

Association between marital status and death by suicide: Age and sex stratified analyses

Chung-Yi Li¹, Wen-Hsuan Hou², Chu-Chieh Chen³, Wen-Jiuan Yen⁴

¹ Department of Public Health, College of Medicine, National Cheng Kung University, Tainan, Taiwan (No. 1 University Road, Tainan, 70101 Taiwan / cyli99@mail.ncku.edu.tw / +886-6-2353535 ext. 5862)

² Master Program in Long-Term Care, College of Nursing, Taipei Medical University, Taipei, Taiwan

³ Department of Health Care Management, National Taipei College of Nursing, Taipei, Taiwan

⁴ Department of Nursing, Chung Shan Medical University

Introduction: Marriage assists an individual in coping with stress because it provides insurance against adverse life events. With increased number in single individuals, societal values toward family and marriage have changed over time. Understanding the suicide risk associated with non-marriage is crucial in promoting the mental health of single persons.

Objectives: To examine the sex-age-specific effect of marital status on the risk of death by suicide.

Methods: This was a case-control design nested within all deceased individuals age ≥ 20 years and registered in Taiwan's Death Registry (TDR) in the period 2007–2013. Cases were victims of suicide (n=17,778), and controls were randomly selected with a case/control ratio of 1:10 from all individuals who died from non-suicide causes. Multiple logistic regression models, with adjustment for age, sex, and region/urbanization of residential areas, was used to assess the effects of marital status on the risk of suicidal death.

	Cause of Death			
	Suicide (n = 17,778)		Non suicide (n = 177,780)	
	n	%	n	%
Age group				
15–34-year-old	435	2.45%	9,050	5.09%
35–54-year-old	6580	37.01%	27,975	15.74%
55–64-year-old	2408	13.54%	23,688	13.32%
≥65-year-old	4431	24.92%	117,067	65.85%
Mean (SD)	49.49 (±18.17)		67.62 (±16.84)	
Gender				
Male	12,003	67.52%	110,066	61.91%
Female	5775	32.48%	67,714	38.09%
Marital status				
Married	8,820	49.61%	105,469	59.33%
Unmarried	4974	27.98%	19,608	11.03%
Divorced	2014	11.33%	5552	3.12%
Widowed	1970	11.08%	4715	2.65%
Region of residence				
North	6812	38.32%	65,500	36.84%
Central Taiwan	4651	26.16%	47,928	26.96%
South	5668	31.88%	56,931	32.02%
East	647	3.64%	7421	4.17%
Urbanization level				
Metropolis area	5386	30.30%	49,737	27.98%
Satellite town	5399	30.37%	51,731	29.10%
Rural area	6993	39.34%	76,312	42.92%

	Simple logistic regression			Multiple logistic regression		
	β	SE	Odds ratio (95%CI)	β	SE	Odds ratio (95%CI)
Age group (reference group: ≥65-year-old)						
15–34-year-old	2.55	0.02	12.79*** (12.20–13.41)	2.27	0.03	9.65*** (9.1–10.22)
35–54-year-old	1.84	0.02	6.31*** (6.06–6.57)	1.68	0.02	5.34*** (5.15–5.64)
55–64-year-old	1.00	0.03	2.72*** (2.59–2.87)	0.97	0.03	2.63*** (2.49–2.77)
Gender (reference group: female)						
Male	0.25	0.02	1.28*** (1.24–1.32)	-0.04	0.02	0.96 (0.93–1.00)
Region of residence (reference group: East)						
North	0.20	0.04	1.22*** (1.13–1.33)	0.25	0.05	1.28*** (1.16–1.41)
Central Taiwan	0.15	0.04	1.16*** (1.06–1.26)	0.25	0.05	1.28*** (1.17–1.40)
South	0.16	0.04	1.17*** (1.08–1.28)	0.23	0.05	1.26*** (1.15–1.38)
Urbanization level (reference group: rural area)						
Metropolis area	0.17	0.02	1.19*** (1.14–1.23)	0.11	0.02	1.12*** (1.07–1.17)
Satellite town	0.13	0.02	1.14*** (1.10–1.19)	0.00	0.02	1.00 (0.96–1.05)
Marital status (reference group: married)						
Unmarried	1.11	0.02	3.04*** (2.92–3.15)	0.38	0.02	1.46*** (1.40–1.54)
Divorced	1.48	0.03	4.39*** (4.16–4.65)	0.94	0.03	2.57*** (2.42–2.73)
Widowed	-0.71	0.03	0.49*** (0.47–0.51)	-0.05	0.03	0.95 (0.90–1.01)

* p < 0.05, ** p < 0.01, *** p < 0.001

	Male		Female	
	Odds ratio	Adjusted odds ratio	Odds ratio	Adjusted odds ratio
15–34-year-old (n = 9462)			15–34-year-old (n = 3857)	
Married	1.00	1.00	Married	1.00
Unmarried	1.13**	1.12**	Unmarried	1.11
Divorced	2.32***	2.32***	Divorce	2.83*
Widowed	1.15	1.19	Widowed	0.70**
35–54-year-old (n = 24,714)			35–54-year-old (n = 10,040)	
Married	1.00	1.00	Married	1.00
Unmarried	1.78***	1.81***	Unmarried	1.90***
Divorced	2.56**	2.57**	Divorce	2.97**
Widowed	1.44***	1.46***	Widowed	0.85
55–64-year-old (n = 17,104)			55–64-year-old (n = 8908)	
Married	1.00	1.00	Married	1.00
Unmarried	1.46***	1.47***	Unmarried	1.00
Divorced	2.68**	2.71**	Divorce	2.29***
Widowed	1.61***	1.61***	Widowed	1.05
≥65-year-old (n = 70,809)			≥65-year-old (n = 50,664)	
Married	1.00	1.00	Married	1.00
Unmarried	1.68***	1.68***	Unmarried	0.42**
Divorced	2.55***	2.53***	Divorce	1.27
Widowed	1.20**	1.21**	Widowed	0.77***

Adjusted for region of residence and township, * p < 0.05 ; ** p < 0.01 ; *** p < 0.001

Results: Compared to married persons, divorced (odds ratio (OR)=2.57, 95% CI=2.42–2.73) and unmarried (OR)=1.46, 95% CI=1.40–1.54) individuals were found to significantly associate with increased risks of suicidal death. Widowed shows no association with suicidal death (OR=0.95, 95% CI=0.90–1.01). The effect of divorce was most notable in 35–54-year women (OR=3.01), followed by 20–34-year women (OR=2.72), and 55–64-year men (OR=2.71). The corresponding figures for the effect of unmarried were 35–54-year-old women (OR=1.86), 35–54-year-old men (OR=1.81), and ≥65-year-old men (OR=1.68).

Conclusions: Divorced and unmarried individuals were at increased risk of death by suicide. Younger women and older men appear to be especially vulnerable to such adverse effect.