

## **CHARACTERISTICS AND CRASH INVOLVEMENT OF SPEEDING, VIOLATING AND THRILL-SEEKING BABY-TAXI DRIVERS IN KHULNA METROPOLITAN CITY, BANGLADESH**

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**Abstract:** In Khulna metropolitan city area large scale questionnaire study of baby-taxi drivers (152) reported the number of their recent speeding offences, violating the traffic rule and driver thrill-seeking; nominated their 'normal' and 'preferred' speeds on two different routes from Rupsha to Fulbarigate and Rupsha to Khalishpur; and reported their level of active and passive crash involvement in the previous two years (2000-2001). This paper reports about the demographic measures – age, gender, income, domicile (urban to rural) – and driving measures – driving experiences, annual mileage, engine size, age and ownership of baby-taxi. Results identified that the young drivers – especially, though not exclusively – reported normal and preferred speeds, violations and thrill-seeking on most of these indices of risky driving. And all measures of risky driving in this study showed an association with elevated crash involvement. Different road safety countermeasures will be required to overcome this situation.

**Key Words:** speeding offences, crash involvement, thrill-seeking, normal speed, preferred speed

## **1. INTRODUCTION**

Khulna the third largest city in Bangladesh came to limelight as a commercial center and subsequently as an industrial port city. The city has expanded to meet the growing demand of increasing population. An efficient transportation is essential to cater to the travel need of the city commuters. Different type of travel modes serves the travel need of the city population. There are two broad categories of transport modes; motorized and non-motorized. Motorized modes include double decker buses, single decker buses, cars, baby-taxies, motor cycles and non-motorized modes include bicycles, rickshaws, vans, carts etc. This study mainly focuses on the characteristics and crash-involvement of speeding, violating and thrill-seeking drivers of baby-taxi.

We know that drivers who speed, who violate other rules of the road, and who seek thrill when driving pose greater crash risk to themselves and to other road users (Meadows, 1994; Parker, West Stradling & Manstead, 1995). Results from an extensive questionnaire survey of baby-taxi drivers of Khulna metropolitan city (Hossain & Kalam, 2001 and Adhikary & Bala, 2003) allowed for a comprehensive delineation of the demographic characteristics and the vehicle use characteristics of baby-taxi drivers reported speed choice and on measures of thrill seeking.

Such information should assist in choosing and targeting appropriate remedial measures for those drivers who engage in such risky road behaviour. All travel and transport decisions, from whether to use public and private transport for a trip, through to whether to speed, violate or seek thrill at a certain point in a journey, arise from the interaction of opportunity, obligation and inclination (Stradling et al, 1999; Stardling, Meadows & Beatty, 2000; Wardman, Hine & Stardling, 2000). For example, a driver speeds will depend on either there is an opportunity for speeding or depends on the individual driver attitudes, beliefs and values driving their inclination to speed.

In this study, questionnaire survey was carried out to investigate the characteristics and crash involvement of speeding, violating and thrill-seeking drivers of baby-taxi in Khulna metropolitan city.

## **2. METHOD AND MATERIAL**

### **2.1 Study Area**

Khulna metropolitan city is located in the south-western part of Bangladesh. It is situated in a flat terrain on the bank of the river Rupsha and the Bhairab with industrial activity. It lies between  $22^{\circ}47'16''$  to  $22^{\circ}52'00''$  north latitude and  $89^{\circ}31'36''$  and  $89^{\circ}34'35''$  east longitude, which acts as a gateway to the nearby sea port Mongla. The city covers an area of 45.65 square kilometers with a population of about 1.2 million with a growth rate of 5% per annum (Kaiser, 1993). The city core, which is about one quarter of total city area, is densely populated with mostly multi-storied residential and commercial buildings. The city is 4 meter above the mean sea level (MSL). Khulna city is bounded by the river Bhairab and Fultala Thana on the north, by the river Rupsha on the east and south and on the west by Dumuria Thana. The total road length of Khulna metropolitan city is 1231 km, of which 302 km is bituminous road, 84 km is Water Bound Macadam (WBM), 81 km is Herring Bone Bond (HBB), 95 km is Flat Brick Soling (FBS) and 669 km is earth road (KDA, 1999).

### 3. METHODOLOGY

#### 3.1 Study Method

A questionnaire survey was carried out in order to investigate the characteristics of baby-taxi drivers in Khulna metropolitan city. This survey was conducted on 11<sup>th</sup> to 17<sup>th</sup> April 2001. Two hundred fifty survey sheets were distributed to the drivers and the toll collector of the Rupsha ferryghat stoppage, Dak-bungalow stoppage, Khalishpur stoppage, Daulatpur stoppage and Fulbarigate stoppage collected 152 sheets. Questions about the demographic measures – age, gender, income, domicile (urban to rural) – and driving measures – driving experiences, annual mileage, engine size, speed choice, normal and preferred speeds, violation of traffic rules, age and ownership of baby-taxi. The answers are used to analyze the characteristics of the speeding, violating and thrill-seeking drivers in the city.

#### 3.2 Sample Collection

The number of baby-taxi drivers responded to a field questionnaire (response rate: 61%) were 152. Table 1 shows that the sample covered a wide range of values on all the demographic variables: driver age, gender, socio-economic status, annual income, and place of domicile; and on all the driving variables: years of driving experience, size of engine, age of baby-taxi, estimated annual driving mileage, whether the baby-taxi was absolutely own or self or hired.

Table 1. Range of Values on Demographic and Driving Variables for Sample of Baby-taxi Drivers

Demographics	
Age	15 - 60 <sup>+</sup> years
Gender	M 100%; F 0%
Monthly Income	< Taka 3000 - Taka 5000 <sup>+</sup>
Domicile	City, Suburban, Semi-rural & Rural
Driving Variables	
Driving Experience	1 year - 10 <sup>+</sup> years
Engine Size	175 cc - 250 cc
Age of Baby-taxi	<1 year - 10 <sup>+</sup> years
Annual Mileage	<25000 - 35000 <sup>+</sup> km
Owner of baby-taxi	S 13.5%; H 86.5%

### 3. RESULTS AND DISCUSSIONS

#### 3.1 Measures of Speeding, Violating and Thrill-seeking

##### 3.1.1 Measures of Speeding

Speeding of baby-taxi drivers was measured in three ways. First by asking drivers how many

speeding offences they had been penalized for in the year 2000-2001. Second by asking respondents the speed at which they normally drove in two routes. And third by asking them the speeds at which they would prefer to drive on each of the two routes. Also asked the drivers about 'Normal speed' and 'Preferred speed'.

### 3.1.2 Measures the Violating of Traffic Rule

The tendency to violate the traffic rules of the road was indexed by responses to the 2000-2001 form of the Khulna metropolitan city baby-taxi driver's questionnaire survey.

### 3.1.3 Measures of Thrill-seeking

Few questions were asked to the drivers about the thrill-seeking behaviour. They replied that when they drove really fast a sense of excitation and nervousness at the same time because the faster they go the more concentration is needed. The high scoring respondent was a 22 year old male, driving a 3 years old 250 cc hired baby-taxi.

## 3.2 Characteristics of Speeding Drivers

Overall, 9% of the sample had been penalized for speeding in the previous two years. Table 2 shows the influence of each of the demographic and driving variables on this incidence.

Table 2. Demographic and Driving Characteristics of Baby-taxi Drivers Penalized for Speeding Offences (overall: 9%)

Factor	
Age Band	21-40 8%; 60 <sup>+</sup> 1%
Gender	M 9%; F 0%
Monthly Income	< Taka 3500 1%; Taka 4500 <sup>+</sup> 8%
Domicile	No effect
Driving Variables	
Driving Experience	1 year - 4 years 9%
Engine Size	175 cc - 250 cc 9%
Age of Baby-taxi	<1 – 10 <sup>+</sup> years
Annual Mileage	>30000 km
Owner of baby-taxi	S 1%; H 8%

Age of driver proved a good predictor of level of speeding offences. This was highest amongst baby-taxi drivers aged between 21 and 40, and lowest for those aged 60 and over (Table 3). The effect of age had a significant influence on the speeding offences. Older drivers and those who had monthly income relatively low (<Taka 3500 per month) were the least likely to have been penalized for speeding. The speeding offences occurred most of the hired baby-taxi (8%). All of those who had been penalized for speeding drove baby-taxi of 175cc to 250cc.

Table 3. Percent of Baby-taxi Drivers Penalized for Speed Offences in the Past Two Years by Age Band (%)

Age (year)	15-20	21-30	31-40	41-50	51-60	60 <sup>+</sup>	Overall
Speeding offences	10	7	15	6	4	2	9

### 3.2.1 Speeding Offences and Crash Involvement

Table 4 shows, 33% of those drivers who had been penalized for speeding in the last two years reported also having been accident involved, compared to 21% of those who had not been penalized, indicating that the kinds of drivers who have been caught for speeding are 54% more likely to have also been recently crashed involved. Though we do not know from this data whether they were speeding when they had their crashes this finding suggests at being detected speeding is a good indicator of a drivers risk potential.

Table 4. Speeding Offences of Last Two Years (%)

		None	1 or more
Accidents last two years	None	79	67
	1 or more	21	33

### 3.2.2 Speed Choice

The two variables normal and preferred speed, resulted in the Table 5 for those baby-taxi drivers who do, and those baby-taxi drivers who would like to, drive faster than others.

Table 5. Demographic and Driving Characteristics of Car Drivers Nominating Normal and Preferred Speeds across Two Routes

Factor	Normal speed	Preferred speed
Age	15-30>31-50>50 <sup>+</sup>	15-35>36-55>55 <sup>+</sup>
Gender	M	M
Monthly income	Taka 4500 <sup>+</sup> >Taka 3500-4500<<Taka 3500	Taka 4500 <sup>+</sup> >Taka 3500-4500<<Taka 3500
Domicile	Out to town faster	Out to town faster
Driving Variables		
Experience	<1-7 years	1-4 year faster
Engine size	200 <sup>+</sup> cc faster	250>200>175cc faster
Age of baby-taxi	1-5 years faster	1-7 years faster
Annual mileage	32500 <sup>+</sup> >25000-32500 > <25000 km	32500 <sup>+</sup> >27500-32500> <27500 km
Owner of baby-taxi	S 13.5%; H 86.5%	S 37%; H 63%

Young drivers are faster, older drivers are slower. Recently qualified – and thus inexperienced – drivers want to drive faster. Drivers who dwell out to town, who drive high mileage, drive fast. Drivers of hired baby-taxi drive faster. While both proved susceptible to age differences, they were also prone to mileage effects, annual mileage varies with age. Drivers of 15-30 year old report the highest normal speed (Figure-1).

It is shown that 15-40 years old report the highest preferred speed (Figure-2). The young drivers nominated preferred speeds much faster than the old drivers.

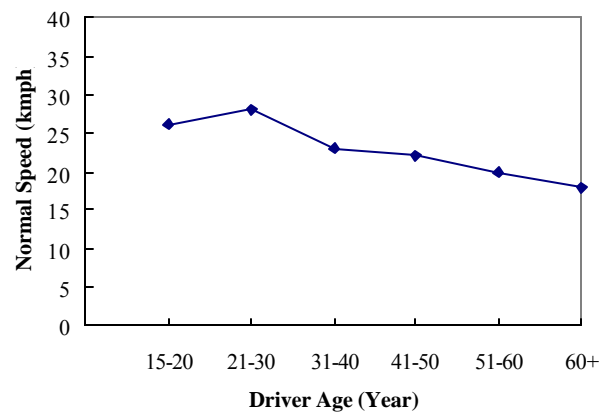


Figure 1. Normal Speed of Baby-taxi Age Brand

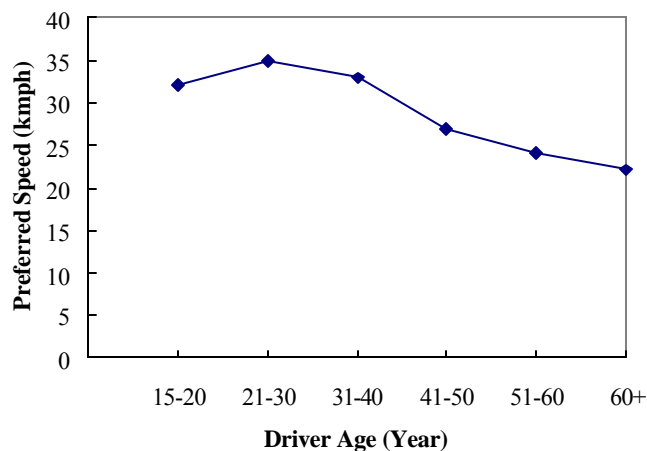


Figure 2. Preferred Speed of Baby-taxi Age Brand

### 3.2.3 Normal and Preferred and Crash Involvement

Active crashes (hit another road user) and passive crashes (hit by another road user) (West, 1995) were examined separately. 87% of the baby-taxi drivers in the sample reported no active accidents, 10% reported 1, and 3% reported 2 or more during the study period. 83% of the baby-taxi drivers in the sample also reported no passive accidents, 13% reported 1 passive crash, and 4% owned 2 or more. Those who would like to drive fast are more likely to run into other road users and to suffer loss of control crashes.

### 3.3 Characteristics of Violating Drivers

Table 6 shows the influence of the demographic and driving variables on the rules of traffic in highway.

Table 6. Demographic and Driving Characteristics Influencing Baby-taxi Drivers on Highway Rules

Factor	
Age band	15-20>21-40>41-50>50 <sup>+</sup>
Gender	Male
Monthly income	Taka 5000 <sup>+</sup> > Taka 4000-5000> Taka 3000-4000> <Taka 3000
Domicile	City, Suburban higher
Driving Variables	
Driving Experience	1-2 years>4-7> 7 <sup>+</sup>
Engine size	250cc>200cc>175cc
Age of baby-taxi	5-9 years higher
Annual mileage	35000 <sup>+</sup> >30000-35000>25000-30000> <25000 km
Owner of baby-taxi	H>S <sup>*</sup>

<sup>\*</sup>H=Hired, S=Self

High violating baby-taxi drivers were more likely to be young and to have less driving experience. They were from higher monthly income class. They were more likely to be domiciled in city than out of city. Those who report higher levels of violation tend to drive larger engine baby-taxi, to drive hired cars.

### 3.3.1 Violations and Crash Involvement

Drivers who had been crash-involved in the year 2000-2001 years significantly higher on highway rule violations.

### 3.4 Characteristics of Thrill-seeking Drivers

Table 7 summarizes the influence of the demographic and driving variables on variability in thrill-seeking.

Table 7. Demographic and Driving Characteristics Influencing the Drivers on Thrill-seeking

Factor	
Age Band	15-20>21-30>31-40>40 <sup>+</sup>
Gender	M
Monthly Income	Taka 5000 <sup>+</sup> > Taka 4000-5000> Taka 3000-4000> <Taka 2250
Domicile	City> Suburban>Semi-rural & Rural
Driving Variables	
Driving Experience	2-3 years>3-6 years>6 <sup>+</sup>
Engine Size	250cc>200cc>175cc
Age of Baby-taxi	1-3 years>3-5 years>5 <sup>+</sup>
Annual Mileage	35000 <sup>+</sup> >30000-35000>25000-30000><25000 km
Owner of the baby-taxi	No-effect

Younger and inexperienced drivers and those from monthly income earning above Taka 5000<sup>+</sup> per month all scored higher thrill-seeking, as did those driving large engine baby-taxi, driving high annual mileage. As thrill-seeking scores varied with drivers' annual mileage, and drivers of different age had large variations in annual mileage.

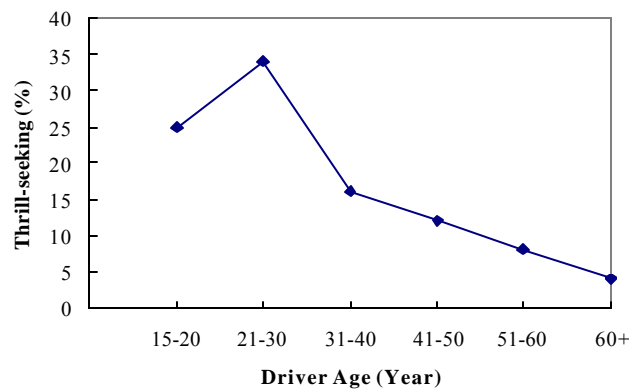


Figure 3 Thrill-seeking of Drivers by Age

### 3.4.1 Thrill-seeking and Crash Involvement

Drivers who had been involved in active crashes in the year 2000-2001 scored significantly higher. Thus thrill-seeking drivers in this study were more likely to have run into other road users or lost control of their baby-taxi.



#### 4. CONCLUSIONS

From the questionnaire survey of the behaviour of baby-taxi drivers in Khulna metropolitan city, it has concluded the demographic and driving characteristics of speeding, violating and thrill-seeking drivers and reported their crash risk. The measures of recent speeding offences, speed choice, highway code and the violation of traffic rule and thrill-seeking while driving makes them a greater risk to themselves and also to other road users. Young and inexperienced drivers are well known to be dangerous. And the hired baby-taxi drivers have been recognized as carrying a high risk of crash-involvement. Drivers at the young age were involved more risky road behaviour. All measures of risky driving surveyed in this study have shown an association of more crash involvement. Different road safety countermeasures will be needed to stop the behaviour of these drivers. Young drivers have long been known to carry a more crash risk. So, it is the time to control these violations.

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