

Original Article**STUDY ON GLOBAL WARMING AND FUEL CONSERVATION IN SURAT CITY****Neha Bansal¹, Hormaz Garda², Ghanshyam Padmani²**¹Final Year B.E. (Electrical) Student, Govt. Engineering College, Surat, ² Interns, Department of Community Medicine, Surat Municipal Institute of Medical Education & Research, Umarwada, Surat.**Correspondence:** nbansalsurat@gmail.com**ABSTRACT**

The study reveals that though middle and upper middle class of people in Surat city are aware of global warming, contributory reasons and containment measures, yet remain insensitive in terms of practices. The paper points to the need to increase their collective consciousness and responsiveness to this issue through intense awareness campaigns and rallies to promote measures as pooling of vehicles, cycling, hybrid cars and efficient rapid public transport systems through institution of measures at individual, community and government levels to ameliorate hindrances to the adoption of environment friendly practices as reported in the observations.

Key Words: Global warming, fuel conservation**INTRODUCTION**

Earth as an ecosystem is changing faster now than in any period, largely attributable to globalization and mankind with more carbon dioxide in the atmosphere than in the past 650,000 years. This carbon stays in the atmosphere, acts like a warm blanket, and holds in the heat and hence the name 'global warming.' From 1906 to 2005, global temperature has warmed by 0.74 C, and since 1961, sea level risen by 2 mm per year with declining Arctic sea ice levels by 7.4% per decade and diminishing snow cover and glaciers. The UN Intergovernmental Panel on Climate Change predicts that in 90 years, average global temperatures and sea level will increase between 1.8 C- 4.0 C and 18 and 59 cms respectively with extremes of the hydrologic cycle as floods and droughts and 2% to 3% of global deforestation each year.¹⁻² The reason we exist on this planet is because the earth naturally traps just enough heat in the atmosphere to keep the temperature within a very narrow range - this creates the conditions that give us breathable air, clean water, and the weather we depend on to survive. Human beings have begun to tip that balance by overloading the atmosphere with heat-trapping gasses from our cars and factories, power plants and so on. We need to address this problem now itself or face its catastrophic consequences.³⁻⁴

MATERIAL AND METHODS

This study was conducted among purposively selected 200 persons who made use of vehicles on a regular basis, whether; private or public, in the city of Surat. This group comprised equally of 100 males and 100 females. The study subjects comprised of 50 college going students aged ± 18 years of V.T. Chowksi Law College and another 50 of M.T.B. Arts College (25 males and 25 females respectively) and another 100 subjects (50 males and 50 females) belonging to the middle and higher middle strata from the general population residing in the residential areas of Ghod-Dod Road, City light, Dumas and office

areas of Varaccha, Rustampura and Rampura. These subjects were administered an interview schedule.

OBSERVATIONS AND DISCUSSION

The observations revealed that significant percentage of respondents were aware about the basic concept of global warming, higher in males (91%) compared to females (87%). Major information sources were newspapers and television and friends and family members. Remaining harboured misconceptions on this issue. Genderwise perceptions on causes of global warming revealed that males mostly attributed it to automobile exhaust emissions (52%), followed by industrial emissions (34%), cooking emissions (12%) and deforestation activities (2%). Females held a similar view with 61% ascribing it to vehicle emissions, 34% to industrial emissions, 20% to increasing population and household gaseous emissions and 1% to deforestation activities. Studies have amply documented the role of these activities towards Greenhouse effect.³⁻⁴

When quizzed upon how global warming would their lives, more than half of males (51%) and females (56%) perceived that it would lead to a rise in summer and winter temperatures, 21% males and 17% females perceived that it would lead to serious and frequent calamities like drought and floods, 21% males felt that it would necessitate crop changes. The remaining women perceived that changes in vegetation had already occurred such as changes in the taste, size or colours of the vegetables they buy from markets or the flora and fauna that surrounds us. Remedial measures reveal that majority, 59% males and 41% females perceive that ameliorative measures could be manifold however the onus of implementation lay with the Government. 22% and 14% of males and females respectively felt that reforms should start from an individual basis as government is helpless unless the citizens themselves show initiativeness. 4% males and 6% females stated that we must do as the developed nations do. 9% men and 39% women could not come with an immediate

conclusion. The vast majority of males (93%) and females (88%) felt that insufficient efforts are being made to deal with global warming. A mere 6% males and 2% females were satisfied with the present efforts as they feel that several organizations had spawned up these days to deal with these issues and the media is also profusely reporting of this problem, the remaining did not offer an opinion.

Private vehicles were preferred means of transport (47%), followed by shared vehicles (25%) and public transport (18%) with respect to global warming. The concept of shared vehicles was viewed as feasible, however, when it came to practice their personal preference of vehicles irrespective of environmental concerns, remained private vehicles owing to comfort with private means of transport and the only "door-to-door" means of transport (63%), faster transportation as compared to public transport as no waiting time was required for the arrival of buses and the speed of private vehicles is much faster than public buses (23%), accidents happen while using public transport systems due to poor facilities and condition of these buses.

When asked to suggest ameliorative measures 37% suggested greater utilization of public transport, followed by plying of zero emission vehicles (21%), cycling to work (17%), regular monitoring of the 'PUC' certification of vehicles (14%). When asked to suggest the single most measure to improve the fuel efficiency of vehicles, some listed a single reason, whereas others perceived that a combination of measure are equally important. The majority (45%) felt that regular servicing of vehicles, followed by good fuel quality supply (29%), changing of filters after appropriate periods (15%), driving in economy range (15%), appropriate tyre pressure (14%), clocking of vehicular speed on speed radar (5%), sensitization of drivers on this issue (2%), good quality tyres (0.5%).

Only 14% reported of routinely turning off their engines while waiting at traffic signals, whereas 13% never do so as they have to kick start their motor-bikes or inconvenience in case of scooties and requirement of air-conditioning in cars even when stationary. Majority (73%) reported that sometimes they turn off their engines or not for no specific reason. The owners of four wheelers were getting their vehicles serviced earlier with 16%, 26% and 55% getting servicing done at an interval of ≤ 2 months, 2-4 months, 4-6 months, while others were getting servicing done only if a problem arose in their vehicle. The corresponding figures for two wheelers were 8%, 15%, 33% and 44% respectively.

As regards the fuel used for four wheelers, the majority (53%) had either got a C.N.G. gas kit installed or their vehicle had both options inbuilt at the factory level. CNG preference was due to economy reasons and not environmental reasons.

CNG was followed by petrol (29%), diesel (13%) and lastly both petrol and L.P.G. (5%). When the respondents were asked about their opinion on the probable hindrances to the use of zero emission cars, 32% perceived that such cars are made of materials which would not withstand challenges of uneven roads and harsh weather encountered in our country, 25% perceived difficulties and higher costs associated with spares and numerically few service stations familiar with such vehicles across the country, 18% perceived them as 2-seaters not suitable for a family, a similar number perceived them as slow cars and 5% as too expensive.

Almost all (99%) were aware of alternatives to the conventional fossil fuels and 66% had seen battery operated cars, 29% were aware of hybrid solar cars and 4% of cars run on hydrogen. Their opinion was divided on promotion of cars utilising alternative energy sources. Majority (41%) perceived that solar cars should be promoted over others, as solar energy is abundantly available in our country and battery-powered cars carry environmental hazards of used battery disposal. 32% favoured battery-powered cars as sunlight is not always unavailable. 27% felt that this should be left to individual choices. No one stated a combination of both methods.

When specifically asked as to what steps could prompt them to purchase zero emission vehicles, 40% stated that they need to be low priced, 24% felt improved technology as higher speeds and more spaciousness were essential, 16% had never given a serious thought or were indifferent to this issue and 3% stated that an absolute ban on vehicles running on fossil fuels was essential. The remaining 17% stated a multitude of responses as special loan provision and tax rebates, increased and improved servicing facilities, IEC in line with ameliorative measures listed earlier in context of hindrances. 98% were in the favour of promotion of cycling and stated measures such as IEC efforts of health benefits (41%), strict restriction on use of vehicles by teenagers (40%), organizing of environment and cycling rallies (17%).

When inquired as to who will suffer the most from global warming, the vast majority of males (72%) and females (83%) perceived that the poor and the marginalised would be most severely affected as compared to those richer, males (8%) and females (4%). 20% males and 13% females had opined that global warming will affect the poor and the rich equally.

When inquired as to why they were not actively taking environment friendly measures to prevent global warming. 31% males and 35% females stated that they did not know from where to start, or the possible approaches and steps. 27% males and 27% females reported that they had no time left after work.

42% males and 33% females stated that they had made some efforts such as regular servicing of their vehicle, maintaining of proper tyre pressure, maintaining of a cruising speed of around 40 kilometres per hour.

The study reveals that quite a sizable proportion of the middle and the upper middle class of people in Surat city are quite aware of the problem of global warming, contributory reasons and various measures to contain the same. However, their awareness needs to be translated into action by goading increase their collective consciousness and responsiveness through intense media glare campaigns and rallies to culminate into environment friendly practices such as vehicles delivering more mileage, pooling of vehicles, cycling, hybrid cars and improvement of rapid public transport systems. This would require institution of measures to be addressed at individual, community and government levels in line with

amelioration of hindrances to the adoption of environment friendly practices as reported in the observations.

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