

# USER BEHAVIOR TOWARDS TRAFFIC VIOLATION

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# Content

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The World Health Organization (WHO) in its Global Status Report on Road Safety (2015) revealed

- India has the worst road traffic accident rate worldwide.
- 215 people die every day in India.
- Based on a study of 2014 traffic accidents, Sabey and Taylor concluded that **human factors** were contributing elements in **95% of the accidents.**

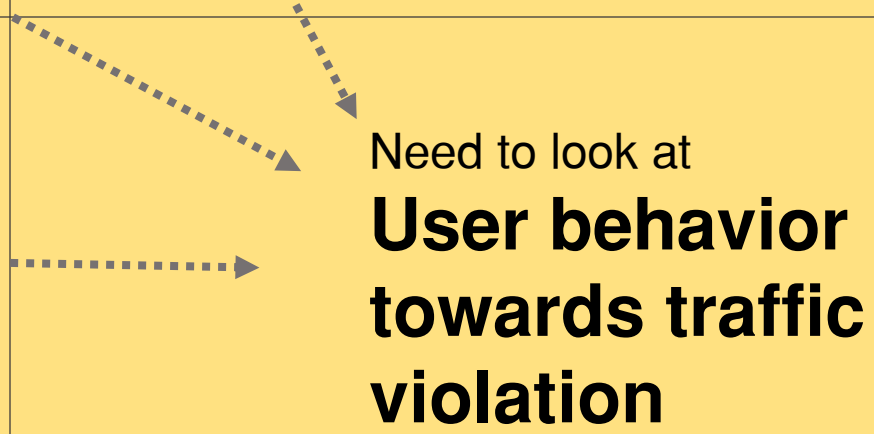
Jashua and Garber (1992) studied driver, vehicle and environment factors in traffic accidents and highlighted most common accident a result of **drivers faults.**

A National Crime Records Bureau (**NCRB, 2014**) report revealed 53.1% accidents are due to traffic **traffic collision**

Road accidents had increased since 2005 **due to non-compliance with traffic rules** (August 6, 2009, Parker)

Non compliance may be of 3 reasons

- **Violation** Intentional deviation from rules
- Errors Are not intentional (by mistake)
- Forgetfulness Temporary failure of concentration, memory. (Lapses)



(Yasushi Nishida) National Research Institute of Police science, Japan

**“It might be possible to reduce the accident risk by reducing violation.”**

- City of Ahmedabad
- Sample – student drivers



(Attitude, Norms, Driving behavior: A comparison of young drivers in South Africa and Sweden, Marion Sinclair)

Youth identified to be most vulnerable to complex situations, with an appetite for taking a risk and as a potential threat for traffic safety.

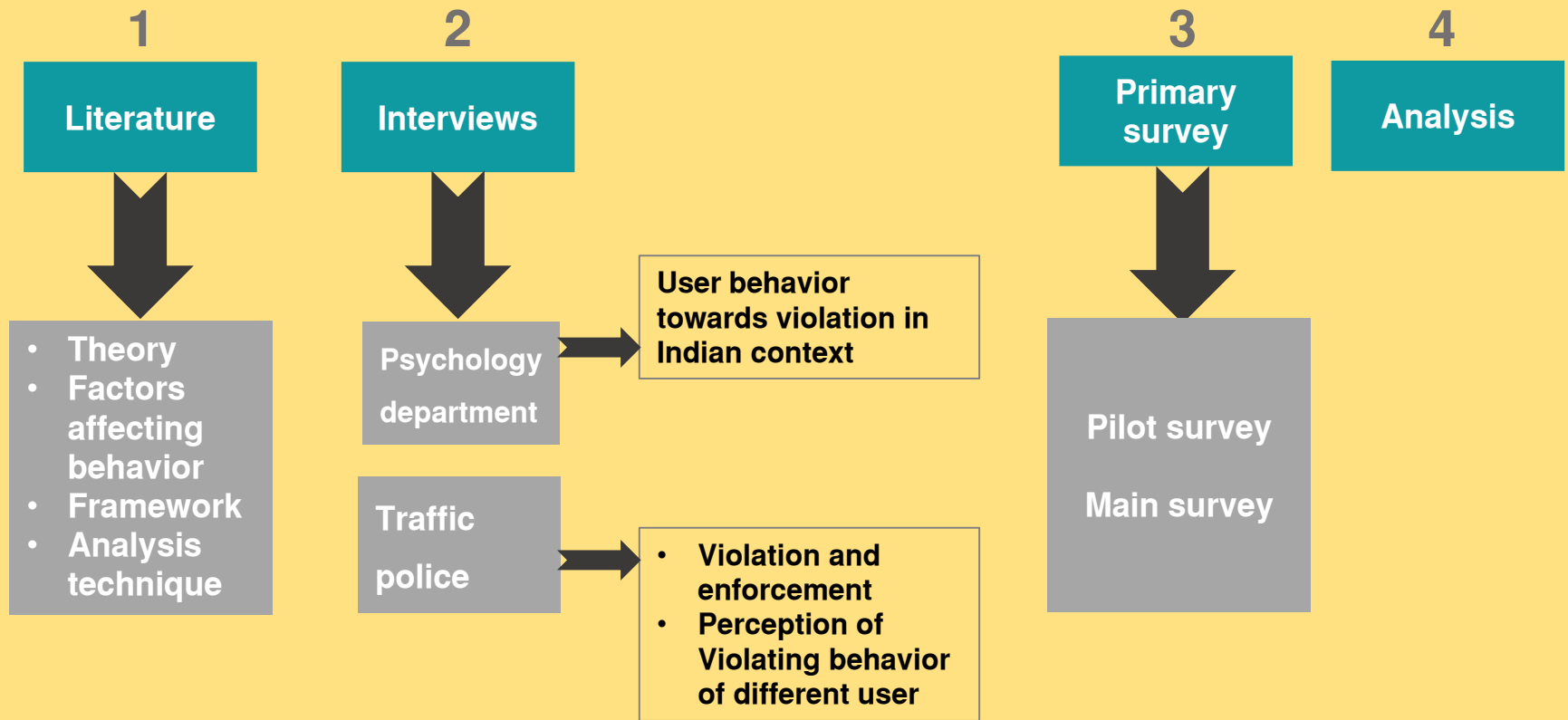
**According to the traffic police interview, young drivers are observed to be most frequent traffic rules violators.**

## **AIM**

**To study user behavior towards traffic violation**

## **OBJECTIVE**

- **To identify likely factors influencing user behavior towards traffic violation.**
- **To assess variability in behavior by user characteristics.**



Study dependent on truthful responses of users

## Behavior

(Winsome Gordon, Wilma Guez and John Allen, 1975 )

Behavior can be defined as

- The way in which an individual behaves or acts.
- It is the way an individual conducts herself/himself.
- It is the way an individual acts towards people, society or objects.
- It can be either bad or good.
- It can be normal or abnormal.



**Theory of Planned Behavior** (TPB) was developed by Ajzen in 1988. The theory proposes a model which explain the guiding factor for human actions.

**General theory**

individual's positive or negative feelings about performing a behavior

Attitude

Social pressure to engage or not to engage in behavior

Subjective Norm

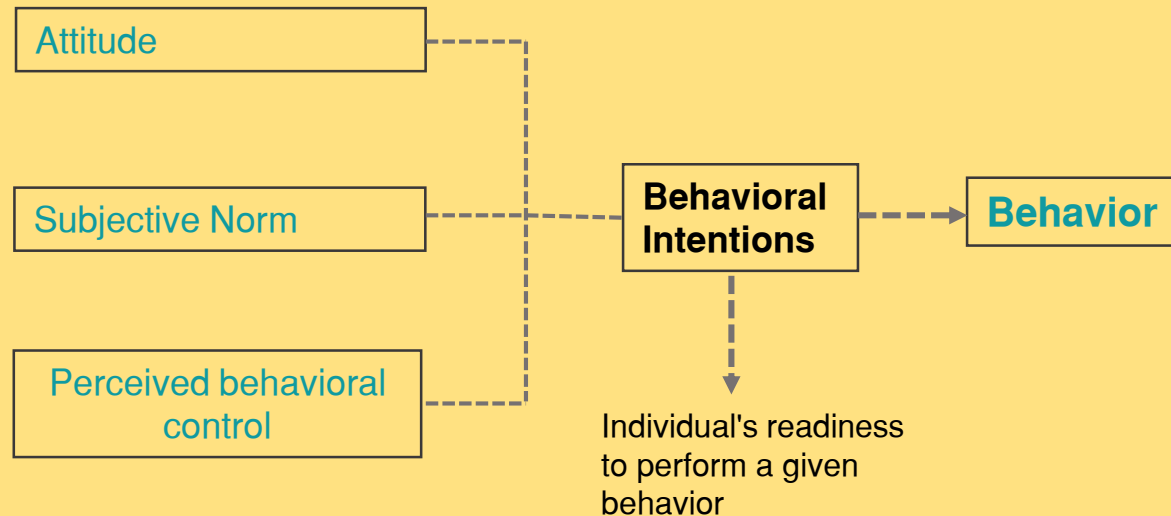
how much a person has control over the behavior and how confident a person feels.

Perceived behavioral control

Behavioral Intentions

Individual's readiness to perform a given behavior

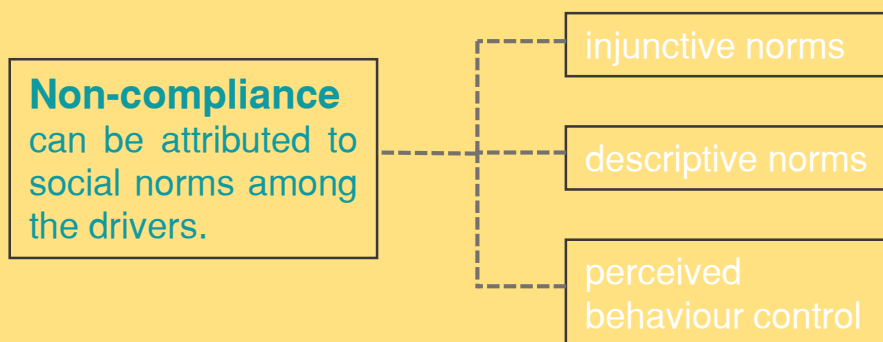
Behavior





# Studies on traffic violating behavior of users

Research (Ajzen, 2006; Blanton, Koblitz & McCaul, 2008) Indicates that **social norms** are a strong predictor of behaviour.



**Influence of customers**

**Influence by other drivers (how they behave)**

**Confidence on one's own driving skill**

- Attitudes and Awareness of Traffic Safety among Drivers in Tripoli-Libya study investigated **age and gender** related differences in driver's attitudes towards violations of traffic laws.

- Culture, demographic characteristics** and attitudes to driving explained significant amounts of variation in driver behavior in both rural and urban areas. Eiksund (2009)

- In addition, according to the Turkey belongs to Sumer (2003) , **driving time, sex and age** played an important role in involvement in an accident.

## Psychologist:

### Violating Behavior in context of Indian cities

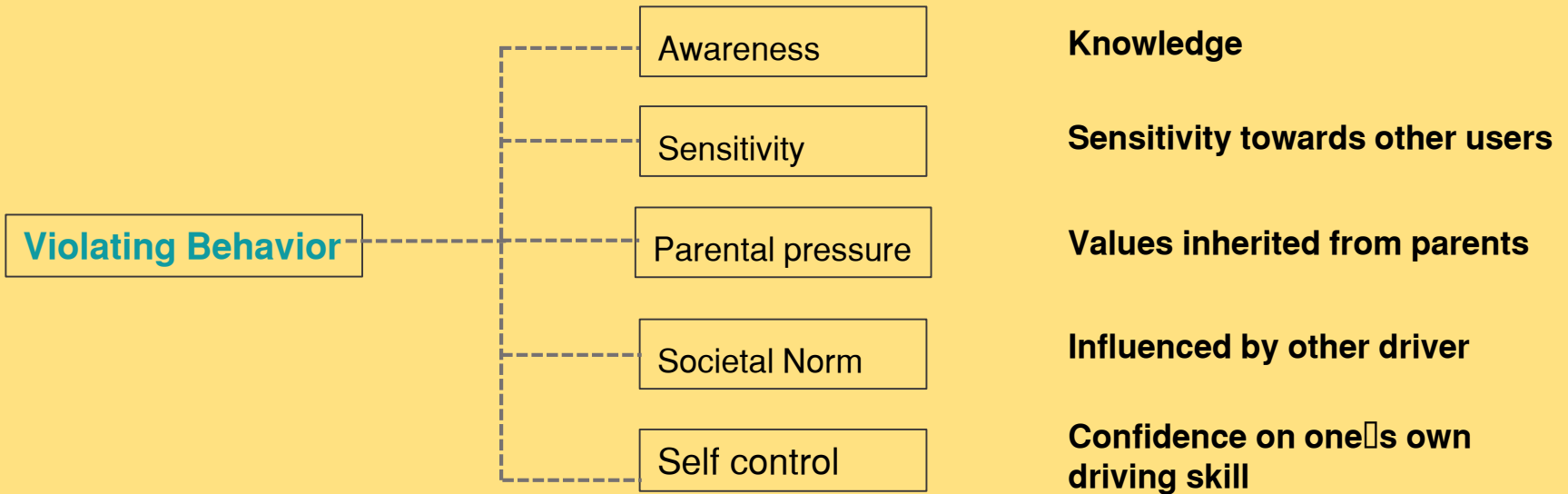
- Knowledge/education
- Normal tendency to violate traffic rules
- Sense of responsibility(Sensitivity)
- Adventure activity
- Attraction seeking
- Reference group (societal Norm)
- Traffic sense lacking from childhood (Parental pressure)

**Dr. Ashwin Jansari** (Associate Professor, MA PhD Gujarat University, Ahmedabad)

- ## Survey of traffic police
- Vijay char rasta
  - Panjarapol char rasta
  - IIM char rasta
  - Helmet char rasta

### After starting Enforcement Specially E Challan

- Slight improvement in traffic rules adherence.
- Enforcement is not strict - Low man power at junction to control traffic.
- **Observations at Junctions –**
  - **Traffic police not able to catch all violators at once.**
  - **In absence of traffic police no one comply with rules.**
  - **Enforcement is not uniform for male female.**



## Framework available

Attitude and awareness of traffic safety among drivers in Tripoli Libya

Driver attitude towards traffic safety violations and risk taking behavior in Kumasi: the gender and age dimension

Driving Behavior Questionnaire (DBQ) Standard Sample

The Manchester DBQ : self reports of aberrant behavior among Czech driver

Driving Attitude Questionnaire (DAQ) Standard Sample

Constructing a theory of planned behavior questionnaire

## Methods used

means and standard deviations

**one-way ANOVA and**

**Multi linear regression analysis**

Chi square test

Bonferroni Post Hoc analysis

## E-Challan Most violated traffic rules

Sr. No.	2013	2014	2015
1	Helmet	Helmet	Helmet
2	Dark film	One way/wrong side	One way/wrong side
3	No parking	Stop line cross	Dark film
4	Stop line cross	No parking	No parking
5	More customers in AR	Dark film	Stop line cross
6	Seat belt	Mobile phone on moving vehicle	Signal cross
7	One way/wrong side	Signal cross	Mobile phone on moving vehicle
8	Mobile phone on moving vehicle	More customers in AR	Harsh driving
9	Traffic line cross	Seat belt	More customers in AR
10	Harsh driving	Harsh driving	Seat belt

## Most violated traffic rules

1. **Seat belt/helmet**
2. **Wrong side**
3. **No parking**
4. **Signal cross**
5. **Stop line cross**
6. **Mobile phone**

**Awareness**



Overtaking  
U-turn  
Junction behavior  
Parking  
Pedestrian crossing  
Wrong side

**Scale used for the questionnaire**

- 1 - strongly agree
- 2 - Agree
- 3 - Neutral
- 4 - Disagree
- 5 - Strongly disagree

**Violating Behavior**

Sensitivity

Parental pressure

Societal Norm

Self Control



## Awareness

**80% - 90% samples aware about traffic rules**

**There is not significant difference between users holding Driving license and Not holding Driving license**





# ➤ Difference of mean test (ANOVA)

At an aggregate level all user groups violate traffic rules.

Violating behavior		Gender				Experience				Age			
		Male	Female	F	P	TW	TFWW	F	P	0-3 yrs.	>3 yrs.	F	P
Avoid to wear helmet/seat belt for short distance travel.	B1	1.66	<b>1.45</b>	22.201	<b>0.000</b>	1.53	1.72	1.533	0.218	<b>1.36</b>	1.67	5.755	<b>.018</b>
Do not hesitate to drive on wrong side for short distances	B2	1.98	<b>1.71</b>	5.902	<b>0.016</b>	1.80	2.10	2.497	0.116	1.66	1.96	3.399	.067
Do not stop at junctions/pedestrian crossings as the car/two wheeler users have priority on road	B3	1.39	1.47	0.974	0.325	1.41	1.48	0.186	0.667	1.34	1.46	.829	.364
Vehicles can be parked anywhere along the road, where space is available	B4	2.44	<b>2.23</b>	10.006	<b>0.002</b>	2.32	2.59	1.471	0.277	<b>1.96</b>	2.54	10.032	<b>.002</b>
Cross red signal in absence of traffic police.	B5	1.83	1.68	2.946	0.88	<b>1.64</b>	2.17	9.820	<b>0.002</b>	1.57	1.86	3.724	.056
Do not have problems receiving phone calls while driving	B6	2.37	2.48	0.238	0.626	2.31	2.79	4.168	0.43	2.23	2.51	1.936	.166

- seat belt/ helmet, wrong side, parking
- Female admitted to violating behavior as compared to male

- cross red signal
- TW riders admitted to violating behavior as compared to male

- seat belt/ helmet, parking
- Users 0-3 year Driving experience admitted to violating behavior as compared to male

1 - strongly agree, 2 - Agree, 3 – Neutral, 4 – Disagree, 5 - Strongly disagree

**No significant difference found in sensitivity and parental pressure**

**Sensitivity and lacking parental pressure across all user groups.**



## At an aggregate level all user groups get influenced by other drivers.

Societal Norm		Gender				Rider Type				Experience			
		Male	Female	F	P	TW	TWFW	F	P	0-3 yrs.	>3 yrs.	F	P
It is ok not to use helmet/seat belt when other drivers are not using it.	D1	2.56	2.07	6.296	<b>.013</b>	2.32	2.59	1.172	0.281	2.32	2.38	.089	.765
If many people are driving in the wrong lane, prefer to do the same.	D2	2.19	<b>1.55</b>	25.581	<b>.000</b>	1.91	2.14	1.899	0.170	1.79	2.00	2.265	.135
It is ok to park vehicle wherever see other people parking their vehicle.	D3	1.76	<b>1.43</b>	9.591	<b>.002</b>	1.61	1.72	0.785	0.377	1.51	1.68	2.280	.133
Cross a stop line and stand beside other drivers to avoid looking odd among others.	D4	2.09	2.33	2.878	.092	2.13	2.38	2.154	0.145	2.19	2.19	.002	.968
Do not stop at signal if other people are not following it.	D5	2.05	1.81	1.750	.188	<b>1.85</b>	2.31	4.344	<b>0.039</b>	1.85	2.00	.631	.428
Use mobile phone while driving after observing many people doing it	D6	3.44	<b>2.43</b>	36.569	<b>.000</b>	3.00	3.14	0.358	0.550	<b>2.72</b>	3.19	5.782	<b>.017</b>

- Seat belt/ helmet, wrong side, parking & mobile phone
- Female get more influenced by other drivers as compared to male
- Cross signal
- TW riders get more influenced by other drivers as compared to TW+FW rider/driver.
- Using mobile phone
- Users having 0-3 years of driving experience get more influenced by other drivers as compared to users having experience more than 3 years

## At an aggregate level all user groups found confident about violating traffic rules.

<b>Self Control</b>		Male	Female	F	P	TW	TWFW	F	P	0-3 yrs.	> 3 yrs.	F	P
Being a safe driver, seat belt/helmet can be avoided for short distance travel.	RV1	2.49	<b>1.52</b>	39.322	<b>.000</b>	<b>1.99</b>	2.55	6.992	<b>0.009</b>	1.96	2.16	1.297	.257
Being a skilled driver, can drive efficiently on wrong side without causing much trouble.	RV2	2.29	<b>1.93</b>	4.374	<b>.038</b>	2.13	2.28	0.464	0.497	2.04	2.20	.708	.401
Parking in restricted area does not cause any problem	RV3	2.10	2.16	.107	.744	<b>2.03</b>	2.45	5.102	<b>0.025</b>	2.00	2.19	1.327	0.251
If wanted to they could cross stop line without being noticed by anybody.	RV4	2.50	2.21	2.726	.101	2.25	2.71	4.907	0.28	2.19	2.47	2.312	0.131
Ignore traffic signal to ensure traffic keeps moving	RV5	2.71	2.48	1.087	0.299	<b>2.47</b>	3.00	4.062	<b>0.046</b>	2.62	2.62	0.000	0.995
Can drive without any problem while talking on mobile phone.	RV6	2.47	<b>2.09</b>	4.255	<b>0.041</b>	2.28	2.48	0.823	0.366	2.13	2.40	2.008	0.159

- Significant difference – seat belt/ helmet, wrong side, parking & mobile phone
- Female feel more confident about performing behavior.

- Significant difference – seat belt/ helmet, parking & cross signal
- TW riders feel more confident about performing violating behavior.

- No significant difference between users varying driving experience

## ➤ Multi linear regression analysis

	Coefficients	Standard Error	t Stat	P-value
Intercept	1.698	0.273	6.225	0.000
<b>Sensitivity</b>	<b>-0.270</b>	0.064	-4.222	0.000
<b>Parental Pressure</b>	<b>-0.051</b>	0.045	-1.142	<b>0.255</b>
<b>Societal Norm</b>	<b>0.270</b>	0.075	3.620	0.000
<b>Self control</b>	<b>0.241</b>	0.066	3.631	0.000

**Societal norm is dominating factor affecting violation than other factors.**

\* --- Not significant

### **Users are aware about traffic rules**

#### **Among other factors**

- Societal norm is a predominant factor influencing violating behavior.
- Sensitivity and parental pressure are also responsible for violation.

#### **Within sub user groups**

- There is significant difference in gender for violating behavior, societal norm and self control.
- Females more agreeable in compare to males regarding traffic violating behavior.
- It revealed that TW riders are mainly associated with factors affecting violation and having self confidence for violation as compared to users who ride and drive both TW+FW.
- There is a significant difference in users with varying driving experience.
- New users (< 3 years experience) seem to violate traffic rules more frequently than users having experience more than 3 years.

## ➤ Possible reasons could also be:

Weak enforcement – less manpower

Enforcement is not uniform for all.

## ➤ Possible interventions:

- Government should introduce driving curriculum with involvement of the workshops on societal norm, Parental pressure and training on compliance of traffic rules.
- Education along with stringent enforcement, E Challan.
- Enforcement should be uniform for everyone.
- Effective traffic monitoring & strict enforcement.

THANK YOU....!!!