

Fatal motorcycle accidents in Finland 1986 – 1995

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In Finland, all fatal traffic accidents are investigated by a group of experts in related areas of technical, medical, psychological, police etc. experts. This investigation is done independent of all the juristic processes, though relevant police material is available. The main purpose of the analysis is to find preventive methods for future use. A special organization, financed by mandatory traffic insurance fees and governed by insurance companies, is organizing the analysis. Permanent teams and ad-hoc specialists do the actual work from various disciplines needed. Public authorities are obliged to give assistance if needed. The results are filed, and available for research, same as statistics gathered.

In this paper, in practice all the files (N= 198, number of deaths 208) of fatal motorcycle accidents in years 1986 – 1995 are analyzed, summarized and discussed from the motorcycle riders' perspective. Some of the results are compared with other statistics available. Also the earlier summarizing paper, prior 1985 by Veli-Pekka Kallberg, and later, 1996 – 2000 by Mikko Paaso, are described and discussed. Also a study made in the University of Turku, analyzing the accidents of years 1992-2003 is introduced and discussed. All these papers are widely used by motorcycle organizations in Finland, which is also discussed.

The fatal motorcycle accidents in Finland are rather similar compared to those in Hurt report and in other published papers in countries using motorcycle mainly for interest and not as an essential part of the traffic system. From the riders point of view, overestimating own skills and/or perception errors are the main factors causing accidents. From the traffic environment viewpoint, possibilities to slide without collisions seem to be important for safety. For other traffic participants, in practice motorists, the visibility of the rider and bike, same as clear interpretation of the speed and direction of the motorcycle seems to be of importance.

1. Fatal traffic accident investigation in Finland

The investigation process is very similar to that widely used in flight accidents. Main idea is to find improvements for traffic safety, and the area of improvements is not restricted. the juristic process is separated – except of course if the team finds some improvement suggestion to legislation or juridical process'. The teams are organized locally, covering an administrative geographical area. The team members have a permanent job on other fields; working with traffic accidents is only part time. There are 21 groups in Finland, investigating about 400 fatal accidents per year. /VAKES/

The activity is based on law, and practical organization is managed by the co-operative

organization of traffic insurance companies. The teams are working in close co-operation with police and other authorities, and they are liable to give relevant help and information to teams.

The guidelines for teams are modernized in the year 2001, and the activity has started during 1986 - 1971. After the conversion time, summaries of all the accidents should be available for anyone. All the statistics have been available from the beginning of the work. Detailed information, including sensitive and private details, are available for scientifically use only. /VAKES2/

The reports contain very much information. The accident is reproduced as good as possible. The driver's condition, mental and healthy state, possible intoxication, last meal, sleep etc. are explained if information is available. Also the personalities involved are sketched, if it is found having an impact. The accident process is described, typically starting from "time point zero" where after the accident could no more be avoided. How this situation was build up, is naturally also told. Technically, the road and vehicles are studied if possible.

Files include records of postmortem, interviews of relatives and friends – if valid. If any kind of specialist is required, for instance a motorcycle rider or a representative of behavioral sciences, they are involved to process.

Motorcycle in countries like Western Europe is rather for amusing than for work. But the amusement is closely tied to risk. I have used an amusement park as a metaphor: we want to feel the danger like in a roller coaster, the accelerations, forces. But rather few of the riders want to take a real risk of serious injury or even fatality. Still, the possible, real risk is perhaps a part of the amusement.

Thus using a simple risk calculus that can give good results from the society point of view is not exactly valid for motorcycling. Zero accident tolerance by Claes Tingvall is also problematic from the risk-oriented riders' perspective. I believe this type of behavior is actually more common than we realize with the first look, or by everyday experience. Taking risk for amusement is not only related extreme hobbies like parachuting or alpinism, not only to alcohol or cigarettes. We all do the same, in minor scale, in our everyday life.

2. Scope of the study

The original idea of the study was to update the mentioned analysis of Kallberg. In his paper, basic statistics are gathered. This data does not differ very much from findings in other countries with similar status. However, repeating this looked quite empty idea.

Instead of that, a new approach was searched. According to my own riding experience and findings there might be something special in the motorcycle riding itself. Also in that time relatively small amount of studies suggested to just find what the files are including: the teams had suggestions for improvements, what were those?

Also the black spots were found to be interesting. The idea was adopted from Heikki Summala, and it is something that may disappear in statistic: one such thing is that quite many motorcycle accidents in Finland happened in Friday and Saturday nights.

Another original purpose for the study was to find something relevant to experienced rider training. Because the teams are suggesting improvements, those improvements were naturally carefully read. Also the reporting processes were investigated, to see if there was any place for new practices.

2.1 Material emanating reading

After stating and writing down these prior understandings, the work was started by reading thoroughly and carefully a couple of randomly selected reports. The material or findings of interest to prior aspects were then classified to some categories raised from the reports. This type of study might be called material emanating study, or reading.

From the ideas of the study, the categories found interesting in the reports were first a group of accidents having inexperience, 125 cc motorcycle allowed from 16 years old, speed, drunken and without helmet – or at least some of these in common. For this group, I gave the name K-line, based Finnish words for those factors. The single accidents, biggest group, I called “alone and out”. Third clear group of accidents was those I named “sudden or fail”. Fourth group name was “unexpected driving”.

Those categories have big overlap, for instance the alone and out -group has actually many of the same accidents as the first, inexperienced etc. -group and also many of the sudden & fail -group. Only a viewpoint is different: common nominator of the motorbike rider or common attribute of the accident.

However, the overall picture of a motorbike accident specific typical risk group is rather clear: young men: trying to be something, show something, perhaps spending a weekend with other young. Men not willing to understand risks nor having common sense, not having experience but a strong tendency to get respect, to do something extraordinary or better than the others. I used the word “hot-dog stand” for this type of accidents.

The accidents of riders having more experience seem to be different. The animals, moose mainly, were causing app 5 % of accidents and those were mainly older riders: non-urban area and time give hints for explanation. Also collisions seem to be slightly different: older riders perhaps could be more aware of not seen by others in traffic.

2.2 Major findings

A clear signal from analysis was that there were a limited number of risks to be aware of. To know how a motorbike should be maneuvered in extreme cases, by cornering or braking hard, seemed not to be well trained and those capabilities seemed also to be quite independent from the riders' experience.

The riders are dangerous to themselves. Alone out off the road -cases took app. the half

of all accidents, and when other vehicle was involved, the rider died made the fatal error in practice as often as the counterpart. Circa $\frac{3}{4}$ fatal accidents were thus caused by the rider himself (only one female was among the app 200 riders, passengers were most females). Only a couple of others were death, a motorist and a moped rider.

Causes of death were as expected: a blow. The helmet fastening approval system was improved during the early years of the study, and this dropped the number of “without helmet” cases in later years of the study. In the files a helmet worn, but fallen away during or before the accident, for instance because of the strap not fastened, was classified as “without helmet”. However, head and neck injuries were, or are, still a big group. The torso injuries, mainly internal hemorrhage, were also a clear group. Hemorrhage in limbs, mainly in legs or other big bones was mentioned also many times.

The blow was rather often hitting to the other or own vehicle. Traffic posts or other objects near the road, like trees, were found dangerous too.

Fatal accidents seem have rather different nature compared to other accidents where someone got injuries treated in hospital, or accidents causing compensations from insurance companies. The speed and alcohol were the major differences. Number of female riders was significantly bigger in other than fatal accidents. Thus the gender and culture related to gender was interpreted to a factor.

For the experienced rider training, understanding what is dangerous was the main finding. Just telling to be careful out there has not much use: traffic accidents are rare, and thus learning from experience and even from near-by cases can give wrong information. The extreme maneuvers were found to be important, too.

Because of the gender and other social factors related, the experienced rider training was found to be a problem. The strategy developed among the instructors was taking this into account: moralizing was not found reasonable. Instead of it, giving cold facts about really dangerous things and how to reduce risk, and letting the participants self to make conclusions was found better.

3. Other studies

The previous study of Kallberg was collecting the basic data. Major findings were rather similar as in Hurt report. The latter two studies by Paaso and Hernetkoski & al. had somewhat different goals.

Paaso clarified the development of 125 cc motorcycle new regulations and also changes in license policy and driving school teaching. Major findings were that the riders should be aware of is the speed, related to the environment. A motorcyclist should also know hoe to handle the bike in the situations involved. Better capabilities to braking and swerving might have saved every third of the riders. The visibility, or perceptibility, is also an issue.

Paaso also stated that the younger (20-40 years) had a tendency to speeding or

overestimating their driving skills, and older (over 40) had the tendency to collide with other vehicles. New driving license and limited power of the 125 cc bikes reduced the number of deaths significantly, but Paaso does not compare this finding to the rate of the young riders.

Hernetkoski & al published a heavy statistical report from the relations between riders' age, number and size of motorcycles and development of the hobby point of view. Their major findings were that the number of the fatal accidents and injuries accidents was increased during 1992 – 2003. However, the number of fatal accidents was raised slower than the number of the bikes.

The biggest age cohort was under 18 years olds, but the number of the accidents has raised in elder cohorts over 21 years. Main accident type was driving off the road; injured accident type (41 %) and fatal type (72 %), in this group animal were causing 21 % of accidents.

The percentage of injured women was 8, but in fatal accidents, only 1 per cent were women. Alcohol was related to 22 % and 71 % speeding to all fatal accidents. Cubic size of the bikes has increased, and also the age (and probably money available for hobby) was risen.

4. Discussion

In Finland, the traffic safety is on rather high level. Also political interest to lower the number of injured and dead has increased steadily from late –60's. Combining this development to the risks of the motorcycle riding as a hobby is a complex thing.

One viewpoint is that if someone really wants to take risks in his /her life, he or she must obviously be allowed to do it. Preventing risk taking in private life is not acceptable in western tradition.

Other viewpoint states that no one of risk takers actually wants to die. Also, fatalities should then happen in really private areas, rather in the racing circuits than in the traffic.

For experienced rider training, well-gathered information from accidents gives lots of good opportunities. We can use the cases and statistics in our courses, and be rather sure that the material is relevant.

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http://www.vakes.fi/LVK/LVK_PDF/Raportit/vuosirap2001.pdf (in Finnish, a summarizing report of the accidents investigated 2001)