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**Anju C Mathew**  
Junior Resident, Community  
Medicine, MES Medical  
College, Perinthalmanna,  
Kerala, India.

**Sebastian N M**  
Associate Professor,  
Community Medicine, MES  
medical College,  
Perinthalmanna, Kerala,  
India.

**Roney Thomas**  
Assistant Professor,  
Emergency medicine, MES  
medical College,  
Perinthalmanna, Kerala,  
India.

**Sheela P Haveri**  
Professor and Head,  
Community Medicine, MES  
medical College,  
Perinthalmanna, Kerala,  
India.

**Arya S Nath**  
Statistician, MES Medical  
College, Perinthalmanna,  
Kerala, India.

**Correspondence**  
**Anju C Mathew**  
Junior Resident, Community  
Medicine, MES medical  
College, Perinthalmanna,  
Kerala, India.

## Teenage driving in Kerala: A study among high school boys

**Anju C Mathew, Sebastian NM, Roney Thomas, Sheela P Haveri and Arya S Nath**

### Abstract

**Background:** Human errors are the cause for most traffic accidents. Adolescents are more likely to commit these errors and cause accidents. Road accidents are estimated to be three times more common with teen age drivers. In India licence for driving is restricted to ages 18 years and above. But there are reports that good number of teenagers are driving especially from the state of Kerala. This study was conducted with the objective of determining what proportion of teen aged students engage in driving and their social characteristics and driving practices.

**Methods:** A cross sectional survey was conducted among 301 boys from 8 schools selected using multi stage random sampling. A semi structured questionnaire was used to collect information, maintaining anonymity and after obtaining permission from school authority and consent from students. Data was analysed in statistical software.

**Results:** 81.4% of students below 18 years engaged in driving at least a few times and 39% drive frequently. Among them 92.6% used two wheelers and 26.4% drive 4 wheelers. Mean age at first driving was 13.6 years. Parent's approval was there for 86.9% of them. Regular helmet use was reported by only 28.6% of motor cyclists and regular seat belt use by 31.2% of 4 wheeler users. Any sort of accidents were reported by 15.6% and 21.6% reported having met at least one police checking. Social or economic status did not influence driving among teen agers.

**Conclusions:** Driving among adolescents is very high. Most of them have parent's approval. Regard for use of safety measures like helmets and seat belts are rare.

**Keywords:** Teen age, Driving, safety measures, traffic rules, licence.

### 1. Introduction

Road traffic accidents are one of the major causes of death worldwide. In many countries, motor vehicle accidents rank first among all fatal accidents. In developing countries like India, road traffic accidents are on the rise and account for a considerable proportion of mortality, disability and morbidity. The public health importance lies in the fact that majority of these accidents are due to preventable human errors.

Adolescence is a key developmental stage in the life span with unique characteristics in behavior. Driving a motor vehicle during the adolescence is particularly dangerous due to the biological and physiological factors. Teenage drivers are impulsive and over confident usually and often resort to rash driving resulting in accidents. Adolescents are more likely than older drivers to underestimate dangerous situations or not able to recognize hazardous situations. Other factors leading to increased risk for accidents among adolescents are their inexperience, risk taking behavior <sup>[1]</sup>, over speeding, unawareness or shunning from traffic rules, and tendency to show off. In fact, adolescents are the most unsafe drivers on the road, a threat to themselves and others. Young drivers may represent only a small per cent of all drivers, but they are involved in a lot of crashes.

Centre for Disease Control estimates that road accidents are three times more among the 16-19 age group when compared to higher age groups <sup>[2]</sup>. When compared to girls, boys are two times more likely to cause accidents. They also estimate higher risk of accident among newly licensed drivers during the first month of driving.

India's policy is to license drivers over eighteen years of age only in view of reducing the risk of dangerous driving. Still many are driving on road without a license. It is important to assess the magnitude of the adolescent driving behavior, for planning educational activities for students on driving and traffic rules for preventing traffic accidents.

Not much of data is available on this topic at present from Kerala. Insurance association reports from U.S gives information that among accident deaths of teen agers in passenger vehicles 60% of them were driving at the time of accident [3].

The study was conducted with the objectives of obtaining the proportion of school going adolescent boys who engage in driving before 18 years, their social characteristics and the knowledge and practice regarding driving among them.

**2. Methodology**

A cross sectional study was conducted among adolescent male students in 8<sup>th</sup> to 12<sup>th</sup> standard of higher secondary schools, in Perinthalmanna Taluk of Malappuram District, Kerala during February 2015 to March 2015. Those above 18 years and those who refuse to participate were excluded from study. Assuming that 62% boys engage in driving, as obtained from a pilot oral questioning among 40 participants and allowing 15% error, sample size calculated as 291. ( $N=z^2pq/d^2$ ).

Schools were selected using a probability proportionate to size sampling method. Assuming, from each selected school, 50 students will be randomly included, to obtain a sample size of 291, 6 schools had to be selected. We listed the schools in Perinthalmanna Taluk and their population sizes. The cumulative sum of the population sizes was calculated and divided by 6, to get the Sampling Interval and by adding the sampling interval to a random number and then to the immediate previous cumulative population to select the next school to be included.

Data was collected after obtaining written permission from the Principal of the school. A pretested semi structured questionnaire was administered under supervision to collect information from students after getting their consent. Care was taken for maintaining anonymity of the participants hence the students were asked not to write their names or any other clues of identification on the format.

**3. Results**

A total of 301 adolescent boys studying in 8<sup>th</sup> to 12<sup>th</sup> standard took part in the study. Age of the participants ranged from 12-17 years with mean age 15.6 years ( $\pm 1.14$ ). Among the study group, 201 (66.8%) had own vehicle in their family.

It was found that 81.4% (245) of these boys engaged at least few times in driving a motor vehicle of any type. The frequency of driving is depicted in table 1. Among those who had engaged in driving, greater part (92.6%) reported to have driven two wheeler vehicle. 26.4% had driven four wheelers, and 14.3% reported driving three wheelers as depicted in table 2. Mean age of first driving was 13.62 ( $\pm 1.74$ ) years and ranged from 8 years to 17 years. A good number of students (62.5%) had informed that they learned traffic rules. 15.1% had met with some sort of road accidents, and 21.6% had one or other time faced a police checking.

**Table 1:** Frequency of driving among those boys who drive

	Number	Percent
Daily	48	19.6
Frequently	47	19.2
Infrequently	141	57.5
No response	9	3.7
Total	245	100.0

**Table 2:** Pattern of driving different types of vehicles by teen agers

	Frequency	Percent (N=245)
2 wheeler only	162	66.1
4 wheeler only	10	4.1
3 wheeler only	3	1.2
More than one type of vehicle	70	28.6
Total drivers	245	100

**3.1 Parent’s approval for driving**

Among the 245 boys who drive, 213 (86.9%) reported that they have their parent’s permission to drive and 66 (26.9%) reported that it is their parent who gave them training to drive.

**3.2 Socio-economic determinants of driving behaviour**

Socio-economic characteristics of those who drive and those do not were compared by cross tabulation analysis. The results are given in table 3. It was seen that the driving among the boys do not have any significant relation with the occupation of the parent or the reported income of parent or their educational status. Driving was significantly higher among those families who had a vehicle of their own (odds ratio 3.9,  $p < 0.001$ ).

**Table 3:** Father’s occupation and driving among teen aged sons

		whether drives		Total
		No	Yes	
Fathers occupation	Manual labour	22	61	83
		(26.5%)	(73.5%)	
	Business	4	30	34
		(11.8%)	(88.2%)	
	Employed abroad	4	33	37
		(10.8%)	(89.2%)	
	Agriculture	3	5	8
		(37.5%)	(62.5%)	
	Skilled work	2	16	18
		(11.1%)	(88.9%)	
Employee	6	24	30	
	(20.0%)	(80.0%)		
Driver	1	14	15	
	(6.7%)	(93.3%)		
Professional	3	7	10	
	(30.0%)	(70.0%)		
There is no significant association between father’s occupation and driving. Chi square 10.9 d. f. 8, P = 0.2				

**3.3 Knowledge on traffic and driving rules**

Among the 245 boys who drive, 153 (62.5%) claimed that they had learned traffic rules and 80 (32.6%) admitted that they do not know traffic rules and 12 (4.9%) did not respond. But to the four questions on traffic rules included in the questionnaire the answer was wrong or partially correct in many cases. Among those who reported driving 23 (9.4%) of boys answered that it is correct to overtake through the left side of the vehicle ahead and 69 (28.2%) answered that one can overtake over a bridge. Among those who drive, 141 (57.5%) did not know the speed limit for two wheelers and 105 (42.9%) did not know the speed limit for four wheelers.

**3.4 Safety measures while driving**

Behaviour of the boys regarding taking safety measures, wearing helmets and seat belts while driving were analysed. The results show that among 227 boys who ride motor cycles 65 (28.6%) of them used helmet always, 104 (45.8%)

used it sometimes and 56 (24.7%) never used helmets and two did not respond. Among 64 students who reported driving 4 wheelers, 20 (31.2%) used seat belt always, 26 (40.6%) sometimes and 18 (28.1%) never used seatbelts.

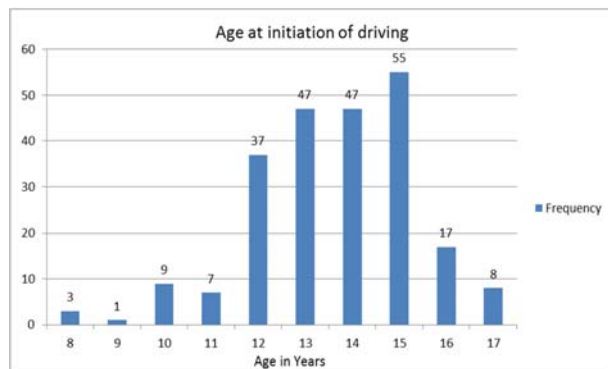


Fig 1: Age at initiation of driving.

#### 4. Discussion

Our results show that in spite of existing law more than 80% of teen aged boys engage in driving and that also with the knowledge of the parents mostly. Two thirds of families own their own vehicle and the chance is that the teen aged sons start driving at a mean age around 15. Law do not seem to be a barrier. Occupation or education of parents does not appear to prevent the teen agers from engaging in driving. Many do not observe traffic rules or know the rules. Safety measures are also not taken in many cases. An article in *The Hindu* reports that 40% among all drivers caught by police in Kerala for not having licence were teen agers. Also the teen agers depend heavily on personal vehicles especially two wheelers for travelling to schools and colleges [4]. Our study results in Perinthalmanna, north Kerala agrees with this finding. In our study, three fourths of the teen aged students reported using two wheelers.

The study observation that most of the teen aged drivers had parental approval points to the need for parental restrictions on teenage driving. Other research findings show that when family and parents put restrictions on teen agers, they are less likely to involve in risky driving [5]. Socioeconomic status of the parent doesn't seem to have any control over driving behaviour.

Safety precaution like wearing of helmets was practiced regularly by about one fourth of teen agers only. Another study from Kerala has also shown similar results that only 26.9% of students use helmet [6]. Another study from U.S reports that teenagers are 12% less likely to use seatbelts while driving compared to others [7]. This should be considered along with the fact that wearing seat belts can reduce fatal injuries by 60% [8]. Helmet use is also shown to reduce serious head injuries and death considerably [9].

The study results points to the need for taking urgent steps to control the teen age driving in Kerala. Parents are to be oriented to place restrictions on their children to avoid risky driving. Traffic education should be included in school curriculum. 'Road Safety Vision' Kerala has planned to introduce activity based traffic education in school curriculum as a target [10].

The study has the limitation that it is based on what is reported by the students themselves and hence depends on students revealing actual facts.

#### 5. Conclusions

The study concludes that prevalence of driving is very high among teen aged boys. Parents are not effectively controlling or restricting their boys from driving and in fact may be encouraging them. These teen aged students are mostly not aware of traffic rules and only few are practicing safety measures like wearing helmet. There is a need for imparting awareness to parents as well as students on the risk of driving by teen agers and the need for complying with laws.

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