

Original Article**PRELIMINARY STAR RATING SYSTEM FOR FOUR WHEELERS OWNERS IN SURAT CITY****Patel Sushil A¹, Bansal Neha R², Jariwala Vishal³, Panchal Shaishav J¹**¹ Resident, ² Ex-Intern Surat Municipal Institute of Medical Education & Research, Umarwada, Surat, ²7th Semester B.E. (Electrical Engineering Student, Government Engineering College, Surat.**Correspondence:** sushdr3@yahoo.com**ABSTRACT**

This cross-sectional study among 100 owners of four wheelers, using a pre-tested interview schedule, explores pertinent variables on various aspects relating to the fuel consumption patterns of their vehicles with the objective of developing a preliminary star rating systems for the vehicles & the practices adopted by their owners. The aim of the study is to inform consumers on potential fuel consumption of vehicles in order to encourage practices which lead to consumption of less fuel and promote adoption of environment friendly practices and technologies on the long run.

Keywords: Star rating system, four wheelers, fuel consumption, environment friendly practices, Surat city.**INTRODUCTION**

Studies point out that automobiles alone are responsible for significant (>10%) Greenhouse gas emissions, produce other harmful pollutants and these can be reduced by observing small tips by the vehicle owners which would also reduce its fuel consumption.¹ This issue assume grave significance in view of the increasing global concerns on the need for curtailing Greenhouse gas emissions and the need for sustainable development versus the increasing industrialization, urbanization and affluence observable in India, which is enabling an ever increasing number of four wheelers on the Indian roads.

MATERIALS AND METHODS

This cross-sectional study was conducted among purposively selected 100 owners of four wheelers, using a pre-tested interview schedule prepared with the active involvement of various stake holders with the objective of developing a preliminary star rating systems for these vehicles.

These vehicle owners were interviewed at four petrol pumps situated opposite the Railway station, Lambe Hanuman road, Chaupati and Adajan Road. The vehicle owners were explained about the impending necessity to encourage practices which lead to consumption of lesser fuel by the four wheelers in order to promote adoption of environment friendly practices and technologies on the long run to prevent global warming, Greenhouse gases and promote sustainable development.

OBSERVATIONS AND DISCUSSION

Studies point out that automobiles alone are responsible for significant (>10%) greenhouse gas emissions, produce other harmful pollutants and these can be reduced by observing small tips by the vehicle owners which would also reduce its fuel consumption.¹ Table 1 reveals that many of the car owners are already adopting environment friendly practices, though these could be further improved

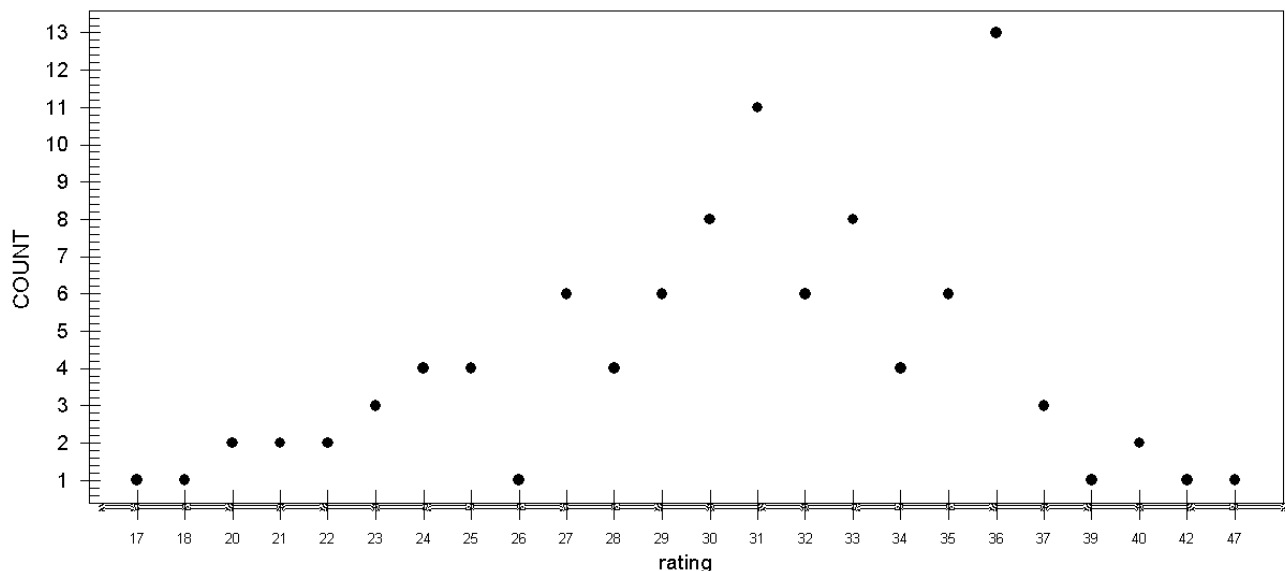
upon, for instance 15% owners had professed to carrying dead weight along simply for laziness or postponement of transferring of objects from the car to the residence or the workplace. It has been stated that reducing dead weight and wind drag (unused roof racks) will lower your fuel consumption.¹⁻² Discussion with the vehicle owners had revealed this was quite feasible.

Similarly, only 34% vehicle owners were always switching of their vehicle's engines at traffic signals where their vehicle would remain stationary for periods >15 seconds. It needs mention that there are traffic signals and crossroads where vehicles remain stationary for minutes at a time. This observation clubbed with the need to maintain smooth driving without frequent breaking and accelerating and speeding can lead to significant mileage improvements. It also needs mention that frequency meter displays for vehicle running speed versus fuel consumption are already in existence³ and their use should be promoted. Similarly the association of regular engine oil change, regular servicing through authorized workshops, regular tyre pressure check and refilling preferably with Nitrogen, wheel alignment with mileage has been well established. Similarly, electric energy powered vehicles and the relative advantages of electric, CNG and LPG driven vehicles over petrol and diesel vehicles has also been established.¹⁻⁶

Figure 1 reveals the overall scores of the 100 automobiles and the practices adopted by the automobile owners and from the same on an arbitrary basis on a scale of 12 to 48, we could assign 1 star, 2 star, 3 star, 4 star and 5 star rating to those in the score pattern of 17-26 (20 vehicles & owners), 27-30 (24 vehicles& owners), 31-33 (25 vehicles& owners) and > 37 (8 vehicles& owners). This scale needs validation, also this scale is inclusive of the practices adopted by the owners, therefore logically the practice component would need to be delineated from the vehicle part.

Table 1: Rating as per individual parameter

1 to 4 Star Rating as Per Parameter					
Rating	Parameter	Number	Rating	Parameter	Number
1. Fuel			7. Speed in city		
4	CNG/ Electric	21	4	< 45Kmph	70
3	LPG	24	1	> 45Kmph	30
2	Diesel	23	8. Speed on highways		
1	Petrol	32	4	< 45Kmph	17
2. Air pressure check			1	> 45Kmph	83
4	Weekly	14	9. Dead weight		
3	Fortnightly	20	4	No	85
2	Monthly	56	1	Yes	15
1	> 1 month	10	10. Make of car (fuel consumption)		
3. Servicing period			4	>15 Klms/L	48
4	< 1 Month	5	3	10-15 Klms/L	23
3	1 to 3 months	15	2	5-10 Klms/L	25
2	3 to 6 months	52	1	< 5 Klms/L	4
1	> 6 months	28	11. PUC		
4. Wheel balancing/ alignment			4	Yes	80
4	< 5000 kms	45	1	No	21
1	> 5000 kms	55	12. Changing of oil (period)		
5. Air Inflation			4	10000 Kms/L/Yrly	56
4	Nitrogen	10	1	>10000 Kms/L/Yrly	44
1	Air	90			
6. Switching off engines at red signals					
4	Always	34			
3	Often	24			
2	Sometimes	29			
1	No	13			

Figure 1: Overall score of automobiles**REFERENCES**

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