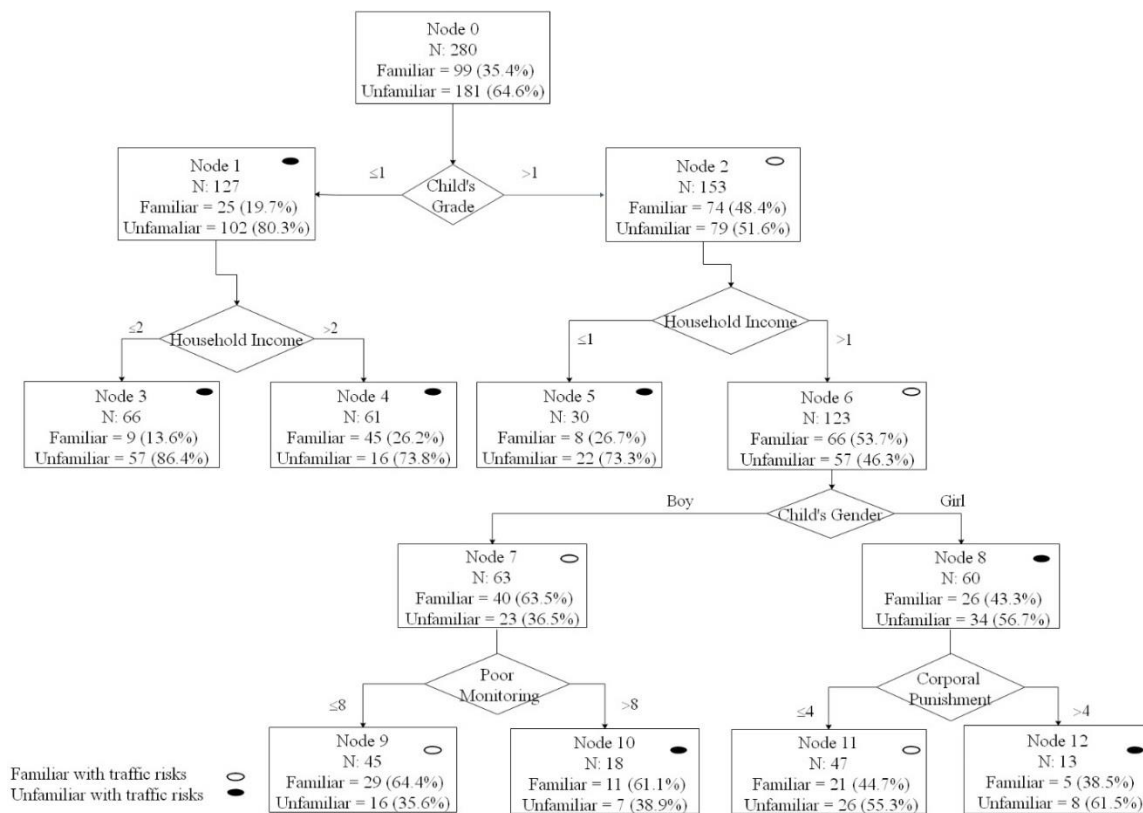
Figure 2. Decision tree of children's risk perception (test data)

4.   Discussions

The impact of different factors on children's risk perception is described in two parts, including demographic factors and parenting styles. The findings of this study are evaluated using other studies in the field of children safety so that a comprehensive and reliable view of children's traffic safety perception can be developed.

4.1. Demographic Characteristics
4.1.1.   Child's Age

Results of this study indicate that, the child's age is of paramount importance in the ability to perceive the child's risk. The age is a measure that clearly shows which children are more skilled and able to recognize safety concepts. This finding is consistent with other studies that have examined the effect of children's age in similar fields. Research has shown that identifying safe or dangerous places on the road and the ability to build a safe path to cross the road increase with age (Tabibi, Pfeffer, & Sharif, 2012). In general, as children's age increase, their behavior becomes safer on the road (Barton et al., 2007; Benjamin K. Barton, 2007). These results may be due to the fact that older children appear to be more exposed to traffic so they have more experience in this regard. This may strengthen their cognitive skills, perceptions and raising their awareness of risks on the road (Tabibi et al., 2012). It is also possible that due to the lack of independent presence of younger children on the road (Oxley, Congiu, Whelan, D'Elia, & Charlton, 2007), parents do not train younger children to acquire such skills. In this study, there was a positive and significant relationship between the age of the child and their education in this field, thus increasing age is associated with understanding risks.

4.1.2.   Socio-economic Status

The economic level of the family is the second priority in terms of the importance of children's risk perception. Decision trees indicate that children with poorer economic status are more likely to have poor risk perception. The results show that parent's education level is also very important in children segregation in two familiar and unfamiliar with traffic risks groups. The socio-economic level of the family is important because children who live in lower socio-economic families are more at risk of road injuries (Koekemoer et al., 2017). Parents with higher socioeconomic have a greater sense of self-confidence about their role as a traffic safety educator. This feeling may be influenced by their level of education, the limitation of having useful safety training in areas with less well-being, and greater access to parental information resources in affluent areas (Muir et al., 2017).

This finding is consistent with other studies that have examined the impact of socioeconomic status on children's behavior. In a study in Victoria, parents who believed that children learned traffic safety skills primarily from them, had mostly higher education level, higher socio-economic level and more awareness and knowledge of road safety (Muir et al., 2017). Therefore, according to the results of this study, families from lower socio-economics backgrounds should be provided with additional support to enhance their children's safety. One way of doing this would be to hold educational workshops.

4.1.3.   Child's Gender

According to the decision tree model, boys showed a greater perception of traffic safety than girls. This difference between girls and boys can probably be attributed to the prevailing conditions in Iranian society, as Iranian parents are more likely to allow their sons to leave home or play outdoors. Thus, it seems that boys have more experience of being on the road (Tabibi et al., 2012). This

indirectly strengthens boys' familiarity with traffic safety. In addition, after examining children's road safety training, a significant difference was observed between boys' and girls' training, as parents reported more training for boys. This difference between girls and boys can lead to differences in their ability to perceive the traffic risks. This finding is consistent with some studies that have examined differences between girls and boys in similar contexts. For instance, boys are better than girls in identifying safe routes to cross the road (Thomson et al., 1998) and are more capable than girls in identifying the correct places to cross the street (Tabibi et al., 2012). Contrary to these results, some researchers found that boys scored significantly lower than girls for safe road crossing, and girls performed safer on the skill of road crossing than boys (Barton et al., 2007; Benjamin K. Barton, 2007; Morrongiello & Barton, 2009). On the other hand, so far no direct relationship has been reported between girls' and boys' mental ability in traffic skills, but research shows that there are significant differences between boys and girls in growth and learning, so it is likely that boys and girls get preparation to have safe presence on the road at different ages (Halpern, 2006; Morrongiello & Barton, 2009; Thomson et al., 1998). Further research is needed to determine the basis for these gender differences in children safety behavior and children's risk perception.

4.1.4. Children's Exposure to Traffic

According to the present findings, children's transportation by foot influences their perception of risk. However, it should be noted that as children are often present in traffic with their parents, parents are the models that are imitated by the children from the first year of life. Thus parents have the best opportunity to improve children's traffic skills through the modelling of appropriate behaviors (Adams, 2001). The environment around children should be legal because children's experiences in this regard play a significant role in the process of their risk perception so it is necessary to correct the illegal and unsafe patterns of behavior that are faced by children in traffic environments on a daily basis. In the following section, the role of parenting styles on children's traffic risk perception is discussed.

4.2. Analysis of Parenting Styles
4.2.1. Corporal Punishment

According to the model, the negative effects of corporal punishment are seen on children's ability of risk perception. Parents who use corporal punishment, create feelings of helplessness and humiliation in children and cause internal problems (anxiety, depression, aggression, and physical problems) and external problems such as delinquency (Cryan, 1995; Gershoff, 2002; Rinaldi & Howe, 2012; Snowman & McCown, 2011). The greater the use of corporal punishment in the family, the more stress there is among family members (Tan, Gelley, & Dedrick, 2015). Corporal punishment reduces children's self-esteem, create doubt, hesitation, and discomfort in participating in class activities (Brezina, 1999; Flynn, 1994; Straus, Douglas, & Medeiros, 2003).

In addition, corporal punishment reduces children's motivation and ability to learn (Ahmad, Said, & Khan, 2013), destroys their desire to participate in learning and education, creates a feeling of depression in them, and causes their poor performance in tests (Rossouw, 2003). As the results of the present study showed, this style of parenting has a negative effect on the ability of children to perceive road risks, and due to the children's weakness in safety skills, it may even increase the probability of their traffic vulnerability. As a result, it is necessary to modify the parenting

style of parents who use this style in order to increase their ability to perceive risk.

4.2.2. Poor Monitoring

According to the model, if parent's poor monitoring index is higher than the eighth index, children are more likely to be at risk on roads due to their low level of risk perception. There is a positive correlation between children's perception of parenting style and their parents' behavior (Su, Doerr, Johnson, Shi, & Spinath, 2015). Therefore, children perceive the level of their parents' control, attention and monitoring, so it likely strengthens their ability to identify and understand the risks that threaten them on roads. Children who are exposed to a poor parental monitoring and supervision are more likely to be influenced by their peers, which may lead them to engage in deviant and high-risk behaviors (Stolz, Barber, & Olsen, 2005), and especially high-risk behaviors on the road. Research has shown that low or insufficient parental supervision leads to behavioral problems in children (De Los Reyes, Goodman, Kliewer, & Reid-Quinones, 2010; Rinaldi & Howe, 2012). In explaining this issue, it should be borne in mind that unconditional freedoms expose children to many harms and abuses. In other words, the diminishing role of parental supervision has a significant impact on children's risk perception performance.

On the other hand, it should be noted that constant parental control deprives children of their ability to solve problems and removes their independence, pursuit of intrinsic interests and initiative (Fei- Yin Ng, Kenney-Benson, & Pomerantz, 2004; Juang & Silbereisen, 2002). Research has shown that improper parental monitoring can lead to behavioral problems in children (De Los Reyes et al., 2010). Exerting pressure on the child and over-controlling has a devastating effect on the child's mental development,

his/her sense of independence, motivation to study and academic success (Barber, Stolz, Olsen, Collins, & Burchinal, 2005; Boon, 2007; Dwairy & Achoui, 2010; Fei- Yin Ng et al., 2004; Fulton & Turner, 2008; Su et al., 2015; Walker & MacPhee, 2011). Thus, the family should monitor and control the child in a moderate way. Supervision should be such that it does not impair the child's sense of independence and at the same time does not cause the parents to be negligent towards the child.

The results indicate that children's transportation by car is not significant in children's risk perception. Perhaps the reason is that most of the interview questions which assess children's risk perception in this study were related to pedestrian hazards. In addition, the extent to which children are transported by motorcycles, bicycles, and public transportation did not show a significant effect on children's ability to perceive risk. Children's little use of these modes of transportation could be the reason of ineffectiveness of these variables in this case. Also, few children had a crash experience, so no correlation was found between the number of children's crashes and their ability to perceive risks. The importance of children's traffic training was also low. One of the reasons for the insignificance of this parameter could be the lack of some topics (such as recognizing the blind spot in the turn, uphill and parked cars) in educational resources. From parents' perspective, it seems that there is no need to develop such skills in children. This may be due to not considering children's exposure to traffic independently. Considering the influence of this parameter in other studies (Barton et al., 2007; Thomson et al., 1998), it is expected that by training risk perception skills more widely, children's ability can be improved, even such subjects can be used in the educational curriculum of the textbooks. It

was observed that corporal punishment and poor monitoring had a negative effect on children's risk perception. According to the results, inconsistent disciplines, parental involvement and positive parenting are not significantly important in children segregation in two familiar and unfamiliar with traffic risks groups. It seems that more research is needed to investigate the effect of these two criteria on children's traffic skills.

5. Limitations

In this study, data collection was through self-report surveys, but there were no children or parents' names or addresses on the questionnaires. One code was given to each child, which protected their identity. Nevertheless, there are always some limitations when using questionnaires in research. This study is no exception to this limitation.

The training parameter was examined in this stud. However, due to the time limitation, children's level of educability was not assessed using a control group or pre-and post-tests. Studying children's ability to learn road safety and the role of parenting styles in this process would be a valuable future study.

6. Conclusion

In this study, the influence of parenting styles and demographic factors on children's risk perception within traffic was considered. To achieve this goal, children were interviewed and a questionnaire was provided to parents. Using descriptive analysis and decision tree model, the role of various factors in children's familiarity with traffic safety was explained. The results indicate a significant effect of age, gender and socio-economic status of children on their perception of road risk. Parental poor monitoring and corporal punishment have also played a major role among parenting styles. Thus, if the parents' supervision over the child is insufficient, it will have a negative effect on

the child's ability to perceive traffic risks. Also, if parents use corporal punishment, they will have children who do not perceive risks on the road. The importance of these factors should be reported to families and relevant authorities, some educational workshops should be arranged for parents to be informed about the impact of parenting styles, and other factors affecting children's risk perception. Developing a walking bus to school or similar educational methods could be useful as well.

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