ELDERLY PEDESTRIANS: A POSITIVE OUTLOOK

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Pedestrian accidents account for about 10 per cent of all injuries that occur on the road and for almost 20 per cent of all fatal accidents in Switzerland. One fourth of the injured pedestrians and 60 per cent of the fatalities were ***65*** years of age or older. Given that the elderly account for only
15 per cent of the population of Switzerland one can conclude that they have an above-average chance of becoming involved in a pedestrian accident, and a dramatically higher chance of being killed. The latter is due to the fact that the same injury severity leads to a higher percentage of mortality with increasing age. This was shown by Bull *(1975,* p. 251, Figure 2).

There are several possible explanations why the involvement of the elderly in accidents is higher than for younger people.

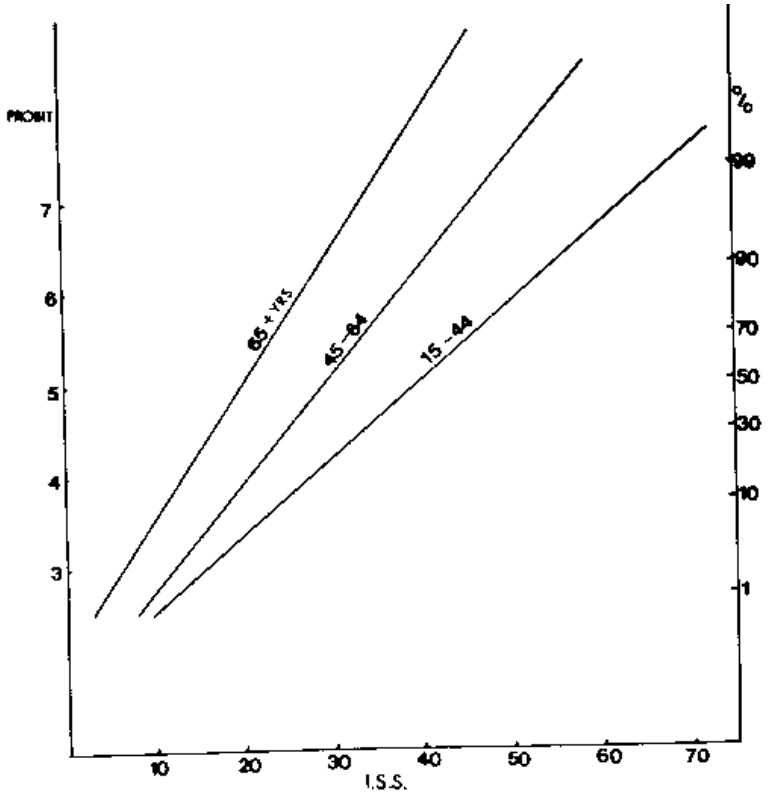
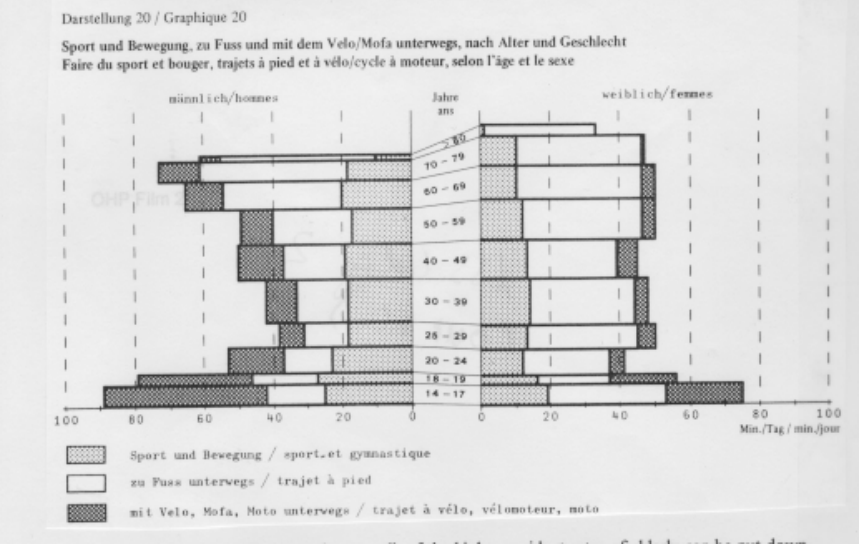


Fig. 2. Fitted Probit lines relating I.S.S. ratings and mortality.

1. Elderly may have a higher exposure as pedestrians than younger people.
2. They may not observe traffic regulations as well as younger pedestrians.
3. The elderly may be less familiar with motorised traffic than the young.
4. The elderly may have psychological or physical handicaps that hinder their effective participation in road traffic.

Exposure

Data from a mobility census conducted by the Swiss Federal Office of Statistics in 1979/1980 indicated that exposure to road traffic between the age of 18 and 80 remains constant at about 80 minutes per day for women and roughly 100 minutes per day for men. What does change are the proportions of different kinds of traffic participation. Walking and using public transport tend to increase with age, while car driving drops sharply. People up to the age of 50 participate in road traffic as pedestrians about 25 to 30 minutes per day (FOS, 1981), while the elderly do this for about 40 minutes per day (Wittenberg, 1977).



It can be concluded that some, but not all, of the higher accident rates of elderly can be put down to exposure.

Observance of traffic regulations

Several researchers discovered that elderly people observe traffic regulations better than younger people. Yaksich (1965) and Jacobs & Wilson (1967) observed pedestrian behaviour and concluded that for both sexes the elderly are more law-abiding than any other group and that their behaviour when crossing the road is most appropriate. It seems that the higher risk associated with the elderly comes about despite the fact that they observe traffic regulations better than younger pedestrians.

Experience with motorised traffic

A few years ago it was not that common in Europe to possess a driving licence. A research project carried out in 1978 by Camenzind, Huerlimann & Kaegi showed that only 25 per cent of people aged 65 or older had a driving licence. Nowadays the proportion is higher, but the percentage of women drivers among the elderly is probably still quite low.

Psychological and physical handicaps in old age

Age-related changes in information-processing, perception and physical abilities are well known. These changes vary considerably from person to person, so that age alone can not be relied upon to predict the degree of handicap. However, on average one can assume that eyesight, hearing and speed of the cognitive processes deteriorate with increasing age. The most drastic changes are to be found in information processing. In the case of difficult tasks the length of the pre-motory phase can increase by as much as twenty times, and the number of incorrect reactions increases with speed components (Kay, 1954). Both mechanisms, central nervous slowing and rising error rates, may put the elderly at risk in complex traffic situations. Eyesight problems occur mainly at night since the adaptation time increases and night vision deteriorates. On the street, deafness may reduce information redundancy. Physical handicaps can impair the ability to react fast and vigorously.

The research project

The project objective was an integration of behavioural and interview data relating to elderly subjects. The aim was to find relationships between individual characterics and behavioural problems as pedestrians. Some 880 subjects were observed as they crossed a two-lane road at a pedestrian crossing. Afterwards it was possible to interview 70 per cent of these regarding subjective problems as pedestrians and possible improvements, as well as concerning everyday behaviour and demographic variables.

The relevant variables that were registered in the behavioural observation were orientation, communication and movement. This was carried out in three phases:

1. While the subjects were still on the pavement.
2. While crossing the first half of the road.
3. While crossing the second half of the road.

The main results were:

1. Most elderly people do not look out for traffic.

About 60 to 70 per cent of the subjects did not turn their head before or while crossing the road. They just kept on walking without paying attention to the traffic. In two-thirds of these cases there was no approaching vehicle. These subjects might have heard that there was no danger. Less than half of the subjects moved their head when a car was approaching; sixty per cent failed to look at all. This would seem to be a high-risk group.

2 The traffic situation becomes more dangerous when crossing the second half of the road.

While the pedestrians were crossing the first half of the road some 80 per cent of motor vehicles slowed down perceptibly or stopped. Only 20 per cent of the vehicles that approached the pedestrian crossing were clearly unwilling to stop. While crossing the second half of the road, the position was almost the opposite: only 25 per cent of motor vehicles were obviously breaking with the intention to stop, 75 per cent were unwilling to do so.

	Vehicles slowing down or stopping	Vehicles obviously not stopping
First half of road	80per cent	20per cent
Second half of road	25per cent	75per cent

In a quarter of the critical situations that occurred on the second half of the road the pedestrians reacted by walking faster. In two-thirds of the cases the vehicle driver was forced to slow down or stop.

This situation could come about because the pedestrians did not plan their crossing manoeuvre far enough in advance. It seemed as though, having crossed the first half relatively safely, they just kept on going. Probably they felt that, once they were out on the road, the drivers would simply have to stop. This is accordance with Swiss traffic regulations. At the time of the behavioural observation pedestrians were required to signal that they wanted to cross the road; once they had entered it they had the right of way. However, this seems to be a rather dangerous situation, especially in view of the fact that elderly people are unlikely to have the necessary physical ability to take evasive action if a car does not stop.

Interview

These were the two most important results of the behavioural observation. 1 would now like to present the results of the interview. More than half of the subjects said that, as a pedestrian, they sometimes felt unsafe or were even afraid. They were asked what kinds of problems relating to crossing the road were felt to be especially serious. The problems most frequently mentioned were reckless driving, driving too fast and the sheer volume of traffic. The latter two seem to reflect the slowing in central nervous processes. To remedy the situation the elderly would like to see a more considerate approach by other road users, speed limits, more traffic lights at pedestrian crossings and more information in the media. Only 10 per cent of the subjects said that they had problems crossing the road at night. This is hardly surprising since 50 per cent do not go out after dark.

Relating personal characterics of the elderly to behaviour while crossing the road produced a very plausible and important result. Subjects who possessed a driving licence, or had possessed one, behaved considerably more appropriately when crossing the road than those who had never possessed a licence. They displayed much better orientational behaviour and seemed to pay more attention. They also reported fewer problems and fears as pedestrians. Men and women exhibit the same differences, but this is confounded with driving licence possession. Being or having been a driver would appear to increase pedestrian competence. These subjects are able to predict the driver's and the car's reactions more appropriately.

Conclusions

Elderly pedestrians have problems. They are willing to behave correctly but at least in orientational terms, they fail to do so. Half of them are afraid, especially regarding the speed and density of road traffic. Prior experience as a driver would seem to offer a certain amount of protection. Since the proportion of those in this category is steadily increasing, as well as becoming more equally distributed between men and women we may be able to look forward to a reduction in the number of pedestrian accidents without any additional efforts. The desire of the elderly that there should be more information ought to be fulfilled. Nevertheless, it may also be helpful to strengthen the legal position of a pedestrian on a designated crossing in order to induce a higher percentage of drivers to stop. This has been done in Switzerland, and has resulted in a certain improvement.

Bibliography:

Bull, J.P. *(1975).* The injury severity score of road traffic casualties in relation to mortality, time of death, hospital treatment time and disability. Accid. Anal. & Prev., 7, pp 249-25 5.
Bundesamt thr Statistik BfS (1981), Zeitverwendung in der Schweiz. Statistische Quellenwerke der Schweiz, Heft 669. Bundesamt fiir Statistik, Bern
Camenzind, J., Hurlimann, F.-W. & Kaegi, B. (1978a), Konfliktstelle Fussgängerstreifen. Zeitschrift ftir Verkehrssicherheit, 24 (1), 14-20
Camenzind, J., Hurlimann, F.-W. & Kaegi, B. (1978b), Konfliktstelle Fussgängerstreifen (Teil 2). Zeitschrift fi.ir Verkehrssicherheit, 24 (2), 52-5 8
Jacobs, G.D. & Wilson, D.G. (1967), A Study of Pedestrian Risk in Crossing Busy Roads in Four Towns. Road Research Laboratory, Cownthorne
Kay, H. (1954), The effect of position in a display upon problem solving. Quart. J. Exp. Psychol., 6, 155-169
Wittenberg, R. (1977), Strassenverkehrsbeteiligung älterer Menschen. Bundesanstalt fhr Strassenwesen BASt, Heft 11, Köln
Yaksich, 5. (1965), The new image of the older pedestrian. Traffic Safety, Vol. *65,* 2, 22-24 & 35-36