

Bijleveld 1997: Calculation of odds ratio values for Austria 1976–1995

Note on Graphs

Bijleveld 1997 measured the effect of the 1982 motorcycle daytime lights ‘fitting’ law in Austria by dividing the motorcycle odds-ratio by the motorcar odds-ratio.

The formulation of the odds-ratio is:

$$\frac{\text{Daytime multi-vehicle accidents} \times \text{Nighttime single-vehicle accidents}}{\text{Daytime single-vehicle accidents} \times \text{Nighttime multi-vehicle accidents}}$$

The intention of the formulation is that the odds-ratio shall only be affected by an effect—such as the effect of daytime lights—that is predicted to reduce daytime accidents and multi-vehicle accidents together.

‘Irrelevant’ effects—such as a lower volume of daytime driving, or a lower daytime and nighttime traffic density—that reduce daytime accidents, or multi-vehicle accidents, separately, by contrast shall balance out.

The intention of in turn dividing the motorcycle odds-ratio by the motorcar odds-ratio is further to balance out any additional ‘irrelevant’ effect—such as a lower daytime, but not nighttime, traffic density—that may reduce daytime accidents and multi-vehicle accidents together, but equally affects both motorcycles and motorcars.

The anticipated effect of the 1982 motorcycle daytime lights fitting law in Austria was that, starting in 1982, the value of Bijleveld’s ‘motorcar-controlled’ odds-ratio should gradually fall as each year the proportion of motorcycles that were fitted with daytime lights rose.

But in fact, as the Graphs show, the value of the motorcar-controlled odds-ratio did not fall after the 1982 Austrian law .

[Bijleveld chose not to study also the effect of the 1977 Austrian motorcycle daytime lights ‘use’ law. But as the Graphs show, following the 1977 law—like the 1982 law—the anticipated marked step downwards in values of the odds-ratio in Austria did not occur.]

Passing over the adverse finding, Bijleveld nevertheless went on to subject the odds-ratio values that he had found to ‘statistical manipulation’.

Eventually the manipulation yielded a ‘prediction’ that the 1982 law had been followed by a 16% reduction in motorcycle daytime multi-vehicle accidents.

Bijleveld 1997 then presented the prediction from the statistical manipulation of a 16% reduction of accidents from the 1982 Austrian motorcycle daytime lights fitting law—without qualifying the prediction by the finding that the actual odds-ratio values themselves failed to fall—as the finding of his study.

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Test value of Bijleveld 1997: Motorcycle odds ratio divided by Motorcar odds ratio
ie 'A divided by B' below

	Motorcycle odds ratio (A)	Motorcar odds ratio (B)	A divided by B
1976	1.72	2.62	0.66
1977	1.58	2.69	0.59
1978	1.50	2.83	0.53
1979	1.60	2.61	0.61
1980	2.02	2.73	0.74
1981	1.48	2.80	0.53
1982	1.44	3.16	0.46
1983	1.85	2.82	0.66
1984	1.59	2.97	0.54
1985	1.59	2.90	0.55
1986	1.40	2.90	0.48
1987	1.30	2.70	0.48
1988	1.36	2.65	0.51
1989	1.38	2.88	0.48
1990	1.40	2.69	0.52
1991	1.12	2.66	0.42
1992	1.29	2.62	0.49
1993	1.19	2.72	0.44
1994	1.20	2.70	0.44
1995	1.25	2.75	0.45

Note: Values of motorcycle and motorcar odds ratio transcribed from Bijleveld 1997: Figure 5

