



# Suicide in medical doctors and nurses: An analysis of the Queensland Suicide Register

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## Background and Objectives

Several studies have indicated to an elevated risk of suicide for medical occupations such as physicians, dentists, veterinarians, and nurses compared to the general population (Platt et al. 2010; Schernhammer and Colditz, 2004;) and to other academic occupations such as education professionals (Agerbo et al., 2007; Hawton et al., 2011). A meta-analysis showed that male physicians had a 1.41-times and female physicians a 2.27-times higher risk of suicide compared to the general population (Schernhammer and Colditz, 2004). However, findings are not consistent. Some studies have found that suicide rates in doctors were elevated only in females, but not in males (Petersen and Burnett, 2008). Furthermore, in contrast to studies from Europe and the US, a recent study from Taiwan showed a significantly lower risk of suicide in doctors compared to the general population (Shang et al., 2011).

The present study aims to: (1) estimate the prevalence of the risk of suicide among the medical doctors and nursing professionals compared to the general population and to the education professions in Queensland (Qld) in Australia; and (2) describe the characteristics of suicides in the medical doctors and nursing professionals.

## Methodology

The Queensland Suicide Register (QSR) a comprehensive suicide database maintained by the Australian Institute for Suicide Research and Prevention (AISRAP) was applied. The QSR combines information from police records (relying mainly on interviews with the deceased's next-of-kin), as well as toxicology and post-mortem reports. Following the Suicide Classification Flow Chart, developed by AISRAP, all suicide cases in the QSR are classified into one of three categories: Beyond Reasonable Doubt, Probable, or Possible. For the present analyses, only those cases falling into the categories of either Beyond Reasonable Doubt or Probable are included. The QSR provides information on a wide range of the demographic, psychosocial, psychiatric, medical, contextual, and behavioural aspects of suicide death cases. For the present study, suicide cases aged 25-64 years were divided into the following four categories: medical doctors, nursing professionals, education professionals, and 'all other' suicides. Similarly to the other studies education professionals were used as a reference/comparison category in the analyses (Hawton et al., 2011). The categorisation was based on the Australian Standard Classification of Occupations (ASCO), 2<sup>nd</sup> Edition (Australian Bureau of Statistics, 1997).

Population data for people aged 25-64 years categorised by gender for Queensland were obtained from the ABS from the 1996, 2001, and 2006 Censuses of Population and Housing. Mean population numbers based on three Censuses were calculated.

Crude suicide rates were calculated by gender for medical doctors, nursing professionals, education professionals, and the general population aged 25-64 years in Qld for the period of 1990-2007. Rate ratios (RRs) with 95% confidence intervals (CIs) were applied in order to compare suicide rates for medical doctors and nursing professionals with those for education professionals and the total population. In order to compare different factors in different categories, a Chi-square test was used. A probability level of 0.05 was applied for all statistical tests and SPSS 19.0 was employed for all data analyses.

## Results

In 1990-2007, 6,564 suicides by people aged 25-64 years were identified in the QSR (classified as 'Beyond Reasonable Doubt' and 'Probable'). There were 5,151 male (78.5%) and 1,413 female suicides (21.5%). A total of 27 suicides by medical doctors, 59 by nursing professionals and 85 by teaching professionals were recorded. Most doctors were employed at the time of suicide (88.9%), 2 were unemployed (7.4%), and 1 was disabled (3.7%). Among nurses and education professionals, 76.3% and 88.2% respectively were employed at the time of death. In 'other suicides', 39.3% were employed at the time of death; however, in 15.2% of cases the employment category was unknown. There were no significant differences between the four categories by marital status.

## References

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## Suicide rates

In the age group 25-64 years, male medical doctors had slightly higher risk of suicide compared to male education professionals, and slightly lower rate than the general population; however, both values were not significant (Table 1). Conversely, suicide rate in male nurses was significantly higher than in education professionals and slightly higher than in males of the general population. Female medical doctors had significantly higher suicide rates than education professionals. Compared to the general population, female doctors had higher rates. Female nurses had a significantly higher suicide rate than female education professionals, but almost the same as for the general female population aged 25-64 years.

**Table 1.** Suicide rates and rate ratios of medical, nursing and educational professionals and in total population in age group 25-64 years in 1990-2007

Male	SI*	SR**	RR^	95% CI	RR#	95% CI
Medical doctors <sup>+</sup>	20	21.09	1.23	0.72-2.10	0.69	0.43-1.09
Nursing professionals	18	39.38	<b>2.30</b>	<b>1.31-4.00</b>	1.29	0.79-2.08
Education professionals	58	17.13	1		<b>0.56</b>	<b>0.43-0.73</b>
Total population	5151	30.58			1	
Female						
Medical doctors <sup>+</sup>	7	14.38	<b>3.88</b>	<b>1.54-9.34</b>	1.74	0.76-3.78
Nursing professionals	41	8.28	<b>2.24</b>	<b>1.34-3.74</b>	1.01	0.73-1.38
Education professionals	27	3.70	1		<b>0.45</b>	<b>0.30-0.67</b>
Total population	1413	8.25			1	

Medical doctors is inclusive of general and specialist medical practitioners (ASCO 2<sup>nd</sup> ver)

\* Suicide incidence during 1990-2007

\*\* Suicide rate mean per period of 1990-2007

^ professionals as a reference category

# total population as a reference category

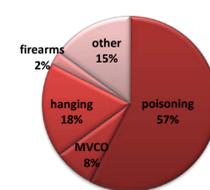
**Bolded** results indicate significance level of 0.05

## Suicide methods

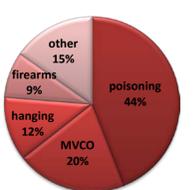
There were significant differences in suicide methods between the four groups. ( $p < 0.001$ ; see Figure 1 for details).

Poisoning was used significantly more often by medical doctors and nurses. Hanging, the most frequent method in 'other suicides'. However, motor vehicle exhaust gas (MVCO) was the preferred method by education professionals.

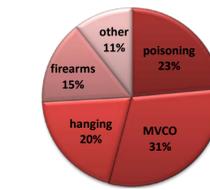
Medical doctors' suicides



Nurses' suicides



Teaching professionals' suicides



Other suicides



**Figure 1.** Suicide methods in medical, nursing, educational professionals' and other suicides aged 25-64 year

## Factors related to suicide

Comparisons between the four suicide groups showed no differences in the prevalence of somatic disorders at the time of death: 29.6% of medical doctor suicides had some form of somatic condition; the figure was 30.5% for nurses, 25.9% for education professionals, and 26.9% for other suicides ( $\chi^2(3)=0.5$   $p=0.911$ ). Psychiatric disorders were more prevalent in suicides of medical doctors (59.3%) and nurses (55.9%) than in education professionals (44.7%) and others (40.1%) ( $\chi^2(3)=10.8$   $p=0.013$ ). Unipolar depression was the most frequent psychiatric disorder for all groups. However, it was more common in medical doctors (48.1%) than in nurses (35.6%), education professionals (32.9%), and others (26.2%) ( $\chi^2(3)=11.17$   $p=0.011$ ). Furthermore, medical doctors (59.3%) and nurses (61%) were or had been more frequently in psychiatric treatment compared to education professionals (45.9%) and others (41.1%) ( $\chi^2(3)=13.92$   $p=0.003$ ).

The most frequent life events were relationship problems in all categories, with 'other suicides' recording the highest prevalence (30.7%), followed by education professionals (28.2%), nurses (25.4%) and medical doctors (18.5%) ( $\chi^2(3)=2.82$   $p=0.420$ ). There were significant differences in work-related problems; these being most prevalent for medical doctors (18.5%) followed by education professionals (16.5%), and much lower for nurses (6.8%) and others (4.8%) ( $\chi^2(3)=34.28$   $p < 0.001$ ).

## Conclusions

In Queensland Australia, medical doctors and nurses have similar or lower rates of suicide than the general population. However, their rates are higher than those of education professionals, particularly for females. Poisoning was used significantly more often by medical professionals and nurses than by education professionals and other suicide cases. Unipolar depression was more common in suicides of medical professional than in other groups. Medical doctors and nurses got treatment for psychiatric disorders more than education professionals and others. Work-related problems were most prevalent in suicides by medical doctors.