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Unlicensed motorcycling of high school adolescents in Dehaghan county (Isfahan Province of Iran)

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ABSTRACT

Background: Unlicensed motorcycling increases the chances of accidents in adolescents. There are many behavioral and non-behavioral factors involved in adolescents' unlicensed motorcycling which were not addressed in research yet completely.
Methods: The cross-sectional study aimed to determine prevalence and related factors of unlicensed motorcycling on 500 unlicensed male high school adolescents in Dehaghan, who entered in the study by census. Demographic and motorcycling information were collected via self-report questionnaire, and its content validity was approved by a panel of experts. The statistical analyses of the data included Pearson Correlation Coefficient, chi-square, independent samples *t*-test and ANOVA with Tukey post hoc test.
Results: The prevalence of unlicensed motorcycling among participants was 74.2% and mean age at first motorcycling experience was 11.97 ± 1.97 years ranged from 8 to 17. Of the motorcyclist participants, 59.6% owned their personal motorcycle. Most motorcycle passengers (62.8%) were adolescent's friends, and the most frequently expressed reason for use of motorcycle was fun and entertainment (54.2%). Age at first motorcycling experience was lower among rural adolescents than urban adolescents. However, unlicensed motorcycling was more prevalent among urban adolescents than rural ones. The relationship between living status, father's job, mother's job and age at first motorcycling experience was insignificant ($P > 0.05$). However, mean age at first motorcycling experience among students of humanities, technical disciplines, and general first year was lower than that among students of natural sciences and math.
Conclusion: High prevalence of unlicensed motorcycling and significant role of family and social environments on adolescents' high-risk motorcycling without license, is indicative of the need for interventions at all levels of peers, family, and schools and also establishing new driving regulations in Iran.

1. Introduction

Annually, 1.2 million people lose their lives in road accidents worldwide, and 20–50 million are disabled (Peden, 2004). Deaths due to traffic accidents are 25.8 in every 100 thousand people of Iran's population. The importance and sensitivity of the issue in Iran becomes clearer when this figure is compared to the world's (19.9%), low to middle income countries (20.7%), and Eastern Mediterranean countries (15.2%) (Montazeri, 2004). Motorcyclists have the highest proportion of accident injuries on urban and rural roads in Iran, and put themselves and others at risk with their high-risk behaviors (Nantulya and Reich, 2002). A study revealed that in a 9-months period, motorcycle accidents claimed nearly 7000 deaths and 700000 injuries in Iran (Torabi et al., 2009). In the US, motorcycle accidents are one of the causes of injuries among 15–20 year olds. In a 5 year study in the US, out of 436 accidents resulting in adolescents' deaths, 378 cases involved under-fifteen adolescents without license (Frisch et al., 2003). The US National Highway Traffic Management Center in 2004 reported that motorcycle riders are killed in road accidents 34 times more than car passengers (NHTSA, 2006). Moreover, fatal and horrific accidents have been reported much more in drivers without license (Blows et al., 2005). Factors influencing motorcycle accidents include speeding, age, special occasions, alcohol and drug use, failure to wear helmet, roadside factors, and some high risk behaviors (Colburn et al., 1993; Elvik, 1995; Clarke et al., 2006). Amid, younger drivers are more involved in high risk behaviors like speeding than experienced drivers (Chesham et al., 1993). Two

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different and extensive factors affect adolescents' safe driving: 1 – immaturity, 2 – inexperience (Senserrick and Whelan, 2003). In a study, it was found that nearly 38.8% of the high school freshmen and 68.9% of high school senior students have ridden motorcycles before reaching the legal age, and experienced accident and injury 3 fold compared to their car-driving peers (Preusser et al., 1998). Investigation in a number of countries reveals that increased licensing age has not reduced under-age adolescents' access, and that they are just as exposed to risk of accidents as other motorists (Yeh and Chang, 2009). For instance, in Taiwan minimum motorcycle licensing age is 18 years, while in the US, Australia, New Zealand, and most European countries, 15–16 years old adolescents are legally permitted to ride motorcycles (Schoon, 2004; Mulvihill, 2005). Minimum age for motorcycle licensing is indicative of diverse risk management policies in these countries (Yeh et al., 2008). Motorcycle licensing system in Taiwan is categorized in three distinct phases: 1 – moped up to 50 cc, 2 – light motorcycles from 50 cc to 250 cc, and 3 – heavy motorcycles (over 250 cc). Minimum age for obtaining license for type 1 and 2 is 18 years, and no previous experience or compulsory training, other than medical examination, is required for license to ride motorcycles. It seems Taiwanese adolescents either learn riding these motorcycles through self-teaching or trial and error. With respect to heavy motorcycles, they must be 20 years old and have been holding light motorcycle license for minimum of one year, participation in a 32 h training course is also required (Yeh and Chang, 2009). In Iran, requirements for motorcycle license test (for riding motorcycles up to 200 cc) include: 1 – minimum age of 18 years, 2 – providing mental and physical health certificate, issued by medical authorities, 3 – providing certificate of attendance in theory and practice courses from a driving school or certified drivers' training center, and 4 – passing theoretical and practical skills test for riding motorcycles up to 200 cc (ICARC, 2014). About the 3rd clause, it should be mentioned that, it is a short course which is held for a maximum of 20 h before the theoretical and practical skills tests. That will take maximum two days as applicants attend in theoretical classes. They also practice motorcycling within the training centre and are supervised by the trainer when motorcycling. Therefore, in Iran, actual learning process is informal and people usually learn motorcycling through self-teaching unlicensed motorcycling. Considering that no specific study has yet been conducted on Iranian adolescents' age at onset motorcycling prior to receiving a license and factors that affect this process, still, riders without license have seldom been recognized by authors, and less been subject of public health debates, unless or until they are involved in traffic accidents (Rathinam et al., 2007). Thus, this study was conducted to determine the prevalence and related factors of unlicensed motorcycling among male high school students in Dehaghan county of Isfahan Province (Iran).

2. Materials and methods

2.1. Subjects

The descriptive cross-sectional study was conducted on all male high school students (who had not got a motorcycling license) in Dehaghan County of Isfahan province in central Iran from February 2012 to March 2013. Dehaghan is a city in western Isfahan Province, Iran, and at the 2006 census, its population was 16,899, in 4664 families (Statistical Center of Iran, 2006). The study population of 550 students was selected to enter in the study with census, of whom 500 students completed the questionnaire. The remaining 50 students were excluded from study due to lack of desire to participate ($n = 30$) or absence from school at the time of data collection ($n = 11$) or having a motorcycling license ($n = 9$). One of the researchers attended schools to deliver questionnaires to students, and collected them after completion.

2.2. Measures

The instrument for the study was developed by the research team. It was a 26-item questionnaire on demographic and motorcycling information. Demographic information included student's age, academic discipline, academic level, place of residence (urban or rural), grade point average (GPA) (mean of student's score in his previous class), family size (number of peoples who lived together at study time), living status (with/without parents) father's job (blue-collar worker, white collar worker, unemployed, and self-employed (those who work in their own small and medium enterprises)) and mother's job (house-wife and blue-collar worker). Motorcycling information included: students' already motorcycling status, age at first motorcycling experience as rider, number of motorcycles at home, average hours of motorcycling per week, owning personal motorcycle, mostly number of motorcycle passengers, mostly passengers category (friend/family members/relatives and associates/ageing people), mostly motorcycling reason, highest motorcycling occasion, and being fined by the police. A panel of 6 experts was asked to evaluate the content validity of the questionnaire. Minor revisions were conducted on the questionnaire based on comments from the experts, and finally they approved the appropriateness of the questionnaire.

2.3. Data analysis

Data were analyzed with SPSS20 software (SPSS Inc., Chicago, Illinois) using descriptive (frequency distribution tables) and inferential statistics. Pearson Correlation Coefficient was used for investigating the correlation status of continuous variables, chi-square test for investigating the relationship status of categorical variables, ANOVA test for investigating age at first motorcycling experience differences by multi-level categorical variables, and independent t-test for investigating age at first motorcycling experience differences by two level categorical variables. $P < 0.05$ was taken as the significant level.

3. Results

Of the 500 participants, 58% lived in the urban and 42% in rural areas. Of them, 31.2% were 14–15 years old, 65.6% were 16–17 years old, and 3.2% were 18–20 years old. Table 1 presents some more details of demographic information of participants.

Of the total sample of 500 students, 74.2% already rode motorcycles. The majority was in 10–13 year age range that had first motorcycling experience. Mean of age at first motorcycling experience was 11.97 ± 1.97 years. (Table 2)

More than half of motorcyclist students owned personal motorcycles, and majority of them rode their motorcycle 1–5 h per week with a mean of 5.09 ± 1.97 h. Adolescents carried at least one passenger when motorcycling, who was more a friend of them. More than half of adolescents expressed the reason for motorcycling, fun and entertainment, which mostly happened during summer break. Up to the commencement of study, the majority of motorcyclists (61.8%) had not been fined by the police. Related data on motorcyclist participants are presented in Table 3.

Mean age at first motorcycling experience was lower among rural adolescents compared to urban adolescents (Table 4). Also results indicated that age at first motorcycling experience varied according to different academic disciplines. Tukey post hoc test revealed that students of natural sciences and math disciplines began motorcycling at an older age. ANOVA with Tukey post hoc