

## Multiple Injuries Common In Motorcycle Crashes

The magnitude of serious multiple injuries suffered by motorcyclists in crashes is "striking," reports a study of such crashes in California. No single loss reduction strategy other than the "banning of motorcycle manufacture and use" can solve the increasing human injury associated with motorcycle use, the researchers said.

Fractures were the most frequent type of significant injury found in the study. They were accompanied by "an average of about two additional serious injuries," the study said. Motorcyclists with chest or abdominal injuries had respectively "3.1 and 2.8 *additional* serious injuries."

The study, funded by the Insurance Institute for Highway Safety, was conducted by four researchers at the University of California. It examined all reported motorcycle-related injuries occurring in Sacramento County in 1970.

The researchers — Drs. Walter F. Drysdale, Jess F. Kraus, Charles E. Franti, and Richard S. Riggins—reported that although severe head injuries represented only 12.7 per cent of the injuries observed, such injuries accounted for one-half of the 18 fatalities found in the study. They noted that a Department of Transportation study has shown that during the years 1966-68, states with laws that required use of motorcycle helmets had lower motorcycle death rates than states without such laws. California does not have a mandatory motorcycle helmet law.

Almost three-fourths of the injured motorcyclists studied had some activity restriction resulting from their injuries. The period of disability ranged from "one day to slightly more than one year," with the average length of disability being 72.7 days.

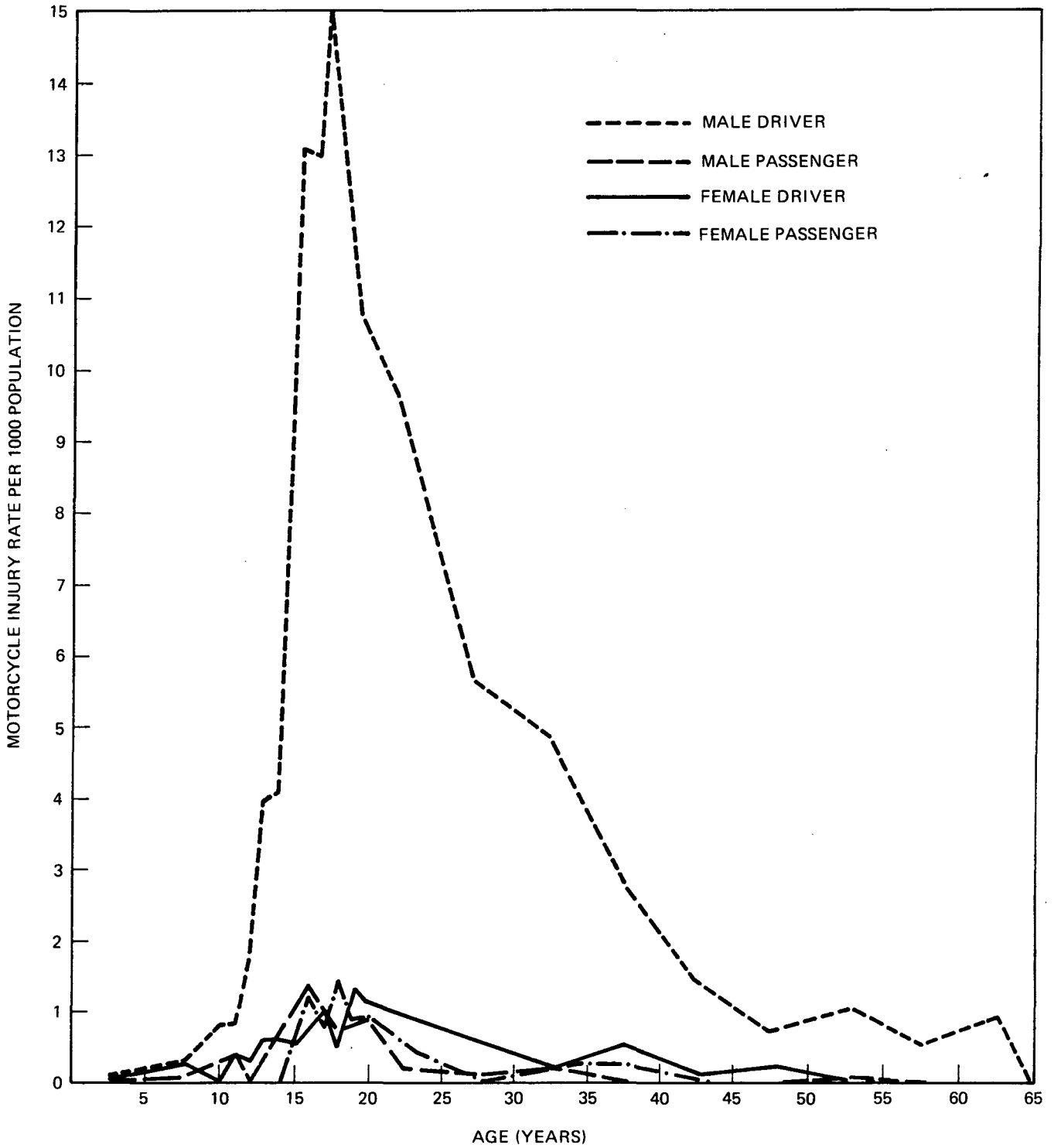
Young motorcyclists suffered a disproportionate amount of the injuries generated in the motorcycle crashes studied. Two-thirds of the injured motorcyclists were under 25 years of age, with male drivers 15 to 19 years old having the highest injury rate. In sharp contrast, the under 25 age group represented only one-third of a sample of all motorcycle owners studied. (See chart, page 2.)

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INCIDENCE OF MOTORCYCLE COLLISION INJURY  
ACCORDING TO AGE, SEX, DRIVER/PASSENGER STATUS

SACRAMENTO COUNTY, CALIFORNIA, 1970



The study also found that police records may seriously under-report the number of motorcycle-related deaths and injuries. Fewer than "39 per cent of all injured motorcyclists" were found by the researchers in "official police records."

The researchers recommended that a "mixture" of loss reduction strategies be used to reduce motorcycle-related losses. Countermeasures discussed included removal of sharp, protruding motorcycle design features that "serve as sources of injury to the rider," use of properly designed helmets and air bags for motorcycles and improving the speed and quality of emergency medical services.

The study will be published in *The Journal of Trauma*. Prepublication copies are available by writing "Motorcycle Injuries," Insurance Institute for Highway Safety, Watergate Six Hundred, Washington, D.C. 20037.

## FARE Built On Faulty Foundation

In 1973, the National Highway Traffic Safety Administration launched its highly publicized, \$10 million nationwide "Fatal Accident Reduction-Enforcement Program" — FARE — aimed at reducing highway crash fatalities through intensified police enforcement of traffic laws. NHTSA undertook FARE on the strength of "formidable results" from a 1972 pilot project to reduce motor vehicle crash deaths in five Michigan counties.

Now, an evaluation of the pilot project has shown that in reality it had no beneficial influence on crash deaths, and that NHTSA's very favorable analysis of the program's effectiveness was "seriously flawed."

In a paper reviewing the pilot project, which NHTSA called its "Fatal Crash Reduction Program," IIHS researchers Allan F. Williams and Leon S. Robertson noted that NHTSA described the project's purpose as being to "demonstrate and evaluate the effectiveness of a concentrated enforcement effort within a given geographical area and to measure its influence on the number of fatal accidents and deaths occurring within that area."

NHTSA's pilot project was conducted from August through December, 1972, in five Michigan test counties. NHTSA claimed that the project "produced formidable results with 59 fewer fatalities and a reduction of fatal accidents by 42 during the experimental period in the demonstration areas."

Williams and Robertson reported that the evidence "indicates that the Michigan Fatal Crash Reduction Program was ineffective in reducing rural fatal crashes or fatalities contrary to the claims of the original evaluation conducted by NHTSA."

Noting that the five pilot project counties were selected by NHTSA because they were "among those that ranked highest on rural fatality rate from January-July, 1972," the paper points out that this characteristic of the counties alone would have made subsequent decreases in the rate predictable even if no special program were undertaken. "It has been demonstrated that extreme values in a distribution, such as highway fatalities in an area during one time period, will tend to move toward the average of the entire group of such areas in the succeeding time period. This is the so-called regression to the mean phenomenon, well known for many years to statisticians and research workers in many fields," the paper says.

To determine reliably whether the pilot project had any beneficial effect, Williams and Robertson compared fatal crash and fatality rates in the five test counties during the five August-through-December periods of 1968 through 1972 — the pilot project year. They then compared five other comparable

Michigan counties and five comparable Indiana counties whose recent fatality and fatal crash rates were comparable to those in the pilot-project counties. They did so because "in order to show that any observed changes in highway fatalities may be attributable to programs such as the Michigan Fatal Crash Reduction Program, it is necessary to demonstrate that such changes did not also occur in areas not having the program, but chosen according to the same criteria as the areas that did."

Their comparisons showed that reductions in rural fatalities and fatal crashes in the five test areas were comparable to reductions that occurred in alternate counties of the state as well as in the five Indiana counties chosen for comparison.

Noting that "all Fatal Crash Reduction Program patrolling was carried out on weekends," Williams and Robertson also tested whether the program was more successful in reducing fatalities on weekends than weekdays. Their data showed that, rather than dropping, "the weekend proportions of rural fatal crashes and fatalities increased in the five Michigan Fatal Crash Reduction Program counties during the program period, compared to prior years."

NHTSA's earlier, favorable evaluation of the pilot project was inaccurate, according to Williams and Robertson, because among other things it was based on "an artificially high estimate of the expected number of fatal crashes and fatalities during the program period." That estimate was derived from the "aberrant" period of January-July, 1972, during which "there were very high numbers of rural fatal crashes and fatalities in these five counties" compared to the same periods in 1968-1971.

The paper concludes by pointing out that the \$10 million FARE program was subsequently adopted by NHTSA on the basis of the five-county pilot project.

"On the basis of the data presented here there is no evidence that FARE would be successful in reducing highway fatalities," it warns. "Any data presented on before-after changes in highway fatalities in FARE areas, which were to be selected on the basis of high fatality rates, must be viewed with extreme caution because of the tendency of areas with high rates to show subsequently lower rates even when nothing is done."

Prepublication copies of the report are available by writing "FARE," Insurance Institute for Highway Safety, Watergate Six Hundred, Washington, D.C. 20037.

## **Sub Compacts Lead '74's In Claim Frequency, Claim Size**

### **ERRATA**

The last two sentences on page four incorrectly describe the data in the accompanying table. It should read as follows:

"When the 1974 model results for all makes and series are considered together, the claim frequency was 9.6 claims per 100 insured vehicle years. The average loss payment per claim was \$495 and the average loss payment per insured vehicle year was \$48." Data in the chart accompanying the story are correct.

When the 1974 model results for all makes and series are considered together, the claim frequency was 10.3 claims per 100 insured vehicle years. The average loss payment per claim was \$502 and the average

*(Cont'd on page 6)*

## LOSS PAYMENT SUMMARY BY MAKE AND SERIES – 1974 MODELS – COLLISION COVERAGES

Make	Series	Total Exposure (insured vehicle years)	Claim Frequency per 100 insured vehicle years	Average Loss Payment per claim	Average Loss Payment per insured vehicle year
All	All	93,665	9.6	\$495	\$48
<b>SUB COMPACT</b>		<b>21,431</b>	<b>9.8</b>	<b>478</b>	<b>47</b>
Ford	Pinto S.W.	3,311	8.6	468	40
Volkswagen	Beetle	3,643	10.2	431	44
Chevrolet	Vega	5,308	9.9	489	48
Ford	Pinto	3,732	10.5	466	49
American	Gremlin	2,945	12.0	485	58
<b>COMPACT</b>		<b>18,967</b>	<b>8.6</b>	<b>506</b>	<b>44</b>
Plymouth	Valiant Duster	2,385	9.8	386	38
Ford	Maverick 4-Dr. Models	1,445	7.5	568	43
Chevrolet	Nova	3,846	8.8	526	46
American	Hornet	1,981	9.8	511	50
Ford	Maverick 2-Dr. Models	2,014	9.3	691	64
<b>INTERMEDIATE</b>		<b>19,936</b>	<b>9.4</b>	<b>455</b>	<b>43</b>
Chevrolet	Monte Carlo	3,560	9.4	368	35
Buick	Century 2-Dr. Models	1,569	9.4	389	37
Oldsmobile	Cutlass 2-Dr. Models	3,575	9.2	452	42
Ford	Torino 2-Dr. Models	1,704	9.5	468	44
Chevrolet	Chevelle 2-Dr. Models	2,078	9.2	530	49
<b>FULL SIZE</b>		<b>19,309</b>	<b>8.4</b>	<b>433</b>	<b>36</b>
Oldsmobile	Delta 88	1,457	7.1	384	27
Chevrolet	Impala	2,561	7.7	373	29
Chevrolet	Caprice Classic	1,950	6.9	540	37
Ford	LTD	2,378	9.2	439	40
Buick	Electra 225	1,330	9.8	488	48
<b>LUXURY</b>		<b>2,542</b>	<b>11.5</b>	<b>585</b>	<b>67</b>
Cadillac	De Ville	1,899	10.9	524	57
<b>SPECIALTY</b>		<b>6,165</b>	<b>11.0</b>	<b>541</b>	<b>60</b>
Ford	Mustang II	3,430	10.1	529	53
<b>EXPENSIVE SPECIALTY</b>		<b>4,915</b>	<b>12.1</b>	<b>591</b>	<b>72</b>
Pontiac	Grand Prix	1,708	11.1	398	44

(Cont'd from page 4)

loss payment per insured vehicle year was \$52. There were consistent differences between market classes "although they were not as pronounced as those in the earlier reports" for 1972 and 1973 model years. (See *Status Report* Vol. 9, No. 6, March 26, 1974.)

The report is based on 93,000 insured vehicle years of exposure. For the four major market classes the exposure ranged from 18,967 to 21,481 insured vehicle years. All figures were standardized to minimize differences that might be attributed to driver age and insurance deductible amounts.

## **ENERGY SHORTAGE**

The results should not be compared with those of earlier model years for several reasons, the report says. The report cautions that the "vehicle exposure on which these initial results were based took place predominantly during the fuel problems recently experienced . . . . The extent to which this shortage has affected the present results is not know." Because of these abnormal circumstances, however, projections or comparisons based on these initial results must be "interpreted with caution," the report says.

## **CLAIM FREQUENCY**

Among the four major market classes, claim frequencies ranged from a high of 9.8 for the sub compact models to a low of 8.4 for the full size models.

"Three of the five sub compact series had initial claim frequencies greater than 10; by contrast, none of the full size, compact, or intermediate series had initial claim frequencies greater than 10," the report says.

Claim frequencies were higher for the luxury, specialty and expensive specialty vehicle series. "None of these three minor market class totals or their leading individual series had initial claim frequencies below 10," according to the report.

## **AVERAGE LOSS PAYMENT PER CLAIM**

The average loss payments for the four major market classes ranged from a high of \$506 for the compact models to a low of \$433 for the full size models. Payments for the three minor market classes (luxury, expensive specialty and specialty) were higher than the average loss payments for the four major market classes.

## **AVERAGE LOSS PAYMENTS PER INSURED VEHICLE YEAR**

Average loss payments per insured vehicle year ranged from the high of \$47 for the sub compact models to a low of \$36 for the full size models. Three of the five individual sub compact series and three of the five compact series had average loss payments per insured vehicle year above \$45. By contrast, only one of the five full size series and one of the five intermediate series had average loss payments per insured vehicle year above \$45.

Average loss payments per insured vehicle year were "substantially higher" for the three minor market classes, ranging from \$60 to \$72.

Copies of *Automobile Insurance Losses: Collision Coverages, Initial Results for 1974 Models*, Research Report R74-1, May 1974, are available in single copies by writing to "R74-1," Highway Loss Data Institute, Watergate Six Hundred, Washington, D.C. 20037.

## ***Passive Restraint Comment Deadline Extended***

The National Highway Traffic Safety Administration has allowed an extra 30 days – until June 3 – for comments on its passive restraint proposal (FMVSS 208).

The National Motor Vehicle Safety Advisory Council had asked NHTSA to allow more time for comments because it considered the comment period of 45 days “too short to allow for meaningful comments to this most significant proposal.”

NHTSA issued its passive restraint proposals in March. (See *Status Report*, Vol. 9, No. 6, March 26, 1974.)

## **Michigan Reports Crash Cushion Success**

Roadside crash cushions “are saving lives and preventing injuries,” according to a newsletter published by Traffic Safety for Michigan. After 57 reported collisions with crash cushions on Michigan freeways during a 1970-1973 experimental program, only two injuries and no fatalities occurred, it said.

The program was conducted by the state’s department of highways and transportation. Plastic barrels filled with sand, empty steel drums lashed together and plastic cells filled with salt water were placed in front of 29 locations such as bridge railings, bridge piers, freeway exit ramp dividers and sign structures.

“On the basis of past accident experience,” said John P. Woodford, director of the department, “we estimate that at least 26 injuries have been prevented and three lives have been saved as a result of this program.”

## ***NHTSA Warns Of Wet Waxed Windshields***

The National Highway Traffic Safety Administration has warned motorists that the liquid car waxes used in many automatic car-wash establishments can smear the windshield, becoming “a sudden hazard, impervious to wiper actions” when mixed with rain or road grime.

The agency has issued a driver “alert” urging motorists to clean the wax film from both the glass and the windshield wipers using household window cleaning products immediately after any wax application. The agency does not plan to urge states to take any action on the problem, nor does it plan to urge car washes to clean the spray wax from car windows.

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the highway  
loss reduction

## STATUS REPORT

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