

# Suicide by jumping from bridges and other heights: Social and diagnostic factors

Thomas Reisch\*, Ursula Schuster, Konrad Michel

*University Hospital of Psychiatry, Department of Psychiatry, Bolligenstr. 111, 3000 Bern 60, Switzerland*

Received 11 July 2006; received in revised form 23 February 2007; accepted 30 June 2007

## Abstract

The goal of the study was to determine social and diagnostic characteristics of persons who end their lives by jumping from heights and to compare the characteristics of those who jump from bridges with those jumping from other sites. Data on suicide in Switzerland between 1990 and 2003 were collected from the Swiss Federal Statistical Office and from local authorities. Persons who jumped from heights in general were more likely to suffer from schizophrenia than those who used other methods. Persons who jumped from bridges were younger than those committing suicide by other methods. Compared with those who jumped from other sites, subjects were on average 14.3 years younger and more often male. Individuals who jumped from bridges close to psychiatric hospitals were more likely to suffer from psychiatric illness. Individuals who jump from bridges differ in certain characteristics from those who jump from other sites. For future classification it may be helpful to distinguish suicides from bridges from suicides from other heights. For prevention of suicide from bridges, attention should be paid to characteristics of young persons at risk.

© 2007 Elsevier Ireland Ltd. All rights reserved.

*Keywords:* Suicide, attempted; Prevention; Epidemiology; Schizophrenia; Environment; Sex distribution

## 1. Introduction

Suicide remains a significant public health problem (Levi et al., 2003). Most persons suffering from depression do not seek help for their mental disorder (Roness et al., 2005). Mental health strategies focussing on individuals with a high suicide risk therefore need to be supplemented by other strategies. The risk of suicide is related to, among other factors, the availability of means (Gunnell and Lewis, 2005), and the restriction of means has the potential to prevent suicides (Gunnell and Frankel, 1994; Hawton et al., 1998). Preventive effects

were demonstrated for changes in firearm legislation (Leenaars et al., 2003), reduced packet size of analgesics (Hawton et al., 2001), and building barriers on jumping sites (e.g. Beautrais, 2001; Reisch and Michel, 2005). In hanging, restriction of means often is of limited value (Bennewith et al., 2005; Gunnell and Lewis, 2005), except for persons in controlled environments like prisons or hospitals (Gunnell et al., 2005).

Leaping from heights in general is a method with high lethality (Rock et al., 2005). It is the fourth most frequent suicide method in Switzerland, representing 10.7% of all suicides (average 1990–2003, Swiss Federal Statistical Office; Reisch et al., 2006), which is about twice as high as in England and Wales (Gunnell and Nowers, 1997). In a global perspective, jumping

\* Corresponding author. Tel.: +41 79 593 83 79; fax: +41 31 930 96 04.  
E-mail address: [thomas.reisch@gef.be.ch](mailto:thomas.reisch@gef.be.ch) (T. Reisch).

seems to occur less frequently in Anglo-American countries than in German speaking countries or, for example, in Italy or Japan (Germany 10% [Wohner and Schmidtke, 2005], Austria 12% [Etzersdorfer et al., 2005], South Italy 23% [Pavia et al., 2005], USA 2%, Scotland 5%, Australia 4%, New Zealand 3%, Japan 10%, [Parkyn et al., 2004]).

The frequencies show marked regional differences, mostly due to the local accessibility of structures to jump from (Ross and Lester, 1991). Areas with high cases of suicide by jumping are, for example, Brussels, Belgium, (Moens et al., 1988), New York, USA (Fischer et al., 1993), Singapore (Peng and Choo, 1992), or Bern, Switzerland (Reisch and Michel, 2005). Moreover, persons who kill themselves by jumping tend to use sites close to their place of residence (Wohner and Schmidtke, 2005). Accordingly, Ross and Lester (1991) found that most individuals who jumped from Niagara Falls lived within a 10-mile perimeter.

Next to availability, the symbolism of a site may play a role in the choice of jumping sites (Daigle, 2005). About 50 percent of individuals who jumped off Golden Gate Bridge, San Francisco, USA, had crossed the equally high Oakland Bay Bridge before they jumped from the Golden Gate Bridge (Seiden and Spence, 1983). Most of the published data on suicide by jumping relate to symbolic or popular bridges and buildings (Eiffel Tower, France; Empire State Building, USA); followed by natural heights (e.g. Beachy Head Cliff, England; Surtees, 1982). A third important factor is media reporting on suicide (e.g. Stack, 2003), which may result in immediate copycat suicides as well as in a long-term attraction of a jumping site.

Whether a structure becomes a highly frequented suicide hotspot may depend on the structure itself (e.g. its height [Reisch et al. 2006]), on factors directly related to the suicide victim (e.g., age, diagnosis), or the social context (e.g., media reporting, peer group).

Bridges are common jumping sites. In Queensland, Australia, 34% of all suicides by jumping were from bridges (Parkyn et al., 2004). Bridges are a focus of research because they allow preventive measures (Cantor et al., 1989; Lester, 1993; O'Carroll and Silverman, 1994; Beautrais, 2001).

This article focusses on diagnostic and demographic criteria regarding suicide victims who ended their lives by jumping. Little is known about the demographic characteristics of persons who jump. There is some evidence of a relationship between psychiatric diagnosis and the method used. Persons with overdoses often suffer from anxiety or affective disorder (Tournier et al., 2005). In jumping, some authors have demonstrated a

higher proportion of schizophrenia (Cantor et al., 1989; Nowers and Gunnell, 1996) [but see Gunnell and Nowers (1997) who found no evidence that people who jump differ from those who die from other methods]. Persons who jump also tend to be younger (Prasad and Lloyd, 1983; Hunt et al., 2006). There is no consistent gender difference: while some studies found more male victims (Cetin et al., 2001; Ung, 2003), other studies reported a female predominance (Perret et al., 2003).

When comparing bridge suicides with suicides from other high places, Parkyn et al. (2004) found that individuals jumping from bridges seem to be younger. In view of the scarce data on the characteristics of subjects with bridge suicides, a recent Swiss national survey was conducted (Reisch et al., 2006). These data provide a valuable source to determine social and diagnostic characteristics of persons who jump from bridges and to compare them with those who leap from other sites.

A better understanding of the characteristics of persons jumping from heights may help develop prevention measures that could not only save lives but also reduce costs. The secondary costs of cases of survivors of suicide by jumping are much higher than those associated with other suicide methods because of the severe polytraumatic nature of injuries (de Moore and Robertson, 1999). Furthermore, in contrast to the other most commonly used methods, jumping in general is a form of suicide that is carried out in a public space, often followed by the traumatisation of people witnessing the act, leading to additional direct costs (e.g. by the treatment of posttraumatic stress disorder).

The overall goal of the study was to better understand social and diagnostic characteristics of those who commit suicide by jumping in order to improve suicide prevention efforts, e.g. by taking into account the psychological profile of individuals jumping from bridges when designing barriers on bridges. A first goal was to compare diagnostic and demographic characteristics of subjects who committed suicide by jumping with those who used another suicide method. The second goal was to compare suicide victims who jumped from a bridge with those who jumped from other sites, with respect to diagnostic and demographic characteristics.

## 2. Methods

### 2.1. Subjects

To evaluate method-specific characteristics of suicide by jumping in Switzerland, we performed an epidemiological study including information from three different official datasets. The first source was the Swiss Federal

Table 1  
Suicide methods (study sample)

Method	N	%
Jumping (all)	1830	10.5
Jumping (bridge)	283	1.6
Jumping (other sites)	1547	8.8
Self-poisoning	5630	32.2
Shooting	3154	18.0
Hanging	4254	24.3
Other method	2614	15.0
Total	17482	100

Statistical Office (Bundesamt für Statistik, BFS). Data were available for 1990 to 2003. This dataset includes the numbers of all officially confirmed suicides, specified by time (year) and method used. The suicide method is listed according to ICD-9 (until 1994) and ICD-10 criteria (1995–2003). According to the ICD, “suicide by leaping from height” is not differentiated into subgroups. Data consisted of age, gender, place of residence (canton), and the psychiatric diagnosis as indicated on the death certificate.

To assess whether persons had jumped from a bridge, a second dataset was collected from local authorities. Permission to use the records was obtained from each authority and from the medical directors of the medical–legal institutes. Data from one of the 26 cantons (Ticino) could not be obtained because of legal obstacles. Authorities of three cantons (Berne, Lucerne, Valais) were further unable to present data for the period 1990 to 1995 due to changes of the registration system. The BFS dataset was reduced accordingly for these cantons. BFS data were synchronized with the data gathered from local authorities. This alignment allows relating subjects with bridge suicides in general to subjects with suicides from other heights. The data were subdivided into two groups (“bridge” and “non-bridge”), with “non-bridge” consisting of buildings and natural sites such as mountain cliffs. However, jumping from cliffs is a rare

method in Switzerland and can be neglected. Therefore, the term “non-bridge” mainly refers to suicides from high buildings (e.g., multi-storey buildings, towers). The collated datasets yielded a total of 1830 suicides by jumping, which were included in the second set of analyses.

Moreover, the distance between the place of death and the closest psychiatric hospital was determined for each case using road map software ([www.map24.ch](http://www.map24.ch)). Data related to subjects with bridge suicides were obtained from medical–legal institutes ( $n=279$ ). The records stated both the specific bridge and the psychiatric diagnosis.

## 2.2. Alignment of data on suicide by jumping with general suicide data

The BFS dataset consisted of 19,450 suicide datasets before data alignment with the second dataset. After eliminating data of years with no cantonal data of subjects with bridge suicides (see above), 17,482 suicides (89.9%) were included in the calculation, of which 1830 subjects had died by jumping. For details of the distribution of the main suicide methods for this dataset, see Table 1.

The data collected from other sources included 475 persons who jumped from a bridge. Due to the federal organisation of Switzerland, data relating to the jumping sites are registered according to cantonal regulations. Depending on these regulations, data had to be obtained from medical–legal institutes, cantonal medical officers, district medical officers, and/or police records. In these, the data of 109 persons could not be aligned with the BFS data due to the absence of details in the police records (e.g. no listing of the victim’s residence or age); 37 subjects were excluded because they were not resident in Switzerland and were therefore not listed in the BFS data.

Of the remaining 329 datasets, 283 subjects (86.0%) could be aligned. The reasons for the non-

Table 2  
Association of demographic and diagnostic characteristics of subjects with suicide by jumping ( $n=1830$ ), using other suicide methods as references

	Self-poisoning ( $n=5630$ )				Shooting ( $n=3154$ )				Hanging ( $n=4254$ )			
	$\chi^2$	<i>P</i>	OR	CI	$\chi^2$	<i>P</i>	OR	CI	$\chi^2$	<i>P</i>	OR	CI
Female	10.4	0.001	1.19	1.07–1.37	1065.6	<0.001	14.08	11.6–16.9	233.1	<0.001	2.46	2.18–2.76
Schizophrenia	83.9	<0.001	3.21	2.47–4.19	113.9	<0.001	6.60	4.44–9.81	41.01	<0.001	2.29	1.77–2.97
Affective disorder	50.16	<0.001	1.63	1.42–1.86	5.95	0.015	0.84	0.73–0.97	34.27	<0.001	0.66	0.58–0.76
Other psychiatric disorder	20.65	<0.001	0.59	0.47–0.741	0.06	0.80	0.97	0.74–1.28	12.99	<0.001	0.65	0.51–0.82
All psychiatric disorders	44.53	<0.001	1.48	1.32–1.66	2.10	0.147	1.09	0.97–1.24	24.51	<0.001	0.75	0.67–0.84

$\chi^2$ =Chi-square test (two-sided,  $df=1$ ); *P*=*P*-value; OR=odds ratio; CI=95% confidence interval.

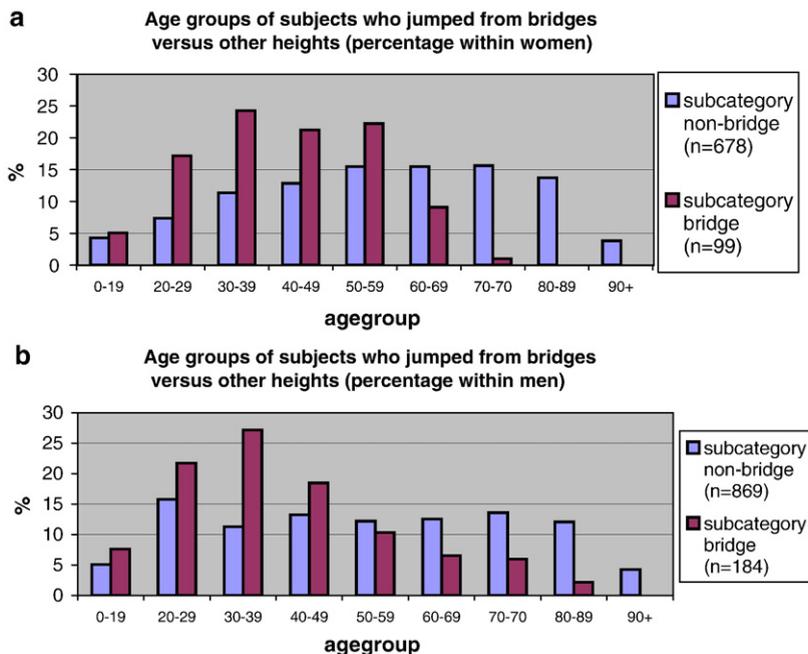


Fig. 1. Age groups (%) of women (panel a) and men (panel b) who jumped from bridges versus other heights.

alignment of 46 datasets were multiple. In general, data alignment is not possible if age, place of residence or place of death is incorrectly listed in any of the two sets. An unknown proportion of these datasets did not specify suicides as jumps from bridges, which can be expected to lead to an underestimation of the total number of jumps from bridges. Mean values of age and gender distribution of persons who jumped from a bridge did not vary significantly between aligned data and original data.

In summary, the aligned dataset finally consisted of 17,482 suicides with 283 bridge suicides and 1547 suicides by jumping from other sites.

### 2.3. Statistics

MANOVAs were applied to the reduced BFS dataset to look for differences in age between various suicide methods. Religion (Catholic or Protestant) differs between regions and may have an influence on suicide rates, as does high population density, which is related to urban regions and to the availability of high buildings for suicide. Religion and population density were therefore included as additional variables in the MANOVAs. Both variables were obtained from the official BFS data ([www.bfs.admin.ch](http://www.bfs.admin.ch)). Group differences were analyzed using post hoc Scheffé tests.

Table 3

Comparison of subjects who committed suicide by jumping from bridges close to psychiatric hospitals with those who jumped from bridges distant from psychiatric hospitals

	Jumps close to psychiatric hospitals (<7.5 km) (n=183)		Jumps distant from psychiatric hospitals (>7.5 km) (n=96)		Chi-square	df	P
	N	%	N	%			
Any psychiatric illness	102	55.7	41	42.7	4.28	1	0.039
Schizophrenia	23	12.6	7	7.3	3.07	1	0.080
Affective disorder	55	30.1	26	27.1	1.51	1	0.219
Other psychiatric disorder	24	13.1	8	8.3	2.64	1	0.105

Chi-square tests were to test for differences of gender, and diagnoses of schizophrenia, affective disorder and other psychiatric illness. The differences were additionally quantified by calculating odds ratios. Suicides by jumping were compared with all other methods as well as with the three main methods (overdosing, hanging, shooting), using post hoc Scheffé tests.

In a next step we tested for differences in age between bridge and non-bridge jumpers, and compared the subpopulation of bridge jumpers with those who used other methods. Again, MANOVAs were applied including the variables mentioned above and post hoc Scheffé tests were carried out correspondingly. Chi<sup>2</sup>-tests were employed for differences in “gender”, “psychotic illness”, “affective disorder”, and other “psychiatric disorder”. Differences of the nominal data were also quantified by odds ratios.

To determine whether persons jumping from bridges close to psychiatric hospitals differed from others, all jumps were dichotomized by the mean jumping distance, resulting in a group of subjects with bridge suicides close to psychiatric hospitals (<7.5 km) and a group of subjects with bridge suicides distant from psychiatric hospitals (>7.5 km). Chi-square tests were used to test for differences in the frequencies of psychiatric illness. Corresponding odds ratios were calculated.

All analyses were calculated using SPSS 11.5.

### 3. Results

#### 3.1. Suicides by jumping from heights versus other methods

Persons who jumped differed in age from those who used other methods ( $F=40.3$ ;  $df=12$ ,  $P$ -value<0.001; MANOVA, two-tailed). Jumpers were younger than those who died by shooting (Mean difference: 4.4 years; post hoc Scheffé:  $P$ -value<0.001; CI (95%): 2.6–6.2 years) and hanging (Mean difference 1.8 years; post hoc Scheffé:  $P$ -value<0.001 CI (95%): 2.6–6.2 years). It should be noted, however, that these differences, although statistically significant, are numerically small. No statistically significant difference was found for self-poisoning.

Subjects who jumped were more likely to be female than those who committed suicide by self-poisoning, shooting, or hanging (percentages of females in jumping: 42.5%; self-poisoning: 39.3%, shooting: 5.0%, hanging: 23.3%). Subjects who jumped were two to six times more likely to suffer from schizophrenia. Less consistent differences with smaller odds ratios were found for affective and other psychiatric disorders. See Table 2.

#### 3.2. Jumping from bridges versus other methods

Bridge jumpers were younger than those who applied other methods ( $F=45.32$ ;  $df=15$ ,  $P$ -value<0.001; MANOVA, two-tailed); self-poisoning: mean difference 12.8 years; post hoc Scheffé:  $P$ -value<0.001; CI (95%): 6.4–14.6 years; shooting: mean difference 7.7 years; post hoc Scheffé:  $P$ -value<0.001; CI (95%): 3.7–11.8 years; hanging: mean difference 10.3 years;  $P$ -value<0.001; CI (95%): 6.3–14.3 years; other methods: mean difference 10.5 years; post hoc Scheffé:  $P$ -value<0.001; CI (95%): 6.4–14.6 years).

#### 3.3. Jumping from bridges versus jumping from other structures

Subjects jumping from bridges were on average 14.3 years younger than subjects who jumped from other structures (post hoc Scheffé:  $P$ -value<0.001; CI (95%): 10.1–18.6 years). They were more often male (64.6% vs. 56.2%; Chi<sup>2</sup>=6.81;  $P$ -value<0.01;  $df=1$  OR: 1.43; CI (95%): 1.09–1.86). No significant differences between the two groups were found with respect to psychiatric illness (schizophrenia: Chi<sup>2</sup>=0.27;  $df=1$ ;  $P$ -value=0.61; OR: 0.87; CI (95%): 0.50–1.49; affective disorder: Chi<sup>2</sup>=0.19;  $df=1$ ;  $P$ -value=0.66; OR: 1.07; CI (95%): 0.79–1.46; other psychiatric disorder: Chi<sup>2</sup>=0.33;  $df=1$ ; OR: 1.18; CI (95%): 0.68–2.05; all psychiatric disorders: (Chi<sup>2</sup>=0.22;  $df=1$ ; OR: 1.07; CI (95%): 0.82–1.40) (Fig. 1).

#### 3.4. Suicides from bridges and distance to psychiatric hospitals

Persons jumping from bridges close to psychiatric hospitals (<7.5 km) more often had a diagnosis of psychiatric illnesses than those subjects who jumped distant from psychiatric hospitals. This result was most prominent, although statistically not significant, for schizophrenia. See Table 3.

### 4. Discussion

#### 4.1. Age and gender

Persons who jumped from bridges were on average 14.3 years younger than those who jumped from other sites. This result is consistent with Cetin et al. (2001), who found those who jumped off the Bosphorus Bridge (Istanbul, Turkey) to be significantly younger than other reported cases of suicide. Compared with suicides from other heights, bridge suicides in

Switzerland were more often committed by men. These results suggest that suicide by jumping from a bridge may be the choice of a population which differs from people jumping from other sites in certain demographic characteristics. Details of the characteristics of this population may be valuable for planning preventive measures. The physical fitness of young men, for example, suggests that physical barriers have to be constructed so that potential suicide sites cannot be climbed. Crisis line signs may be designed to specifically reach the younger population. A further aspect is that bridges become suicide hotspots through repeated and sensational media reporting. Although Stack (2000) did not find a differential age effect, the young may be particularly susceptible to the copycat effect (Phillips and Carstensen, 1986).

The ICD-10 classification differentiates between various suicide methods, but not between jumping from bridges or other high places. In our opinion, it may therefore be useful to introduce subcategories for ICD-10, X80. Such subcategories would allow further differentiation of the bridge jumpers and, above all, would allow monitoring the effects of restricting access to bridges or buildings.

#### *4.2. Jumping from bridges and diagnosis of schizophrenia*

The data of the Swiss national survey indicate that persons who jumped from heights in general were two to six times more often suffering from schizophrenia compared with those who used other methods. Similar findings have been reported by Cantor and Hill (1990) and de Moore and Robertson (1999). It remains unclear why patients suffering from schizophrenia more often commit suicide by jumping. One explanation may be that schizophrenic patients are more often hospitalized and use suicide methods they have easy access to (Gunnell and Lewis, 2005), having few other possibilities while being inpatients. Another hypothesis is that specific symptomatology (e.g. hallucinations of commenting or commanding voices [Cantor et al., 1989]) pressing individuals to jump contributes to a relevant number of cases. This finding, however, was not replicated in other studies (e.g. Stephens et al. 1999).

#### *4.3. Schizophrenia and distance of jumping sites to psychiatric hospitals*

Bridges close to psychiatric hospitals were more often used by individuals with psychiatric diagnoses.

This suggests that the presence of a psychiatric hospital may have an influence on the population of those who jump from bridges. This finding is in line with Beautrais (2001), who found different populations jumping from bridges close to psychiatric hospitals compared with other, more distant bridges. Our results support the notion that besides personal characteristics there are also specific local factors influencing suicide by jumping.

#### *4.4. Conclusion and limitations of the study*

Suicide by jumping in general appears to be more often chosen by subjects suffering from schizophrenia. Among those who jump, young subjects, in particular, choose bridges to end their lives. This finding may be important for developing preventive measures. For instance, bridges must have high railings that render places to jump from impossible for young male persons to climb. Signs for help and crisis lines must be designed to reach the young population. Media reporting on suicides from bridges must take into account that young people may be particularly susceptible to a copycat effect. Suicides are officially listed according to ICD categories. Differentiating suicides by jumping into subcategories (e.g. jump from bridges, jump from buildings, jump from other sites) would in future facilitate the gathering of data on specific groups. One obvious use of a more specific categorization would be the monitoring of the effect of suicide-prevention measures (e.g. barriers) on suicide rates.

Our study has several limitations. We were unable to collect data from one of the 26 Swiss cantons due to legal obstacles. The data on bridge suicides were gathered from different local authorities and differed in terms of completeness. The number of suicides from bridges may therefore be minimally underestimated. We were not able to determine whether a person was hospitalized at the time of suicide. Our findings have to be seen in the cultural context of Switzerland, and it is unclear to what extent the conclusions can be transferred to culturally different regions. The diagnosis of psychiatric illness was based on the death certificate; therefore the frequency of psychiatric illness was most probably underestimated. However, it can be assumed that this factor is randomly distributed and did not affect the relative distribution of schizophrenia or other psychiatric disorders in the two groups. It is therefore unlikely to have a relevant influence on the calculated odds ratios, and if at all, it would reduce the statistical power of the analyses.

## Acknowledgements

We thank Claudia Jenni for her contribution to data collection, We also thank the Swiss Federal Roads Office (Mr. P. Matt and Mr. M. Donzel, Bundesamt für Strassenverkehr, ASTRA) for the financial support of the national survey (grant No. AGB2003/013) and their helpful comments, Mr. E. Wueest (BFS), the Swiss local Police authorities, and all Swiss medical–legal institutes for their generous help in data collection.

## References

- Beautrais, A.L., 2001. Effectiveness of barriers at suicide jumping sites: a case study. *Australian and New Zealand Journal of Psychiatry* 35, 557–562.
- Bennewith, O., Gunnell, D., Kapur, N., Turnbull, P., Simkin, S., Sutton, L., Hawton, K., 2005. Suicide by hanging: multicentre study based on coroners' records in England. *British Journal of Psychiatry* 186, 260–261.
- Cantor, C.H., Hill, M.A., McLachlan, E.K., 1989. Suicide and related behaviour from river bridges. A clinical perspective. *British Journal of Psychiatry* 155, 829–835.
- Cantor, C.H., Hill, M.A., 1990. Suicide from river bridges. *Australian and New Zealand Journal of Psychiatry* 24, 377–380.
- Cetin, G., Gunay, Y., Fincanci, S.K., Ozdemir Kulusayin, R., 2001. Suicides by jumping from Bosphorus Bridge in Istanbul. *Forensic Science International* 116, 157–162.
- Daigle, M.S., 2005. Suicide prevention through means restriction: assessing the risk of substitution. A critical review and synthesis. *Accident Analysis and Prevention* 37, 625–632.
- de Moore, G.M., Robertson, A.R., 1999. Suicide attempts by firearms and by leaping from heights: a comparative study of survivors. *American Journal of Psychiatry* 156, 1425–1431.
- Etzersdorfer, E., Voracek, M., Kapusta, N., Sonneck, G., 2005. Epidemiology of suicide in Austria 1990–2000: general decrease, but increased suicide risk for old men. *Wiener Klinische Wochenschrift* 117, 31–35.
- Fischer, E.P., Comstock, G.W., Monk, M.A., Sencer, D.J., 1993. Characteristics of completed suicides: implications of differences among methods. *Suicide & Life-threatening Behavior* 17, 91–100.
- Gunnell, D., Frankel, S., 1994. Prevention of suicide: aspirations and evidence. *British Medical Journal* 308, 1227–1233.
- Gunnell, D., Nowers, M., 1997. Suicide by jumping. *Acta Psychiatrica Scandinavica* 96, 1–6.
- Gunnell, D., Bennewith, O., Hawton, K., Simkin, S., Kapur, N., 2005. The epidemiology and prevention of suicide by hanging: a systematic review. *International Journal of Epidemiology* 34, 433–442.
- Gunnell, D., Lewis, G., 2005. Studying suicide from the life course perspective: implications for prevention. *British Journal of Psychiatry* 187, 206–208.
- Hawton, K., Arensman, E., Wasserman, D., Hulten, A., Bille-Brahe, U., Bjerke, T., Crepet, P., Deisenhammer, E., Kerkhof, A., De Leo, D., Michel, K., Ostamo, A., Philippe, A., Querejeta, I., Salander-Renberg, E., Schmidtke, A., Temesvary, B., 1998. Relation between attempted suicide and suicide rates among young people in Europe. *Journal of Epidemiology and Community Health* 52, 191–194.
- Hawton, K., Townsend, E., Deeks, J., Appleby, L., Gunnell, D., Bennewith, O., Cooper, J., 2001. Effects of legislation restricting pack sizes of paracetamol and salicylate on self poisoning in the United Kingdom: before and after study. *British Medical Journal* 322, 1203–1207.
- Hunt, I.M., Kapur, N., Robinson, J., Shaw, J., Flynn, S., Bailey, H., Meehan, J., Bickley, H., Burns, J., Appleby, L., Parsons, R., 2006. Suicide within 12 months of mental health service contact in different age and diagnostic groups: national clinical survey. *British Journal of Psychiatry* 188, 135–142.
- Leenaars, A.A., Moksony, F., Lester, D., Wenckstern, S., 2003. The impact of gun control (Bill C-51) on suicide in Canada. *Death Studies* 27, 103–124.
- Lester, D., 1993. Suicide from bridges in Washington, DC. *Perceptual and Motor Skills* 77, 534.
- Levi, F., La Vecchia, C., Lucchini, F., Negri, E., Saxena, S., Maulik, P.K., Saraceno, B., 2003. Trends in mortality from suicide, 1965–99. *Acta Psychiatrica Scandinavica* 108, 341–349.
- Moens, G.F., Loysch, M.J., van de Voorde, H., 1988. The geographical pattern of methods of suicide in Belgium: implications for prevention. *Acta Psychiatrica Scandinavica* 77, 320–327.
- Nowers, M., Gunnell, D., 1996. Suicide from the Clifton Suspension Bridge in England. *Journal of Epidemiology and Community Health* 50, 30–32.
- O'Carroll, P.W., Silverman, M.M., 1994. Community suicide prevention: the effectiveness of bridge barriers. *Suicide & Life-threatening Behavior* 24, 89–91.
- Parkyn, M., Kiemo, K., Heller, T., De Leo, D., 2004. Suicide from the Story Bridge: Characteristics and potential for prevention. Griffith University, Brisbane.
- Pavia, M., Nicotera, G., Scaramuzza, G., Angelillo, I.F., 2005. Suicide mortality in Southern Italy: 1998–2002. *Psychiatry Research* 134, 275–279.
- Peng, K.L., Choo, A.S., 1992. Suicide in Singapore, 1986. *Australian and New Zealand Journal of Psychiatry* 26, 599–608.
- Perret, G., Flomenbaum, M., La Harpe, R., 2003. Suicides by fall from height in Geneva, Switzerland, from 1991 to 2000. *Journal of Forensic Science* 48, 821–826.
- Phillips, D., Carstensen, L.L., 1986. Clustering of teenage suicides after television news stories about suicide. *New England Journal of Medicine* 315, 685–689.
- Prasad, A., Lloyd, G.G., 1983. Attempted suicide by jumping. *Journal of Epidemiology and Community Health* 68, 394–396.
- Reisch, T., Michel, K., 2005. Securing a suicide hot spot: effects of a safety net at the Bern Muenster Terrace. *Suicide & Life-threatening Behavior* 35, 460–467.
- Reisch, T., Schuster, U., Michel, K., 2006. Suizidprävention bei Brücken: Grundlagen. VSS, Zürich.
- Rock, D.J., Greenberg, D.M., Hallmayer, J.F., 2005. Impact of case fatality on the seasonality of suicidal behaviour. *Psychiatry Research* 137, 21–27.
- Roness, A., Mykletun, A., Dahl, A.A., 2005. Help-seeking behaviour in patients with anxiety disorder and depression. *Acta Psychiatrica Scandinavica* 111, 51–58.
- Ross, T.E., Lester, D., 1991. Suicides at Niagara Falls. *American Journal of Public Health* 81, 1677–1678.
- Seiden, R.H., Spence, M., 1983. A tale of two bridges: comparative suicide incidence on the Golden Gate and San Francisco Oakland bay bridge. *Omega* 14, 201–209.
- Stack, S., 2000. Media impacts on suicide: a quantitative review of 293 findings. *Social Science Quarterly* 81, 957–971.
- Stack, S., 2003. Media coverage as a risk factor in suicide. *Journal of Epidemiology and Community Health* 57, 238–240.

- Stephens, J.H., Richard, P., McHugh, P.R., 1999. Suicide in patients hospitalized for schizophrenia: 1913–1940. *The Journal of Nervous and Mental Disease* 187, 10–14.
- Surtees, S.J., 1982. Suicide and accidental death at Beachy Head. *British Medical Journal (Clinical Research ed.)* 284, 321–324.
- Tournier, M., Molimard, M., Cougnard, A., Abouelfath, A., Fourrier, A., Verdoux, H., 2005. Psychiatric disorders and their comorbidity in subjects with parasuicide by intentional drug overdose: prevalence and gender differences. *Psychiatry Research* 136, 93–100.
- Ung, E.K., 2003. Youth suicide and parasuicide in Singapore. *Annals of the Academy of Medicine, Singapore* 32, 12–18.
- Wohner, J., Schmidtke, A., 2005. Ist die Verhinderung von Hotspots suizidpräventiv? *Suizidprophylaxe* 32, 114–119.