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Original Research

Potential years of life lost due to suicide in China, 2006–2010

L. Sun ^a, J. Zhang ^{b,*}^a Center for Suicide Prevention Research, School of Public Health, Shandong University, Jinan, Shandong, China^b Department of Sociology, State University of New York Buffalo State, Buffalo, NY, USA

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ABSTRACT

Objectives: To calculate the potential years of life lost (PYLL) due to suicide in China, and analyse the distribution of PYLL by age, sex and region.

Study design: The recent Chinese national mortality data (2006–2010) published by the Chinese Ministry of Health and the census data provided by the Chinese National Population Census were used to calculate PYLL due to suicide.

Methods: Age-, sex- and region-specific PYLL due to suicide in China were determined for victims aged between 1 and 74 years.

Results: Suicide was found to be the 10th leading cause of death in terms of PYLL, and accounted for 3.06% of all PYLL in China. There were three age peaks for PYLL due to suicide in rural areas (20–24, 35–44 and 50–59 years), and two peaks for PYLL due to suicide in urban areas (20–24 and 35–44 years). PYLL due to suicide in rural areas was approximately two-fold higher than PYLL due to suicide in urban areas.

Conclusions: Suicide is a major public health problem in China. This needs to be controlled, especially in rural areas.

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Introduction

Suicide is a well-recognized global public health problem.¹ The worldwide suicide rate estimated by the World Health Organization is approximately 11.4 per 100,000 persons,² and suicide is among the top three leading causes of death in those aged 15–44 years.³ China has a high suicide rate and accounts for approximately 22% of global suicides.⁴

Although the suicide rate in China has been reported in many studies,^{5,6} the social cost of suicide is rarely reported. Potential years of life lost (PYLL), which considers deaths at a

younger age, is often used to assess the social cost of disease.^{7–9} This provides a simple method to identify important causes of death in need of intervention.

Various studies have estimated PYLL due to suicide in previous years. A study in South India showed that unintentional injuries and suicides resulted in 26.9% of total years of life lost (YLL) from 1998 to 2004.¹⁰ In Australia, a study found that PYLL due to suicide accounted for 4.57% of all PYLL in males and 2.44% of all PYLL in females between 1907 and 2005.¹¹ Another study in UK showed that PYLL increased by 5% between 1981 and 1998, although the suicide rate decreased.¹²

* Corresponding author. Department of Sociology, State University of New York Buffalo State, 1300 Elmwood Avenue, Buffalo, NY 14222, USA. Tel.: +1 716 878 6425; fax: +1 716 878 4009.

E-mail address: zhangj@buffalostate.edu (J. Zhang).

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Table 1 – Chinese population by age, sex and region in 2010.

Age (years)	Urban males	Urban females	Rural males	Rural females
1–4	7,267,961	6,266,524	26,333,406	21,878,285
5–9	8,566,754	7,336,464	29,897,911	25,080,420
10–14	9,176,874	7,944,462	31,090,403	26,696,723
15–19	15,528,057	14,822,121	36,376,773	33,162,163
20–24	24,173,937	23,373,573	39,834,636	40,030,372
25–29	19,171,630	18,779,105	31,665,408	31,397,709
30–34	18,144,631	17,431,796	31,377,191	30,184,585
35–39	20,481,483	19,264,719	39,909,621	38,370,136
40–44	19,572,475	18,233,005	44,036,203	42,912,281
45–49	16,885,728	15,527,230	36,890,690	36,290,905
50–54	12,450,143	11,803,303	27,913,091	26,586,634
55–59	11,166,299	11,252,131	29,916,639	28,977,405
60–64	7,594,880	7,703,307	22,239,546	21,129,549
65–69	5,062,300	5,356,341	15,686,171	15,008,470
70–74	4,279,061	4,597,774	12,124,392	11,971,170
All	206,470,117	197,289,923	475,858,987	453,191,842

In China, studies have explored PYLL due to suicide. A study in Taiwan showed that suicide became the third leading cause of death in Taiwan in 2007, and PYLL due to suicide was highest in men aged 25–59 years.¹³ A study conducted in

Guangzhou city showed that PYLL due to injuries and poisoning accounted for approximately 22% of all PYLL.¹⁴ YLL due to suicide was also estimated between 1990 and 2000, and the results showed that rural women aged 25–39 years contributed the greatest share of YLL.¹⁵

In recent years, the suicide rate has decreased significantly in China, and various suicide rates characteristics which were different from Western countries have disappeared.¹⁶ As such, although previous studies have estimated PYLL in China, an update is needed.

This study aimed to calculate PYLL due to suicide in China, and discuss the distribution by age, sex and region. It is hoped that this study will improve understanding of the severity of suicide in China.

Methods

Data

A full national injury and death surveillance system does not exist in China. As such, official death records in the 2007–2011 Chinese Health Yearbooks, published by the Chinese Ministry

Table 2 – Top 15 causes of death in terms of potential years of life lost (PYLL) (per 100,000 persons), averaged for 2006–2010.

Rank	Cause of death	PYLL	Proportion of all PYLL (%)
Rural males			
1	Cerebrovascular disease	951.75	12.28
2	Liver cancer	773.19	9.97
3	Motor vehicle road-traffic accident	588.12	7.59
4	Lung cancer	491.12	6.34
5	Gastric cancer	347.30	4.48
6	Acute myocardial infarction	336.33	4.34
7	Transport accident	335.49	4.33
8	Chronic lower respiratory diseases	324.16	4.18
9	Drowning	303.71	3.92
10	Oesophageal cancer	298.05	3.84
11	Liver disease	199.53	2.57
12	Suicide	193.98	2.50
13	Unintentional falls	185.68	2.40
14	Other accident	130.48	1.68
15	Leukaemia	123.33	1.59
	Total PYLL	7751.56	100
Rural females			
1	Cerebrovascular disease	566.35	13.84
2	Liver cancer	209.97	5.13
3	Chronic lower respiratory diseases	204.13	4.99
4	Lung cancer	197.14	4.82
5	Motor vehicle road-traffic accident	195.57	4.78
6	Suicide	186.83	4.57
7	Acute myocardial infarction	164.63	4.02
8	Gastric cancer	155.76	3.81
9	Drowning	131.59	3.22
10	Breast cancer	120.97	2.96
11	Transport accident	111.37	2.72
12	Oesophageal cancer	104.56	2.55
13	Leukaemia	90.63	2.21
14	Diabetes	86.91	2.12
15	Colorectal and anal cancer	72.58	1.77
	Total PYLL	4092.60	100

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