

Himsa (Violence) in Travelling

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Do we commit violence in travelling? One kind of violence, killing, that is visible and apparent is by accidents in transportation. We hear of accidents on roads, trains and air crashes which kill many people. Such accidents may take place due to human error, bad weather or technical faults.

Road accidents take the heaviest toll of lives. For example, 5,419,000 accidents took place in USA in 2010 killing 32,885 people and injuring 2,239,000 persons. The number of persons killed in road accidents in 2011 was 32,367 [1]. This means that about 90 persons are killed every day on US roads. Road accidents in UK killed 1901 people and injured 23,122 persons in 2011 and there were 1754 dead and 23,039 injured in 2012 [2]. The toll is much higher in India. About 499,628 accidents took place in 2010 out of which 119,558 accidents were fatal killing 134,513 people and injuring 527,512 persons [3]. Table 1 shows proportions of killing and injured in different modes of transport in these accidents.

Table 1: Proportional share of killing and injured in road accidents by different modes of transport in India in 2010 [3]-

	Two Wheelers	Auto Rickshaws	Cars Jeeps Taxies	Buses	Trucks Tempos Tractors	Other motor vehicles	Other vehicles
Accidents	23.8	7.3	21.8	9.5	23.3	7.8	6.6
Fatal accidents	19.1	4.7	19.2	9.9	29.4	9.8	7.9
Persons killed	18.3	4.7	19.2	10.3	29.6	10.2	7.8
Persons injured	21.9	8.2	22.7	12.5	21.5	5.8	5.1

The road crashes take lives of nearly 1.3 million every year, and injure 20-50 million in the world [3]. India and China are listed among countries with highest number of road deaths. Poor road infrastructure, failure to comply with speed limits, growing drinking and driving habits, and refusal to use proper motorcycle helmets and use child car seats, are among the main factors contributing to deaths from road crashes in India. Here, with growing middle class who is encouraged to buy new and latest vehicles, the youth – people aged between 15-29 years – have become the main victims of injuries. More disturbingly, a large number of deaths from road accidents are borne by “vulnerable road users” such as pedestrians, cyclists and motorcyclists. Around 13 per cent of the victims from road-related deaths are pedestrians in India as compared to 15 per cent of accidents from passenger cars and taxies and 27 per cent of riders of motorized two-or-three wheelers. The road traffic crashes, which result in grief and suffering, contribute to economic

losses to victims, their families, and nation as a whole, to the tune of 1-3 per cent of their respective gross national product.

Trains are the next major means of transport and also cause accident deaths. Table 2 shows the number of train accidents, people killed and persons injured in 2010-2012 in India, USA and UK [4, 5].

Table 2: Rail accidents, deaths, and injuries in 2010-2012 in India, USA and UK

Country	Year	Number of train accidents	People killed	Persons injured
India	2010	19	282*	431*
	2011	13	230*	562*
	2012	15	98*	111*
USA	2010	3	0	13
	2011	20	15	114
UK	2010	4	1	6
	2011	1	0	0

* These numbers are approximate

Air travel is a global phenomenon persons of all nationality fly in airplanes all over the world. The Aircraft Crashes Record Office, a non-governmental organization based in Geneva, compiles statistics on aviation accidents of aircraft capable of carrying more than six passengers, excluding helicopters, balloons, or combat aircrafts. The number of accidents and deaths in this century are shown in Table 3 [6]. This shows that aviation accidents are next to road accidents in taking toll of lives.

Table 3: Aviation accidents and deaths in 21st century.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of Accidents	200	185	199	172	185	166	147	156	122	130	117	119
Deaths	4140*	1413	1230	771	1459	1294	971	884	1103	1115	828	794

*This high number is mainly due to the September 11 attacks

Besides human beings many animals and birds are also killed in transportation. No records of such killings are available. One may ask am I responsible for accidental deaths? No, but someone is. By taking proper care accidental deaths can be prevented or minimized. Governmental agencies are called upon to

properly plan and manage the road, rail and aviation systems and frame rules and regulations for travelers to ensure safety of passengers. The travelers should faithfully follow the rules and maintain discipline for their own safety and safety of other passengers. Some important points for safe travel are.

- 1 Follow the traffic rules in all cases, irrespective of time and traffic.
- 2 Comply with speed limits, drive invariably slow in busy areas.
- 3 Do not drink and drive.
- 4 Always use seat belts.
- 5 Avoid driving for long time at a stretch. Take rest every 1.5 to 2 hours. For very long distance travel arrange for a substitute driver.
- 6 Do not talk on cell phone while driving
- 7 Maintain your vehicle in good condition

There is another kind of violence in travelling. Many insects are killed by moving vehicles. Further Jain philosophy posits a different class of micro organisms which lack self-movement [7]. Such micro organisms can have earth body, water body, air body or fire body. They are found all over and are killed in travelling, and even in walking. We are supposed to minimize all kinds of violence in travel. This is the reason unnecessary walking is not advocated in Jainism. Even in essential walking care must be exercised to minimize violence.

How to assess this second kind of violence in travel? This is really difficult. The insects and earth body organisms on ground are killed by rolling wheels and the air body organisms are killed by the exhaust gases and engine heat and by impact and drag of the vehicle. All this violence is supposed to be proportional to the distance travelled by any mode of transport, which in turn decides the amount of fuel consumed by the vehicle. Therefore fuel consumption per mile can be taken as a reasonable indicator of the order of violence taking place in travel by a vehicle. We shall use this property for comparison of violence committed in different modes of transport. As different number of persons travel in different modes of transport we must calculate the fuel consumption per passenger to estimate the individual share of violence.

Table 4 shows person-miles per gallon of fuel consumption in different modes of transportation for average conditions in USA [8]. Please note that lower person-miles per gallon means higher fuel consumption for travel of a given distance and so higher violence. We find that human body is highly efficient walking machine and the fuel driven machines are no match to it. Bicycle is by far the most efficient mechanical mode of travel involving least violence in its category. Motorcycles and passenger trains involve comparable violence and air travel is next higher in terms of violence followed by bus. Car travel is still more violent mode and maximum violence is committed in travel by SUV and Minivan.

Table 4: List of transportation modes by Person-Miles Per Gallon (PMPG) in USA.

Transport	Average PMPG	Max PMPG
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Walking [#]	700,000	700,000
Running ⁺	315,000	315,000
Bicycle [*]	984,000	984,000
Motorcycle	71.8	113
Passenger train	71.6	189.7
Airplane	42.6	53.6
Bus	38.3	330
Car	35.7	113
SUV, Minivan	31.4	91

In India small size motorcycles below 250 cc engine capacity are in common use and their efficiency ranges from 77.5 to 113 pmpg for a single rider [9]. The maximum pmpg for two riders shall be double of this value. Trains in India carry more passengers as compared to USA and may be better option than motorcycles. Bus travel is the next choice in order of violence. Cars and SUV, in any case, are the most violent means of transport and must be given the last preference. Sharing cars by a group is a good practice and must be encouraged.

Above analysis does not consider the violence committed in manufacturing the vehicles and production of fuel. But accounting for it is not likely to change the comparative position of different vehicles.

Another important factor which is not considered in the above analysis is the amount of infrastructure required to support the particular mode of travel. Travel by cars and buses require a network of roads and trains require rail lines both of which involve additional violence in their construction and maintenance. Airplanes need no such supporting facilities. This makes air travel better than bus travel, and it may be even comparable to trains in USA from the consideration of violence.

An important consequence of motorized transport is air pollution and increase in carbon dioxide in the atmosphere that causes global warming by green house effect. These effects have now reached serious proportions and automobile sector is agreed to be its major contributor. Production of fuel in refineries and extraction of crude from earth also cause water pollution and earth pollution which ultimately affects life. This is all the more reason that automobile travel must be discouraged.

Jain monks do not use vehicles; they travel on foot to minimize the violence. Even in walking they exercise utmost care to avoid violence. They focus their eyes on the ground at a distance of about 2-2.5 yards so as not to kill any insect. This gives them time of 1.5-2 seconds to act when they see an insect on the ground ahead of them. Coincidentally, this is also the time standard now employed in traffic rules, the driver should keep such distance from the vehicle in front that gives him about 2 seconds to act in case of any eminent danger. A special category of nuns known as Samani has been created in recent years who are

allowed some relaxation in the rules and permitted to travel by transport in the interest of propagation of the message of Lord Mahavira. They are, however, not allowed to travel by vehicle for pleasure, or personal needs as far as possible. Monks also do not walk on grass and water as these are supposed to possess life. Some monks who are old, sick and disabled may use hand-driven carts. Carefulness in walking is a part of code of conduct for monks. We must also be careful in walking and travelling and in selecting the mode of travel to minimize violence.

Jain monks also take care that no insects are killed when sitting on the ground or on a platform (wooden)/chair. For this purpose they always carry a kind of cotton brush, in Svetambara tradition, and a brush assembled out of fallen peacock feathers in Digambara tradition, while travelling. They sweep the floor gently before sitting or putting anything down.

Jain monks restrict walking to essential needs. Even serious lay-jains are supposed to observe restraint on walking. There are twelve vows for householders two of which called Digvrat and Deshvrat [10] mean that he/she should stipulate limiting the areas of operation and the time of operation to minimize the violence in travel to the extent possible.

[#] Walking: A typical person expends roughly 75 calories to walk a mile in 20 minutes. Assuming 2100 calories consumption per day, an American burns about 30 calories just to exist for 20 minutes, so the net expenditure for walking is 45 calories per mile. One gallon of gasoline contains roughly 31,500 kcal. Thus the average American has a walking efficiency of 700,000 mpg.

[+] Running: The calculation is similar to walking. Here we assume a 6 minute/mile pace, which burns 1088 calories per hour, or 109 calories per mile, and 100 net calories per mile. This gives running efficiency of 315,000 mpg.

[*] Bicycles: Bicycling at 10mph requires 408 calories per hour, or 40.8 calories per mile, which is 32 net calories per mile. This yields mpg rating of 984,000.

References

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