SURVEY CONCERNING INTERNATIONAL HARMONIZATION OF ACCIDENT REPORTING

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16. Abstract

A survey concerning international harmonization of accident reporting was distributed to 80 experts in accident reporting and analysis. Completed surveys were received from 50 persons in 13 countries; 74% of the respondents had more than 10 years of experience in the field of traffic safety. The main findings of this survey are: (1) 86% of the respondents think that an international computer file of fatal accidents would contribute to understanding of traffic safety. (2) 84% would use such a file, and 40% would be willing to tolerate four or more years' lag in the availability of the data due to production time. (3) An international non-fatal accident file was considered to be of value in research on human factors and accident causation (60%), and in determining dangerous sections in the road network (57%). (4) The most frequently mentioned source of data for both the fatal and non-fatal international data files was police. (Nevertheless, less than one quarter of respondents considered police as the suitable exclusive source of either data.) (5) The majority view was that the data for both files should come from more than one agency. (6) In case of the fatal accident file, 78% of the respondents considered it important that the data be cross-checked with the public health records. (7) The ten most useful variables for a fatal accident file are traffic unit type (e.g., car), accident type (e.g, angle), road class, driver age, date/time of day, age of person killed, number of killed persons, number of injured persons, drinking or drug use, and restraint usage of person killed. (8) The analogous ten variables for a non-fatal accident file are accident type, traffic unit type, driver age, date/time of day, road class, extent of injury, number of injured persons, age of involved persons, number of involved persons, and seat location.

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TABLE OF CONTENTS

INTRODUCTION

This study is a continuation of a project on accident data standardization that was initiated in 1985. In the first phase of this research project (O'Day and Waissi, 1986), personal discussions were held with many active researchers in this field. The principal findings from that study are as follows:

(1) There are many inconsistencies among nations in both the threshold for accident reporting and in the detailed definition of variables, which make international comparisons difficult.

(2) For fatal accidents these differences are less severe, and the set of fatal accidents should permit useful international comparison for some variables.

(3) Definition of variables (particularly injury and vehicle damage scales for in-depth accident investigation) is reasonably consistent across national boundaries, and perhaps data files based upon these investigations would be useful in studies of such international topics as vehicle standards. There are differences in coverage for in-depth studies among nations which make it difficult to compare accident frequencies among nations.

The present study consisted of a structured survey concerning desirable aspects of standardized accident reporting. Towards this goal, responses were sought from eighty researchers and experts in North America, Europe, Japan, and Australia.

QUESTIONNAIRE

The questionnaire was divided into five parts:

(1) Background of the respondent (eight items);
(2) fatal accident files (ten items);
(3) non-fatal accident files (three items);
(4) in-depth accident investigations (two items); and
(5) additional unstructured comments.

RESPONDENTS

A written questionnaire was sent to 80 researchers and experts in accident reporting and analysis. A total of 51 persons responded, for a response rate of 64%. However, the analysis is based on only 50 responses, since one respondent did not feel qualified. Table 1 presents a tabulation by country of distributed and completed questionnaires.

TABLE 1
Tabulation of distributed and completed questionnaires by country.

Country	Distributed	Completed
U.S.A.	10	7
United Kingdom	7	6
Sweden	7	5
Switzerland	6	5
Canada	8	4
West Germany	7	4
Australia	6	4
Japan	6	4
Finland	5	4
The Netherlands	5	3
France	4	2
Italy	4	1
Spain	3	1
Belgium	2	0
Total	80	50

RESULTS

Respondents' Background

The distributions of the responses to the eight questions in this section of the survey are presented in Tables 2 through 9.

TABLE 2
Distribution of responses to question:
With which group do you identify yourself? (circle one)

Response	Frequency
Academia	20
Industry	6
Government	15
Other†	9
Total respondents	50

†The responses were: consultant (2), research and development (2), governmental research (1), insurance (1), foundation (1), private organization (1), and instrument to catalyze and coordinate new work to overcome inertia and accelerate action (1).

TABLE 3
Distribution of responses to item:
Please circle your age category. (circle one)

Response	Frequency
30 or less	0
31–50	39
51 or greater	11
Total respondents	50

TABLE 4
Distribution of responses to question:
How many years of research experience in traffic safety do you have? (circle one)

Response	Frequency
2 or less	2
3 to 5	4
6 to 10	7
11 to 15	16
16 to 20	13
21 or more	8
Total respondents	50

TABLE 5
Distribution of responses to item:
Please indicate your familiarity with the fatal traffic accident file for your own country. (circle one)

Response	Frequency
File does not exist	2
Exists but I have not used it	8
Have used it occasionally	29
Have done extensive research with it	11
Total respondents	50

TABLE 6
Distribution of responses to question:
Have you ever used for research purposes a fatal traffic accident file for a country other than your own? (circle one)

Response	Frequency
Yes	18
No	32
Total respondents	50

TABLE 7
Distribution of responses to question:
Have you ever used for research purposes a non-fatal traffic accident file? (circle one)

Response	Frequency
Yes	44
No	6
Total respondents	50

TABLE 8
Distribution of responses to item:
Please rate the nature of your international research-related interactions. (circle one or more)

Response	Frequency
None	7
I have compared published data from more than one country.	38
I have analyzed computerized data files from more than one country.	9
Total respondents	50

TABLE 9
Distribution of responses to question:
Accident files are frequently used not only for research, but also in support of litigation. Do you think that the availability of accident data for analysis should be restricted to particular users or groups of users? (circle one)

Response	Frequency
Yes	10
No	37
Total respondents	47

Fatal Accident Files

The distributions of the responses to the ten questions in this section of the survey are presented in Tables 10 through 19. (Only one-way tabulations are presented, because the relatively limited number of respondents [50] precluded any meaningful two-way analyses.)

TABLE 10
Distribution of responses to item:
Please circle the response(s) which best characterize(s) your opinion about the value of an international computer file of fatal traffic accidents.

Response	Frequency
No value whatsoever	5
Would help me with an understanding of traffic accident problems in my own country.	18
Would substantially further our understanding of traffic accidents.	30
Total respondents†	50

†Two responses were as follows: limited value (1), and appropriate response not listed (1).

TABLE 11
Distribution of responses to question:
If such a file were available, would you use it in your research?

Response	Frequency
Yes	42
No	8
Total respondents	50

TABLE 12

Distribution of responses to question:

If an international fatal accident file were to be developed, which reporting agency or agencies should be relied upon for collection of initial case data in your country? If you believe that data should come from more than one agency, please circle all that apply.

Response	Frequency
Police agencies	12
Medical community (hospitals, ambulance records)	0
Insurance companies	1
Other†	9
Police and Medical	8
Police and Insurance	1
Police and Other†	2
Medical and Insurance	2
Insurance and Other†	1
Police, Medical and Insurance	8
Police, Medical, and Other†	3
Police, Insurance, and Other†	1
Police, Medical, Insurance, and Other†	1
Total respondents	49

†The "other" responses were: governmental agencies (13), and research institutes—including governmental (4).

TABLE 13
Distribution of responses to question:
How important would it be to cross check such data with data from public health (vital statistics) records?

Response	Frequency
Not important at all	8
Would make the data more useful	20
Absolutely necessary to any international comparisons	19
Total respondents†	50

†Other responses were: not very important (1), don't know (1), and is not done now (1).

TABLE 14

Distribution of responses to item:

Realistically, an international file of fatal accidents would have only a limited number of variables. Please check ten variables from the following list which you believe would be most useful in such a file.

Response	Frequency
ACCIDENT VARIABLES	
Date/time of day	26
Light conditions	11
Road class (divided, two-lane)	27
Road alignment (curve, grade)	9
Weather condition	16
Accident type (angle, rear-end, pedestrian)	36
Drinking or drug use in accident	17
VARIABLES RELATED TO VEHICLE/DRIVER OR TRAFFIC UNIT	
Traffic unit type (car, truck, motorcycle, pedestrian)	39
Vehicle manufacturer	0
Make and model (or vehicle identification number)	13
Year of manufacture (or age)	8
Country of registration of the vehicle	2
Extent of vehicle damage	9
Vehicle caught fire or burned	1
Vehicle rolled over	2
Country of licensing (or residence) for driver	3
Driver (or cyclist, pedestrian) drinking alcohol or using other drugs	13
Extent of injury to driver (or cyclist, or pedestrian)	10
Driver (or pedestrian/cyclist) age	27
Driver (or pedestrian/cyclist) sex	12
Driver ejected	1
Driver using available restraint	8
VARIABLES RELATED TO PERSONS KILLED IN ACCIDENT	
Seat location of person killed	15
Age of person killed	20
Sex of person killed	9
Nationality (or country of resident) of person killed	2
Restraint usage of person killed	17
Whether person killed was ejected	1
Alcohol/drug usage for person killed	1
Time between accident occurrence and death	6
Medical cause of death	11

TABLE 14 (continued)

Response	Frequency
VARIABLES RELATED TO OTHER PERSONS INVOLVED (I.E., NOT KILLED) IN ACCIDENT	
Seat location	7
Age	8
Sex	2
Restraint usage	8
Ejection	0
Extent of injury (perhaps on a 3-level scale)	12
SUMMARY VARIABLES	
Number of persons killed in accident	19
Number of persons injured (but not killed) in accident	18
Number of persons involved in the accident (including killed and injured)	14
Total respondents	46

TABLE 15

Distribution of responses to question:

The rapid development of an international fatal traffic accident file would involve considerable effort, and probably a tradeoff of cost/effort and time. Considering your own potential use of such a file, how long would you be willing to wait for the data?

Response	Frequency
One year or less	6
Two to three years	19
Four years or more	14
Other†	9
Total respondents	48

†The responses were: one to two years (2), two to four years (1), as long as is needed (1), until I retire (1), more (1), forever (1), would not use it (1), and question mark (1).

TABLE 16

Distribution of responses to question:

One of the difficulties in establishing a fatal-accident file is the difference among various national definitions of fatality in terms of the time delay between the accident and death. One way to approach this problem would be to settle on a "lowest common denominator" from the contributing sources. Assume that 20 countries agreed to participate, but one of these defined a fatal accident by requiring that the fatality occur within 24 hours; then all data would have to be defined in the same way. Another way would be to propose, say, a 30-day standard, and to mathematically adjust data from countries which did not conform to this standard. A third option might be for each contributor to list the lag time as a variable, along with a notation of the national standard or custom. Which of these would you prefer?

Response	Frequency
Lowest common denominator method	5
30-day standard with analytical adjustment as required	33
Tabulate the lag time and note the standard method	10
Other†	1
Total respondents	49

†The response was: time of death.

TABLE 17

Distribution of responses to question:
A substantial number of fatal accidents in some countries involves foreign tourists and other foreign nationals. Should such accidents be transferred (for statistical purposes) back to the country of normal residence?

Response	Frequency
Yes	2
No	46
Total respondents	48

TABLE 18

Distribution of responses to question:
Do you think that you might actively support (by lobbying) the establishment of such a file?

Response	Frequency
Yes	30
No	17
Total respondents	47

TABLE 19

Distribution of responses to question:
Do you think that you might actively contribute toward the development of such a file?

Response	Frequency
Yes	21
No	25
Total respondents	46

Non-Fatal Accident Files

The distributions of the responses to the three questions in this section of the survey are presented in Tables 20 through 22.

TABLE 20

Distribution of responses to question:

Computer files of non-fatal traffic accidents typically have many more cases than do fatal accident files. On the other hand, even under optimal circumstances, non-fatal accident files are less reliable than fatal-accident files. For which of the following purposes do you believe that the benefits of the larger sample outweigh the disadvantages of the poorer reliability?

Response	Frequency
Evaluation of the benefits of restraint system usage	16
Determination of black spots in the highway network	27
Research concerning human factors and accident causation	28
Total respondents†	47

†Three responses were: evaluation of the characteristics of these accidents in terms of highway, vehicle, and road user variables (1), longitudinal analysis of accident severity (1), and depends on specific question and file characteristics (1).

TABLE 21

Distribution of responses to question:

If an international non-fatal accident file were to be developed, which reporting agency or agencies should be relied upon for collection of initial case data in your country? If you believe that data should come from more than one agency, please circle all that apply.

Response	Frequency
Police agencies	17
Medical community (hospitals, ambulance records)	0
Insurance companies	2
Other†	5
Police and Medical	4
Police and Insurance	1
Police and Other†	3
Medical and Insurance	2
Insurance and Other†	1
Police, Medical, and Insurance	9
Police, Medical, and Other†	4
Police, Medical, Insurance, and Other†	1
Total respondents	49

†The "other" responses included: governmental agencies (8), research institutes—including governmental (4), doctors (1), and not possible—a sample of 3–5 states being developed by FHWA might be possible, or NHTSA CARD File (1).

TABLE 22

Distribution of responses to item:

Check 10 variables in the following list which you believe would be of value in an international non-fatal traffic accident file.

Response	Frequency
ACCIDENT VARIABLES	
Date/Time of day	29
Light conditions	14
Road class (divided, two-lane)	25
Road alignment (curve, grade)	12
Weather condition	15
Accident type (angle, rear-end, pedestrian)	40
Drinking or drug use in accident	15
VARIABLES RELATED TO THE VEHICLE/DRIVER OR TRAFFIC UNIT	
Traffic unit type (car, truck, motorcycle, pedestrian)	35
Vehicle manufacturer	0
Make and model (or vehicle identification number)	15
Year of manufacture (or age)	11
Country of registration of vehicle	2
Extent of vehicle damage	13
Vehicle caught fire or burned	1
Vehicle rolled over	3
Country of licensing (or residence) for driver	3
Driver (or cyclist, pedestrian) drinking alcohol or using other drugs	15
Extent of injury to driver (or cyclist, pedestrian)	15
Driver (or pedestrian/cyclist) age	32
Driver (or pedestrian/cyclist) sex	17
Driver ejected	3
Driver using available restraint	10
VARIABLES RELATED TO PERSONS INVOLVED IN ACCIDENT	
Seat location	18
Age	21
Sex	13
Restraint usage	14
Ejection	1
Extent of injury (perhaps on a 3-level scale)	24
SUMMARY VARIABLES	
Number of persons injured in accident	23
Number of persons involved in the accident (including killed and injured)	18
Total respondents	46

In-Depth Accident Investigations

The distributions of the responses to the two questions in this section of the survey are presented in Tables 23 and 24.

TABLE 23
Distribution of responses to question:
Are you familiar with the U.S. National Accident Sampling System (NASS)?

Response	Frequency
Yes	29
No	21
Total respondents	50

TABLE 24
Distribution of responses to item:
In-depth or case study accident investigations are being conducted in many countries, with a variety of sampling schemes and often with a lengthy list of variables appropriate to the particular problem under study. In-depth data from different countries may be studied with regard to outcome for given accident circumstances. Following is a list of possible international uses of such data. Please circle those which, in your opinion, would be of possible value.

Response	Frequency
Comparison of windshield (windscreen) induced injuries between countries with mostly laminated and countries with mostly tempered windscreens	15
International comparison of the incidence of driving under the influence of alcohol	22
International comparison of the effectiveness of restraint system usage	22
International comparison of traffic accident causative factors	32
Comparison of the effectiveness of periodic motor vehicle inspection (looking at data from countries with and without such programs)	16
Total respondents†	48

†Two responses were as follows: none of these (1), and none—I do not think you can generalize from these efforts because of case selection problems (1).

SUMMARY

(1) A survey concerning international harmonization of accident reporting was distributed to 80 experts in 14 countries. Completed surveys were received from 50 persons in 13 countries. Table 25 summarizes the background of the respondents.

TABLE 25
Respondents' background.

Aspect	Percentage of Responses
Affiliation	
Academia	40
Government	30
Industry	12
Age	
>30 years	100
>50 years	22
Years of traffic-safety experience	
>10 years	74
>20 years	16
Familiarity with the fatal traffic-accident file for one's own country	
Have used it	80
Familiarity with a fatal traffic-accident file for a country other than one's own	
Have used it	36
Familiarity with a non-fatal traffic accident file	
Have used it	88
Familiarity with the U.S. National Accident Sampling System	
Familiar with it	58
Extent of international research-related experience	
Have used data from more than one country	86
Restricting the availability of accident data to particular users or groups of users	
In favor	21

(2) The responses concerning an international fatal traffic-accident file are summarized in Table 26.

TABLE 26
Summary of responses concerning an international fatal traffic-accident file.

Aspect	Percentage of Responses
An international computer file of fatal traffic accidents would help the understanding of traffic accidents	86
Would use such a file	84
Data for such a file should come from	
Police	24
Insurance companies	2
Medical community	0
More than one agency	55
Importance of cross-checking such data with data from public health (vital statistics) records	
Useful or necessary	78
Most useful twenty variables in such a file	
Traffic unit type (car, truck, motorcycle, pedestrian)	85
Accident type (angle, rear-end, pedestrian)	78
Road class (divided, two-lane)	59
Driver (or pedestrian/cyclist) age	59
Date/time of day	57
Age of person killed	43
Number of persons killed in accident	41
Number of persons injured (but not killed) in accident	39
Drinking or drug use in accident	37
Restraint usage of person killed	37
Weather condition	35
Seat location of person killed	33
Number of persons involved	30
Driver drinking or using drugs	28
Make and model of vehicle	28
Driver sex	26
Extent of injury	26
Light condition	24
Medical cause of death	24
Extent of injury to driver	22

TABLE 26 (continued)

Aspect	Percentage of Responses
Tolerable production delay for the availability of data	
≥2 years	83
≥4 years	40
Preferred definition of fatality in terms of delay between the accident and death	
30 day standard with analytical adjustment as required	67
Accidents of foreign nationals should be transferred (for statistical purposes) to the country of normal residence	4
Might actively support (by lobbying) the establishment of such a file	64
Might actively contribute towards the establishment of such a file	46

(3) The responses concerning non-fatal accident files are summarized in Table 27.

TABLE 27
Summary of responses concerning an international non-fatal accident file.

Aspect	Percentage of Responses
In relation to a fatal accident file, benefits of a larger sample in a non-fatal accident file outweigh the disadvantages of poorer reliability	
In research on human factors and accident causation	60
In determining black spots in the highway network	57
In evaluating the effectiveness of restraint system usage	34
Data for such a file should come from	
Police	35
Insurance companies	4
Medical community	0
More than one agency	51
Most useful twenty variables in such a file	
Accident type (angle, rear-end, pedestrian)	88
Traffic unit type (car, truck, motorcycle, pedestrian)	77
Driver (or pedestrian/cyclist) age	70
Date/time of day	63
Road class (divided, two-lane)	55
Extent of injury (perhaps on a 3-level scale)	53
Number of persons injured in accident	50
Age (of persons involved in accident)	46
Number of persons involved in the accident	39
Seat location (of persons involved in accident)	39
Driver sex	37
Drinking or drug use in accident	33
Driver drinking or using drugs	33
Extent of injury to driver	33
Make and model of vehicle	33
Weather condition	33
Light condition	30
Restraint usage of involved persons	30
Extent of vehicle damage	28
Sex of involved persons	28

(4) Responses concerning possible value of an international in-depth accident file are summarized in Table 28.

TABLE 28
Possible value of an international in-depth accident file.

Aspect	Percentage of Respondents
Traffic accident causative factors	67
Effectiveness of restraint system usage	46
Incidence of driving under the influence of alcohol	46
Effectiveness of periodic motor vehicle inspections	33
Effectiveness of various types of windshields	31

REFERENCE

O'Day, J. and Waissi, G.R. (1986). Worldwide accident data standardization. Ann Arbor, Michigan: The University of Michigan Transportation Research Institute, Report No. UMTRI-86-48.