

UNITED STATES GENERAL ACCOUNTING OFFICE  
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STATEMENT OF  
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BEFORE THE  
HOUSE SUBCOMMITTEE ON TRANSPORTATION,  
AVIATION, AND MATERIALS  
AND THE  
HOUSE SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT  
OF THE  
COMMITTEE ON SCIENCE AND TECHNOLOGY

ON

SMALL CAR SAFETY



Chairmen and Members of the Subcommittees:

We appreciate the opportunity to be here today to discuss our report entitled "Small Car Safety: An Issue That Needs Further Evaluation" (CED-82-29, Apr. 26, 1982).

The Nation's passenger car fleet has witnessed a slow, steady increase of smaller, lighter cars during the last decade, replacing the 4,000-pound and heavier cars of the 1960's and early 70's. In 1979 cars weighing less than 3,500 pounds represented only

37 percent of the passenger cars in operation, but by 1990 they are estimated to represent 64 percent of the passenger car fleet.

As a consequence, the safety picture for the occupants of smaller cars becomes a significant concern. Will the physical characteristics of smaller size, lesser weight, and shorter length adequately protect the occupant in an accident? Or will passenger car fatalities and injuries sharply escalate because of the growing small car population?

Fatality experience of smaller car occupants is grim. A January 1982 report by the Insurance Institute for Highway Safety stated that the rate of deaths for the number of small subcompact cars on the road was more than twice that of full size cars. Government statistics indicate that a disproportionate number of passenger fatalities occur in smaller cars. The National Highway Traffic Safety Administration estimated that a continuing shift in the size and weight of vehicles on the road could result in an additional 10,000 traffic deaths per year by 1990.

Major issues concerning smaller cars have not been resolved. These issues concern whether smaller cars are in more accidents, whether they protect their occupants in different accident situations, and whether roads are adequate to safely contain the smaller car. These questions are not new, but vehicle and highway safety experts and auto industry officials have not been able to agree on the answers.

These concerns and the continuing disagreement about small car safety prompted our review of the issue. Our objective was to assess smaller car safety in light of available information

and what was being done by the Federal Government. In conducting the review, we also examined the relative safety of larger cars to gain a full understanding of occupant safety, based on vehicle size. Let me summarize the report's findings, conclusions, and recommendations.

Is the small car a safety problem?

To gain a better understanding of the smaller car safety question, we reviewed over 200 research and study documents and conducted extensive interviews with representatives from government, industry, and academia. We also collected and analyzed accident and injury data from the States of New York and Michigan as well as the Safety Administration to independently determine the type of data available and whether its analysis could reveal more about the smaller car safety performance. We realized that these analyses might not always represent nationwide statistics.

Our analysis and many of the studies we reviewed showed that smaller cars were not overrepresented in total vehicle accidents when compared with the number of smaller vehicles registered in those States. However, smaller cars were generally overrepresented in single-vehicle accidents with guardrails and median barriers.

On the question of occupant injury, we did find one undisputed fact: occupants of smaller cars received more injuries in collisions with larger cars than did larger car occupants. Our analysis showed that the incidence of severe and fatal injuries was two to four times greater to smaller car occupants than the larger car occupants. However, the results did not show a consistent

trend of greater injury for smaller car occupants in collisions of cars of similar size nor in single-vehicle accidents. Also, analysis of the data can raise questions about injury experience in various forms of single-vehicle accidents.

Our study of the adequacy of roadways for smaller cars revealed disagreement among vehicle and highway safety experts. Much of the recent highway safety literature suggests that roadways are unsafe for small cars, since roadways, roadside hardware, and roadway signs and markings were designed for heavier, larger cars. Though roadway design guidelines have changed to keep pace with changes in fleet composition, many experts state that the recent surge of smaller car sales may have outpaced present guidelines.

Most analyses on the adequacy of roadways have been based on the crash testing of smaller cars against roadside hardware. These tests have demonstrated that the lighter (1,800 pound) car does not perform adequately against some roadside hardware. For example, crash tests have shown that smaller cars can snag the support post of guardrails, be speared when hitting the rail, or roll over after hitting the rail.

Few of the studies we reviewed included examination of accident data on particular types of single-vehicle accidents. Based on our analysis of guardrail, median barrier, and pole accidents, we could not conclude that smaller car occupants experienced greater injury than larger car occupants. However, as I noted earlier, smaller cars are overrepresented in the number of guardrail and median barrier accidents.

Our analysis and other studies of rollover accidents demonstrated that smaller, lighter cars do have a greater likelihood to overturn. Many experts believe smaller cars are less stable with smaller tires and narrower body width and are therefore more likely to roll over.

Other small car safety issues such as lower eye height, lower ground clearance, and acceleration capability are much harder to assess through any form of analysis, including accident data. We found little information which addressed these issues.

All of the foregoing brings us to the question of the adequacy and availability of accident data. Much has been said about the inadequacy of the data and its use in analyzing small car safety issues. Critics suggest that many discrepancies can occur in the collection and presentation of the data and that some safety issues may not be able to be studied with this type of data.

Additionally, simple accident data analysis which doesn't take into consideration age of driver, age of car, seat belt usage, vehicle miles traveled--to mention a few--may not provide the best and truest reading of the data. The Office of Technology Assessment (OTA) in a September 1982 report noted the need to consider variables that might affect the interpretation of the accident data analysis. They cited that much of the current concern about the safety of small cars is based on statistical analysis of national data from the Safety Administration which oftentimes is used without considering factors other than car size.

OTA cited some other difficulties with existing analyses-- difficulties which we also had in our attempt to draw conclusions about small car safety from available research. Analysts use

- different data bases such as those available from the States and the Safety Administration;
- different measures of vehicle size such as wheelbase, interior size, and weight;
- different measures of safety such as deaths per 100,000 registered vehicles, deaths per vehicle mile driven, deaths per crash; and
- different time frames.

Though our analysis found few answers to the small car safety issues, it did demonstrate sufficient evidence to warrant both concern and further evaluation.

Information is available to determine safety problems of smaller cars

The Department of Transportation's Safety Administration and Federal Highway Administration include smaller cars in research and testing; however, neither agency has determined the highway safety experience of smaller cars. The Department's research does not provide enough information on specific types of accidents, such as collisions with roadside barriers. Much of it is not current and may not represent the present day safety concerns with smaller cars. Many vehicle and highway safety experts have stated that more and better statistical use of accident data could provide this information. But, the Department's research is conducted with only limited use of this data.

The Federal Government, States, and private groups have performed many studies and tests on smaller cars. Much of this information is engineering analysis which uses automotive crash tests under controlled or laboratory conditions to understand the physical structure of the vehicle and roadway. This information could be tapped to help define and appraise safety of smaller cars.

However, a fuller examination of accident data needs to be conducted. Without concentrated efforts to better use accident data to study the impact of vehicular size on occupant safety, the actual experience of our Nation's driving public cannot be adequately analyzed. At the time of our review, many Safety Administration and Federal Highway Administration officials agreed that further study of smaller cars with accident data would be useful in clarifying perceived safety problems.

GAO recommended that the Secretary of Transportation determine which smaller car safety issues need the Nation's greatest attention and adopt countermeasures to reduce accidents and injuries involving smaller cars. To begin to accomplish this task, we recommended that the Secretary examine all relevant sources of available accident and test information but that emphasis be given to using accident data.

Accident data can be retrieved from many sources. The Safety Administration has at least two data systems which are useful for this purpose--the Fatal Accident Reporting System and the National Accident Sampling System. Many States have data not included in the Federal systems, and private organizations such

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as the Highway Safety Research Institute and the Highway Safety Research Center have their own data to study smaller car safety. Presently, all have certain limitations which is why we recommended that the Secretary examine a number of alternative methods of determining the most effective and plausible approach to evaluate smaller car safety.

We also recommended that the Secretary use the results of such an analysis to rank research priorities in deciding on future programs which can affect the safety of smaller cars on the highway.

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Chairmen, this concludes my statement. We will be glad to respond to your questions.