

**International Journal of Innovative Research in Science,
Engineering and Technology**

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 9, September 2013

Two-Wheeler Riding Patterns, Perceptions and Aggressive Riding Behavior among College Youth

Humera Banu, Neelima Chakrabarty, Rajeev J. Michael, Rajesh Kumar

Paulomi M. Sudhir, Manoj K. Sharma, Seema Mehrotra

Senior Research Fellow, CSIR Project, Department of Clinical Psychology, NIMHANS, Bangalore, India¹

Principal Scientist, Central Road Research Institute, Delhi-Mathura Road, New Delhi²

Senior Research Fellow, CSIR Project, Department of Clinical Psychology, NIMHANS, Bangalore³

PhD Scholar, Department of Clinical Psychology, NIMHANS, Bangalore⁴

Additional Professor, Department of Clinical Psychology, NIMHANS, Bangalore⁵

Associate Professor, Department of Clinical Psychology, NIMHANS, Bangalore⁶

Additional Professor, Department of Clinical Psychology, NIMHANS, Bangalore⁷

Abstract: This paper explores aggressive riding behaviours and experiences that provoke anger while riding among college going youth. A survey capturing positive and negative emotional states while riding, sources of irritation on roads, and factors related to riding fast was administered on a sample of 457 college youth from Delhi. Being caught up in heavy traffic and repeated honking by others were some of the top sources of irritation reported. Verbal/gestural expressions of irritation and violation of traffic rules were some of the aggressive riding behaviours reported as response to frustrating situations. Nearly one third of the participants perceived themselves as riding faster than their counterparts. Approximately one-fifth of the participants indicated that their significant others perceived their riding as unsafe while they themselves continued to hold a perception that they ride safely. The study highlights psychological factors involved in understanding aggressive riding behaviours which are relevant for planning intervention programs.

Keywords: Aggressive Behaviour; Riding Behaviour.

I. INTRODUCTION

Concerns about road safety are seen as a major public health issue despite availability of sophisticated management techniques to curb traffic hazards. Driving anger, impulsiveness, and instrumental and emotional aggressiveness have been proposed as the three predictors of aggressive and transgressively driving behaviours (Emilie, David, & Muñoz, 2013). There is a scarcity of literature to understand road behaviours from the perspective of two wheeler riders despite the fact that they constitute a significant proportion of road users in India. There is a need to explore psychological factors that influence two wheeler riding behaviours of Indian youth. The present study was carried out to address this research gap.

II. METHODOLOGY

The aim of the study was to explore aggressive riding behaviours and experience as well as expression of anger on roads among two-wheeler riding college youth. The objectives included profiling of the socio demographic characteristics of college going two-wheeler riders in Delhi, exploring typical situations on the road that are likely to provoke young men and women to anger while riding a two wheeler and the pattern of their responses to these, and examining approach to riding and aggressive riding behaviours in two wheeler riders of college youth in New Delhi.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 9, September 2013

Participants

A two-wheeler rider survey was administered on a sample of 457 college youth from the metropolitan city of New Delhi. The sample included 96 female and 361 male two-wheeler users from 13 colleges, which included governmental and private colleges, both professional and non-professional courses and undergraduate as well as post-graduate students. The participant's age ranged between 17-30 years, with the mean age of 20.77 (SD 2.28).

In the overall sample, a majority of the participants were men while women formed slightly more than one fifth of the sample. Slightly more than fifty percent of the participants had two years or less of college education after PUC, whereas the remaining had three to five years of college education following their PUC. While almost a quarter reported that some difficulty in managing their financial situation, approximately 65 percent of the sample participants reported being able to manage their financial situation well/very well.

III. TOOLS

An exploratory survey on two-wheeler riding was developed on the basis of focus groups discussions with different groups of college-going men and women as well as review of available literature. The survey was designed to tap domains such as socio-demographic details of the two-wheeler riding college youth, situations on the road that trigger experience of anger while riding a two-wheeler, typical responses to these situations, ways of handling anger/frustration, general approach to riding and tendency for aggressive riding as well as risk-taking behaviours and perceptions about risk taking and road safety. In the present study aggressive driving was conceptualized in terms of, speeding, overtaking, rule-breaking, competing, doing stunts etc.

IV. RESULTS

Typical two-wheeler usage and riding patterns

On an average, the participants had nearly five years of riding experience and reported riding about 19 kilometers a day, and bulk of the sample (60%) reported riding at least a few days every week. Typical speed in the city was reported by these riders to be 48 kms per hour while maximum speed in the city was approximately 70 kms an hour and the average speed in high way was approximately 80 kms per hour. Fifty percent of the participants reported using a helmet almost always (90-95% of the time) while riding a two-wheeler. On the other hand, slightly more than a quarter reported using a helmet less than 75% of the times.

Dominant Sources of Irritation While Riding and Rider's Responses

The top five sources of irritation as reported by the young riders were 1) Being caught up in heavy traffic, 2) bad road/traffic conditions, and 3) someone repeatedly honking 4) Someone cutting into my lane 5) When police mismanages traffic. Whereas for men heavy traffic was the highest cause of irritation, for women it was repeated honking.

In response to frustrating situations on the road, roughly 15-20% of the participants reported responding several times through different ways of expressing anger while riding such as, verbal/gestural expressions, repeated honking, speed up to frustrate, etc. Women, as compared to men, reported a higher frequency of 'giving an angry look'. Frequent use of overtly aggressive ways of responding, were reported less often by women than men.

Typical Aggressive Riding Behaviours Reported By Two Wheeler Riding Youth

Aggressive riding behaviors were reported more often by men than women (Table-1), though the difference was negligible for the item 'speeding up and overtaking even if not in a hurry'. The items most endorsed by both men and women were 'the tendency for violating traffic rules if there are no traffic police' (40% of all participants; about 40%

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 9, September 2013

of men and about 30% of women). 'Speeding up and overtaking, even if not in a hurry' (34% of all participants) and Items about inclination for chasing or competing with others, weaving/zigzag riding, engaging in stunts, feeling confident while driving because of drinking/taking a drug were endorsed by 14-24% of men and 13-14% of women (Graph-2). A very small percentage (2-4%) of women reported driving after drinking.

Tendency for Speeding and Associated Factors

Inclination to ride faster or slower in comparison to one's peers was tapped on two items. About one third of the total participants reported the perception that they ride faster than their counterparts (30%) and another one third reported riding slower than others (33%).

Although hurry (reported by 71% of participants) emerged as a very dominant reason for riding fast, (Graph-1) various other reasons were also reported for riding faster than usual, such as, feeling relief from heavy traffic (36%) experience of anger (22%) sadness of mood (18%) competition with other drivers (27%), presence of a friend of the opposite gender (15%). Competing with other drivers was reported more frequently by men. As high as 45% of the participants reported riding together with friends on other two wheelers as a situation that prompts them to engage in competition while riding. For nearly 25% of the participants, the urge for competition, reportedly, is triggered by a sense that another vehicle driver is competing with them.

Riding Safety: Self Perception and Perception of Others

About 65% of the participants perceived that their riding style is safe and also that this perception was shared by their significant others. Slightly less than 10% of the participants reported that they were aware of their unsafe riding style, and that the same perception was shared by their significant others. Interestingly; more than one fifth of the sample reported a dissonance between their perception and that of others about their riding style. While significant others reportedly perceived their riding as unsafe, these participants continued to hold the perception that they ride safely (21%). Surprisingly, 5-8% of the sample reported that they are aware of taking more risk than necessary on the road despite the fact that this has not been commented upon by others.

Perception about Involvement in Narrow Escapes/Accidents

Roughly 11% reported a few mishaps/narrow escapes while riding two-wheeler in the last six months period while a few accidents with minor injuries were reported by approximately 5% of the participants. Serious accidents in the previous one year period were reported to have occurred a few times by approximately 1% of the study sample. Men tended to report narrow escapes, minor and serious accidents slightly more often than women.

V. DISCUSSION

The riding pattern of young two wheeler users is of great relevance for social scientists for at least two reasons. One, since this population constitutes significant percentage of motorcyclists on Indian roads, motorized two-wheelers comprising about three fourth of the registered vehicles (BRSIPP NIMHANS, 2011). Second, more than one third of fatal and nearly half of non-fatal road traffic injuries involve two-wheeler riders in India, majority of the injured being in the age range of 20-30 years (BRSIPP NIMHANS, 2011).

The present study reveals that a significant percent of young riders engages in speeding and other aggressive riding behaviours. This is in line with the observation in a study of 1500 hospitalized road traffic injury patients in Bangalore wherein more than 80% attributed the accident to speeding (Gururaj, 2005a). Another study conducted in New Delhi also showed similar finding (Verma and Tiwari, 2004).

It is important to note that in our study only 50% of the riders reported wearing helmet almost always while riding, a finding corroborated by another study in Indian population (RSI, NIMHANS, 2011).

Gender difference were observed in our study in terms of sources of irritation and ways of expressing anger while riding and specific aggressive riding behaviours such as competition, doing stunts, violation of traffic rules, drunken

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 9, September 2013

driving, etc. **Gender** differences have been observed in another study where women reported more anger in reaction to the scenarios lacking a norm violation than men did, but women were not higher than men on risky aggressive driving (Lonsdale, 2010). Driver aggression was slightly higher among males (38.5%) than females (32.9%) (Butters, Wickens, & Mann, 2012). Our study points to the role of emotions as contributing to speeding as negative emotional states like experience of anger and sadness of mood were reported as trigger for speeding by one fifth of the participants.

The report of dissonance between one's own perception of riding safety and the perception by others points to the possibility of overestimation by participants. Another study has observed that aggression drivers demonstrate a different pattern of affective experience, problematic cognitive tendencies, and subsequent negative outcomes in comparison to those reporting lower levels of aggression. (Nesbit, & Conger, 2012). Obtaining the differential profiles of those who report aggressive riding behaviours and those who do not can help in planning road safety intervention programs which needs to be addressed in future research.

VI. CONCLUSION

This is one of the first few studies that provide the data on perception of two-wheeler riding Indian Youth. The pattern of results highlight that psychological factors emerged as highly relevant for understanding aggressive riding behaviours and risk-taking on roads by the youth. This in turn implies that any intervention program for popularizing safe riding practices in youth must address psychological variables that influence two-wheeler riding style.

REFERENCES

- [1] Butters, J., Mann, R. E., Wickens, C. M., & Boase, P. (2012). Gender differences and demographic influences in perceived concern for driver safety and support for impaired driving countermeasures *Journal of safety Research*, 405-411.
- [2] Emilie, B., David, V., & Muñoz, S. M. T., (2013). Driving anger, emotional and instrumental aggressiveness, and impulsiveness in the prediction of aggressive and transgressive driving. *Journal of Accident; analysis and prevention* 50:758-67
- [3] Gururaj, G., & BRSIPP, (2011). Bangalore Road Safety and Injury Prevention Program Collaborators Group(BRSIPP NIMHANS, Bangalore Road Safety and Injury Prevention Program: Results and learning 2007 - 2010, Publication (81), National Institute of Mental Health and Neuro Sciences, Bangalore.
- [4] Gururaj, G., (2005 a). Injuries in India: A national perspective. In *Burden of disease in India* (pp.325-347) New Delhi: National Commission on Macroeconomics and Health and family Welfare. Government of India
- [5] Gururaj, G., (2011) Road Safety in India: A Framework for Action, Publication no 83, National Institute of Mental Health and Neuro Sciences, Bangalore.
- [6] Lonsdale, D. J., (2010). The effects of norm-violations in driving scenarios on self construed courteous drivers, An unpublished doctoral dissertation, The Graduate Faculty of The University of Akron, Ohio, USA.
- [7] Nesbith, S.M., Conger, J.C., (2012). Predicting aggressive driving behavior from anger and negative cognitions *Transportation Research Part F: Traffic Psychology and Behaviour*, 15 (6), 710-718.
- [8] Verma, P. K., & Tiwari, K. N., (2004). Epidemiology of Road traffic Injuries in Delhi: Result of a survey. *Regional Health Forum*, 8(1), 6-14.

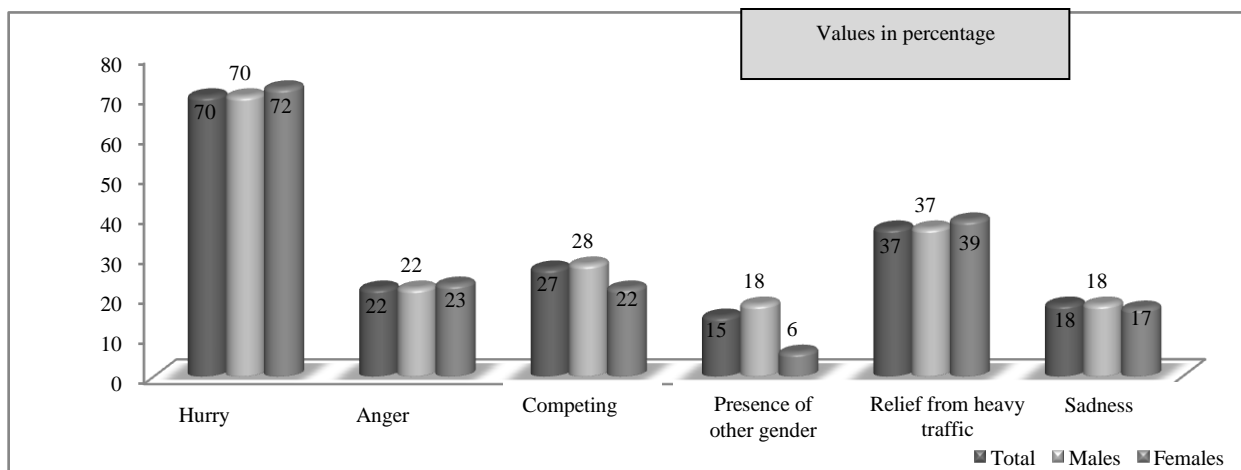
Annexure-I

Graph-1: Factors associated with fast driving

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 9, September 2013



Graph-2: Typical Aggressive Riding Behaviours

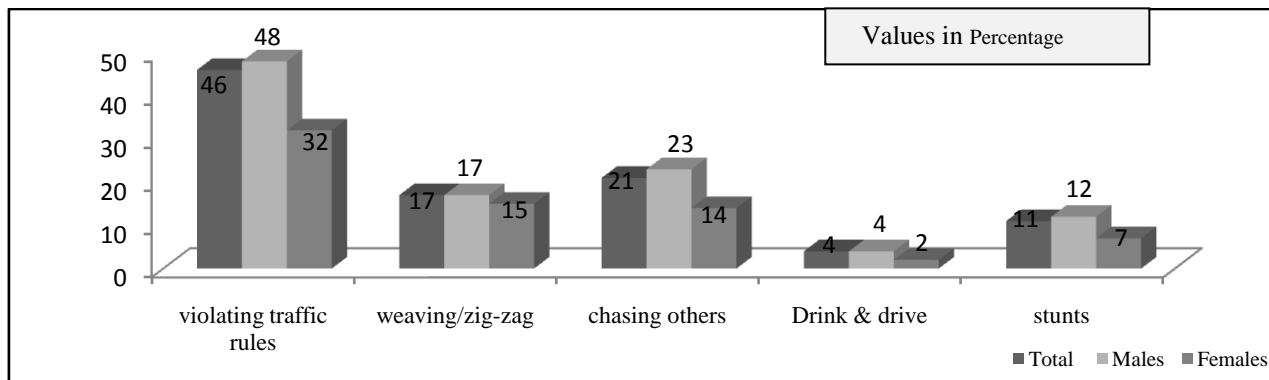


Table 1: Aggressive riding patterns

Variables		Never/ rarely		A few times		Several times		Almost always	
		Fre	Per	Fre	Per	Fre	Per	Fre	Per
Ride fast even not in a hurry	Male	148	41.9	131	37.1	50	14.2	24	6.8
	Female	39	41.5	34	36.2	14	14.9	7	7.4
	Total	187	41.8	165	36.9	64	14.3	31	6.9
Use of indicators when changing lanes/sides	Male	225	64.5	67	19.2	41	11.7	16	4.6
	Female	63	67.7	24	25.8	2	2.2	4	4.3
	Total	288	65.2	91	20.6	43	9.7	20	4.5
Repeated honking	Male	128	36.1	139	39.2	55	15.5	33	9.3
	Female	42	44.2	39	41.1	11	11.6	3	3.2
	Total	170	37.8	178	39.6	66	14.7	36	8.0
Attend calls while riding	Male	213	61.0	82	23.5	39	11.2	15	4.3
	Female	62	66.0	28	29.8	2	2.1	2	2.1
	Total	275	62.1	110	24.8	41	9.3	17	3.8

**International Journal of Innovative Research in Science,
Engineering and Technology**

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 9, September 2013

Look angrily at other driver	Male	120	33.9	127	35.9	72	20.3	35	9.9
	Female	26	27.4	29	30.5	23	24.2	17	17.9
	Total	146	32.5	156	34.7	95	21.2	52	11.6
Get in to a verbal argument	Male	202	58.2	87	25.1	38	11.0	20	5.8
	Female	70	74.5	19	20.2	3	3.2	2	2.1
	Total	272	61.7	106	24.0	41	9.3	22	5.0
Communication of anger by gestures (point finger)	Male	207	59.5	92	26.4	32	9.2	17	4.9
	Female	73	76.8	19	20.0	3	3.2	0	0.0
	Total	280	63.2	111	25.1	35	7.9	17	3.8
Difficult to stop in red signal, even not in a hurry	Male	201	57.6	91	26.1	46	13.2	11	3.2
	Female	68	73.1	16	17.2	6	6.5	3	3.2
	Total	269	60.9	107	24.2	52	11.8	14	3.2
Speed up to frustrate the other driver	Male	191	54.3	81	23.0	55	15.6	25	7.1
	Female	61	64.2	19	20.0	11	11.6	4	4.2
	Total	252	56.4	100	22.4	66	14.8	29	6.5

BIOGRAPHY

Humera Banu



Humera Banu is a Research Fellow, CSIR Project, Department of Clinical Psychology, NIMHANS, Bangalore and she has research experience in the area of positive psychology. She has co authored in the area of character strength and psychological well being in Indian youth apart from research interest in the area of road safety.

Neelima Chakrabarty



Neelima Chakrabarty is Principal Scientist, CSIR-Central Road Research Institute, Delhi. As a traffic psychologist she has been involved in different areas of Road Safety; CSIR 10th FYP projects and currently involve in CSIR 12th Five year plan project. She has specific expertise in access audit; driver testing evaluation and comprehensive studies. She has contributed substantially as coordinator with Delhi police initiative navchetna.com as guide to mitigate road rage related in various R&D projects sponsored by various ministries, Govt. Departments and pubic and private sectors.

Rajeev J. Michael



Rajeev J Michael is PhD Scholar & Senior Research Fellow, CSIR Project, Department of Clinical Psychology, NIMHANS, Bangalore. .He completed his MPhil from the Clinical Psychology Department, NIMHANS and currently pursuing PhD in the area of Youth Social Wellbeing. His research interests are in the area of Positive Health Psychology and Positive Youth Development.

**International Journal of Innovative Research in Science,
Engineering and Technology**

(An ISO 3297: 2007 Certified Organization)

Vol. 2, Issue 9, September 2013

Manoj K. Sharma



Dr. Manoj K Sharma is an Associate Professor, Department of Clinical Psychology, NIMHANS and is consultant for an Adult Psychiatry Unit, De-addiction Unit as well as at the Psychological Care Clinic at NIMHANS Centre for Well-being. His areas of interests include tobacco cessation, substance use and prevention, emotional control in youth, psychotherapy, yoga, religiosity, spirituality & mental health..

Paulomi M. Sudhir



Dr. Paulomi M Sudhir is an Additional Professor, Department of Clinical Psychology, NIMHANS, Bangalore and a consultant in the Behaviour Medicine Unit. She specializes in cognitive behavioural therapies and behavioural interventions for various anxiety disorders, depression, personality disorders and other clinical conditions such as eating disorders & health anxiety management.

Seema Mehrotra



Dr Seema Mehrotra is an Additional Professor, Department of Clinical Psychology, NIMHANS, Bangalore and a consultant for an Adult psychiatry Unit, Psychological Care Clinic, Positive Psychology unit and runs a weekly clinic for positive mental health called FLOURISH at the NIMHANS Center for Well Being. Her research work revolves around themes pertaining to positive psychology, adaptation to major life events, psycho-oncology and mental health promotion.