

Available online at www.sciencedirect.com

Public Health

journal homepage: www.elsevier.com/puhe

Original Research

Psychosocial job stressors and thoughts about suicide among males: a cross-sectional study from the first wave of the Ten to Men cohort

A. Milner ^{a,b,*}, D. Currier ^c, A.D. LaMontagne ^b, M.J. Spittal ^d, J. Pirkis ^d^a Centre for Health Equity, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia^b Work, Health and Wellbeing Unit, Population Health Research Centre, School of Health & Social Development, Deakin University, Melbourne, Australia^c Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia^d Centre for Mental Health, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia

ARTICLE INFO

Article history:

Received 10 November 2016

Received in revised form

31 January 2017

Accepted 1 February 2017

Available online 28 March 2017

Keywords:

Suicidal ideation

Suicide

Job stress

Working conditions

ABSTRACT

Objectives: Psychosocial job stressors are known to be associated with poor mental health. This research seeks to assess the relationship between psychosocial working conditions and suicidal ideation using a large dataset of Australian males.

Study design: Cross-sectional study.

Methods: Data from wave 1 of the Australian Longitudinal Study on Male Health (Ten to Men) was used to assess the association between suicidal ideation in the past two weeks and psychosocial working conditions using logistic regression. The sample included 11,052 working males. The exposures included self-reported low job control, high job demands, job insecurity and low fairness of pay. We controlled for relevant confounders.

Results: In multivariable analysis, persons who were exposed to low job control (odds ratio [OR] 1.15, 95% confidence interval [CI] 1.05–1.26, $P = 0.003$), job insecurity (OR 1.69, 95% CI 1.44–1.99, $P < 0.001$) and unfair pay (OR 1.19, 95% CI 1.11–1.27, $P < 0.001$) reported elevated odds of thoughts about suicide. Males employed casually or on fixed-term contracts reported higher odds of suicidal ideation (OR 1.32, 95% CI 1.09–1.61, $P = 0.005$).

Conclusion: Psychosocial job stressors are highly prevalent in the working population and workplace suicide prevention efforts should aim to address these as possible risk factors.

© 2017 The Royal Society for Public Health. Published by Elsevier Ltd. All rights reserved.

* Corresponding author. Centre for Health Equity, School of Population and Global Health, University of Melbourne, 207 Bouverie Street, Melbourne, 3010, Australia. Tel.: +61 03 9035 9875.

E-mail address: Allison.milner@unimelb.edu.au (A. Milner).

<http://dx.doi.org/10.1016/j.puhe.2017.02.003>

0033-3506/© 2017 The Royal Society for Public Health. Published by Elsevier Ltd. All rights reserved.

Introduction

In most Organisation for Economic Co-operation and Development (OECD) countries, the rate of suicide among males is three to four times higher than that of women.¹ While there are numerous complex reasons for the greater susceptibility of males to suicide compared to females, evidence suggests risk factors such as their greater likelihood of using more lethal means, and lower likelihood of seeking help for mental health problems as being two important influences.²

In addition to their overall higher rates of suicide, research suggests that males who die by suicide are more sensitive to external economic stressors than their female counterparts. For example, a large body of ecological research shows that the male rate of suicide in a nation correlates with the unemployment rate.^{3,4} The relevance of employment as a potential stressor is also demonstrated in research showing that male suicide rates are higher among those in lower skilled occupations compared to those in higher skilled occupations.⁵

As it stands, there is limited gender specific research on whether males who experience psychosocial job stressors also report a higher frequency of suicidal thoughts, which is often considered an important risk factor for future suicidal behaviours and death, as well as being associated with mental disorders (e.g., depression and anxiety disorders).⁶ In the current study, we sought to extend investigation of this issue using baseline data from a large cohort of 11,600 Australian males to answer the research question: is exposure to psychosocial job stressors associated with higher odds of suicidal ideation among males? This is an important research topic considering the large number of working age males who lose their lives to suicide.¹

Methods

Data source

We used data from the Australian Longitudinal Study on Male Health (Ten to Men). Ten to Men is a national longitudinal study of boys and men aged 10–55 years at baseline. The study aims to collect data on a range of life domains, including demographic and socio-economic characteristics, physical, mental health and well-being, health behaviours, and use and knowledge of health services. Sampling, recruitment and data collection methods are described elsewhere.⁷ For this analysis males 18 years and older were included ($n = 13,884$) as they are exposed to a different and wider set of life stressors associated with employment than younger males. This study received approval from the University of Melbourne Human Research Ethics Committee and conformed to the principles embodied in the Declaration of Helsinki.

Variables

Outcome: suicidal ideation

The item 'Thoughts that you would be better off dead or of hurting yourself in some way' from the Patient Health Questionnaire was used to capture suicidal ideation in the past 2

weeks.⁸ Respondents indicated the frequency of such thoughts in the past two weeks as 'not at all', 'several days', 'more than half the days' and 'nearly every day'. We transformed this into a binary variable where 'not at all' was considered as no experience of suicidal thoughts, and the other categories represented the presence of current suicidal thoughts.

Key exposure of interest: psychosocial working conditions

We assessed four psychosocial job stressors: high job demands, low job control, job insecurity and perceived fairness of pay. Job insecurity represented a sum of the three Likert scales (7 items) (Cronbach's alpha = 0.67): 'I have a secure future in my job' (reverse coded, so higher scores were associated with less security); 'I worry about the future of my job' and; 'My company will still be in business five years from now' (reverse coded, so higher scores associated with less security). Job control comprised the sum of the following Likert scales (7 items): 'I have the freedom to decide how I do my own work' (reverse coded, so higher scores associated with less control); 'I have a lot to say about what happens on my job' (reverse coded, so higher scores associated with less control) and; 'I have lot of freedom to decide when I do my work' (reverse coded, so higher scores associated with less security) (alpha = 0.83). Job demands and complexity comprised the sum of the three Likert scales (7 items): 'I use many of my skills in my current job'; 'My job is complex and difficult' and; 'my job requires learning new skills' (alpha = 0.72). Fairness of pay was measured using a single item: 'I get paid fairly for the things I do in my job' (7 items). This was reverse coded so that higher scores were associated with lower fairness of pay. The four job stressors were rescaled based on the 0–25th, 25th–50th, 50th–75th and 75th–100th percentiles, so that each contained four levels (1 = low exposure and 4 = high exposure).

Confounders

We considered variables that could be plausibly considered as prior common causes of both psychosocial job stressors and suicidal ideation. These included: age (18–24 years, 25–34 years, 35–44 years, 45–54 years, 55 years and over), education (less than year 12, more than year 12), relationship status (never married, widowed, divorce, separated but not divorced, married/*de facto*), employment arrangement (permanent, fixed-term/casual, self-employed) and area level disadvantage (Socio-Economic Indexes for Areas [SEIFA] Relative Socio-Economic Disadvantage, in deciles).⁹ Lower scores on this measure indicate greater disadvantage. We created a binary variable from this measure based on a median split, where below the median was classified as low SEIFA and at the median and above was classified as high SEIFA. We did not include common mental disorder as a confounder due to the concern that this may lie on the causal pathway between job stressors and suicidal ideation (e.g., be a mediator).

Analytic sample

The process of selecting participants can be seen in Fig. 1. From the eligible sample (employed = 11,600), 5% had to be excluded due to missing data.

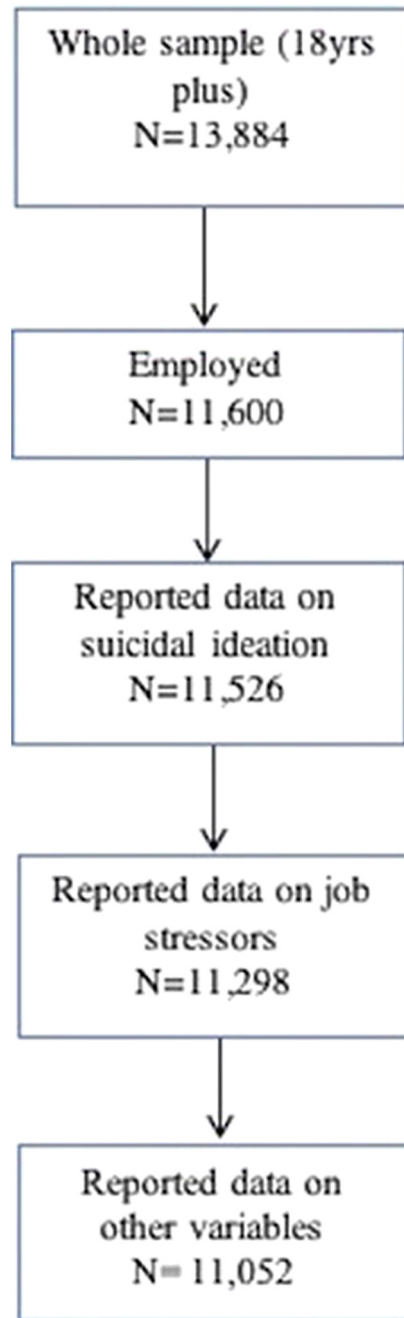


Fig. 1 – Flow chart for the sample included in the study.

Statistical analysis

We first conducted descriptive analysis assessing the frequency of different confounder categories by suicidal ideation. Following this, we conducted a univariable logistic regression where we assessed the odds of a person reporting thoughts of suicide being also exposed to each of the four psychosocial job stressors. We then conducted a multivariable logistic regression where we assessed the effect of all psychosocial job stressors simultaneously, while also controlling for potential confounders. As a sensitivity analysis, we investigated whether the relationship between job stressors and suicide ideation was modified by age.

Results

As can be seen in Table 1, those who recently had thoughts about suicide were more likely to report greater unfairness of pay, low job control, high job demands and job insecurity.

Table 2 displays the univariable and multivariable associations (where all variables are simultaneously adjusted for each another). In multivariable analysis, persons who were exposed to low job control (odds ratio [OR] 1.15, 95% confidence interval [CI] 1.05–1.26, $P = 0.003$), job insecurity (OR 1.69, 95% CI 1.44–1.99, $P < 0.001$) and unfair pay (OR 1.19, 95% CI 1.11–1.27, $P < 0.001$) reported elevated odds of thoughts about suicide. Males employed casually or on fixed-term contracts reported higher odds of suicidal ideation (OR 1.32, 95% CI 1.09–1.61, $P = 0.005$).

Aside from work-related risks, we also identified other risk factors for suicidal ideation. Those who were married were significantly less likely to report suicidal ideation (OR 0.51, 95% CI 0.42–0.63, $P < 0.001$), while those who were separated were significantly more likely to report suicidal ideation (OR 1.63, 95% CI 1.11–2.40, $P = 0.012$). Education beyond high-school (OR 0.75, 95% CI 0.64–0.87, $P < 0.001$) was associated with lower odds of reporting thoughts of suicide. Our sensitivity analysis, suggested that the relationship between job stressors and suicide ideation was not modified by age.

Discussion

The observed associations between exposure to three of the four job stressors measured and suicidal ideation are consistent with the growing evidence linking job stressors with suicidal ideation.^{10,11} These study findings should also be viewed in the context of studies on death by suicide among males, which have also identified job stressors as key risk factor for suicide.^{12–14}

There may be a number of explanations for the relationship between poor working conditions and suicidal ideation. One pathway may be through deterioration of mental health and greater stress arousal.¹⁵ The effects of poor psychosocial working conditions are also likely to be accumulative, and interact with other life stressors. From a health inequalities

Table 1 – Psychosocial job stressors among males who did and did not report thoughts about suicide.

	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)
Thoughts about suicide in the past 2 week (n = 810)				
Paid unfairly	29.3	17.3	32.8	20.6
Job insecurity	4.2	5.9	88.1	1.7
Low job control	5.8	13.5	26.2	54.6
High job demands	0.2	3.2	48.6	48.0
No thoughts about suicide in the past 2 week (n = 10,242)				
Paid unfairly	37.9	20.4	28.4	13.3
Job insecurity	9.4	13.5	76.5	0.6
Low job control	7.2	20.2	29.8	42.7
High job demands	1.2	25.6	36.8	36.3

Table 2 – Logistic regression for thoughts of suicide in relation to psychosocial job stressors, unadjusted and adjusted models.

		SI	Total	Univariable				Multivariable				
				OR	L CI	U CI	P-values	OR	L CI	U CI	P-values	
Relationship status	Never married	265	2384	1				1				
	Widowed	5	32	1.48	0.57	3.88	0.424	1.68	0.62	4.53	0.298	
	Divorced	38	393	0.86	0.60	1.22	0.395	0.82	0.56	1.21	0.315	
	Separated	42	241	1.69	1.18	2.41	<0.001	1.63	1.11	2.40	0.012	
	Married/ <i>de facto</i>	460	8002	0.49	0.42	0.57	<0.001	0.51	0.42	0.63	<0.001	
Job insecurity	Low			1				1				
	High	810	11,052	1.90	1.62	2.22	<0.001	1.69	1.44	1.99	<0.001	
Low job control	Low			1				1				
	High	810	11,052	1.29	1.19	1.40	<0.001	1.15	1.05	1.26	0.003	
High demands & complexity	Low			1				1				
	High	810	11,052	0.84	0.77	0.91	<0.001	0.98	0.89	1.07	0.648	
Paid unfairly	Low			1				1				
	High	810	11,052	1.26	1.18	1.34	<0.001	1.19	1.11	1.27	<0.001	
Age	18–24 years	126	1271	1				1				
	25–34 years	189	2538	0.73	0.58	0.93	0.009	1.11	0.85	1.44	0.445	
	35–44 years	234	3500	0.65	0.52	0.82	<0.001	1.12	0.85	1.48	0.414	
	45–54 years	144	3417	0.68	0.54	0.85	<0.001	1.10	0.83	1.47	0.501	
	55 years	17	226	0.74	0.44	1.25	0.261	1.09	0.62	1.91	0.773	
Education	Under year 12	366	4241	1				1				
	Over year 12	444	6831	0.74	0.64	0.85	<0.001	0.75	0.64	0.87	<0.001	
SEIFA index	Low	399	4777	1				1				
	High	411	6275	0.77	0.67	0.89	<0.001	0.88	0.76	1.02	0.096	
Employment arrangement	Permanent	520	7727	1				1				
	Casual/fixed term	175	1610	1.70	1.41	2.02	<0.001	1.32	1.09	1.61	0.005	
	Self-employed	115	1715	1.00	0.81	1.22	0.971	1.13	0.90	1.43	0.283	

Outcome = thoughts of suicide (suicide ideation) (yes); Adjusted represents a multivariate analysis including all variables. Persons = 11,052. SI = suicide ideation; L CI = lower confidence interval; U CI = upper confidence interval; P-value = significance value at 95%; OR = odds ratio.

perspective, employed males in lower skilled occupations are particularly exposed to poor working conditions¹⁶ and have the highest rates of suicide.¹⁷ These males are therefore likely to be particularly at risk.

Causal inference of this study is limited by its cross-sectional design. Thus, we are unable to rule out reverse causality. To some extent, these issues related to suicidality influencing employment prospects and working conditions will be able to be investigated when additional waves of data are collected. In saying this, we did measure suicidal ideation in the past two weeks before the survey in order to provide a measure of current suicidal ideation, while job stressor variables were asked in relation to current job. Additional waves of data will also mean that we are able to better control for individual sources of variation (e.g., personality) through the use of fixed-effects models, which is within-person analysis. This reduces the possibility that the suicidal ideation occurred prior to stated working conditions. Another problem affecting this study is dependent misclassification as both the exposure and the outcome were self-reported. The strengths of this study include its large sample size and validated measures of suicidal ideation and psychosocial job stressors. Further, because Ten to Men is designed to be a longitudinal cohort, we will be able to unpack prospective associations in the coming years. Thus, this paper comprises an important baseline paper to future research on the relationship between working conditions and suicidality.

Job stressors are common exposures^{18,19} linked with a wide range of health outcomes,²⁰ apart from those observed in this study. This highlights the importance of suicide prevention efforts and policy addressing poor working conditions, as well as targeting stigma and increasing the help available to those at risk.

Author statements

Acknowledgements

The research on which this paper is based on was conducted as part of the Australian Longitudinal Study on Male Health by the University of Melbourne. We are grateful to the Australian Government Department of Health for funding and to the boys and men who provided survey data. We would also like to thank Suzanne Mavoia for her statistical guidance and support.

Authors' contributions

AM conceived the article, conducted analysis and wrote drafts of the manuscript. All authors contributed to the analytic approach and were involved in interpreting the analysis. All authors undertook critical revision of the manuscript and have approved this manuscript version for submission.

Ethical approval

The Australian Longitudinal Study on Male Health was approved by the University of Melbourne Human Research Ethics Committee (HREC 1237897 & 1237376). Participants provided written consent for their participation.

Funding

American Foundation for Suicide Prevention; Australian Government Department of Health (grant number: SRG-1-091-13).

Competing interests

None declared.

REFERENCES

- Biondi N, Lafortune G. Chapter 3: health status, suicide. In: OECD, editor. *Health at a glance 2015*. Paris: Organisation for Economic Cooperation and Development (OECD); 2015. p. 56–7.
- Pitman A, Krysinska K, Osborn D, King M. Suicide in young men. *Lancet* 2012;379(9834):2383–92.
- Milner A, Page A, LaMontagne AD. Long-term unemployment and suicide: a systematic review and meta-analysis. *PLoS One* 2013;8(1):e51333. <http://dx.doi.org/10.1371/journal.pone.0051333>.
- Oyesanya M, Lopez-Morinigo J, Dutta R. Systematic review of suicide in economic recession. *World J Psychiatry* 2015;5(2):243–54.
- Milner AJ, Niven H, LaMontagne AD. Occupational class differences in suicide: evidence of changes over time and during the global financial crisis in Australia. *BMC Psychiatry* 2015;15:223.
- Kessler RC, Berglund P, Borges G, Nock M, Wang PS. Trends in suicide ideation, plans, gestures, and attempts in the United States, 1990–1992 to 2001–2003. *JAMA* 2005;293(20):2487–95.
- Pirkis J, Currier D, Carlin J, Degenhardt L, Dharmage S, Giles-Corti B, et al. Cohort profile: Ten to Men (The Australian Longitudinal Study on Male Health). *Int J Epidemiol* 2016. <http://dx.doi.org/10.1093/ije/dyw055>.
- Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001;16(9):606–13.
- Pink B. Technical paper: socio-economic indexes for areas (SEIFA) 2011. In: *Canberra*; 2013.
- Takada M, Suzuki A, Shima S, Inoue K, Kazukawa S, Hojoh M. Associations between lifestyle factors, working environment, depressive symptoms and suicidal ideation: a large-scale study in Japan. *Ind Health* 2009;47(6):649–55.
- Milner A, Page K, Witt K, LaMontagne AD. Psychosocial working conditions and suicide ideation: evidence from a cross-sectional survey of working Australians. *J Occup Environ Med* 2016;58(6):584–7.
- Milner A, Spittal MJ, Pirkis J, Chastang JF, Niedhammer I, LaMontagne AD. Low control and high demands at work as risk factors for suicide: an Australian national population-level case-control study. *Psychosom Med* 2016. <http://dx.doi.org/10.1097/PSY.0000000000000389>.
- Tsutsumi A, Kayaba K, Ojima T, Ishikawa S, Kawakami N, Jichi Med School Cohort Study Group. Low control at work and the risk of suicide in Japanese men: a prospective cohort study. *Psychother Psychosom* 2007;76(3):177–85.
- Ostry A, Maggi S, Tansey J, Dunn J, Hershler R, Chen L, et al. The impact of psychosocial work conditions on attempted and completed suicide among western Canadian sawmill workers. *Scand J Public Health* 2007;35(3):265–71.
- LaMontagne AD, Keegel T, Louie AM, Ostry A. Job stress as a preventable upstream determinant of common mental disorders: a review for practitioners and policy-makers. *Aust J Adv Ment Health* 2010;9(1):17–35.
- LaMontagne AD, Krnjacki L, Kavanagh AM, Bentley R. Psychosocial working conditions in a representative sample of working Australians 2001–2008: an analysis of changes in inequalities over time. *Occup Environ Med* 2013;70(9):639–47.
- Milner A, Spittal MJ, Pirkis J, LaMontagne AD. Suicide by occupation: a systematic review and meta-analysis. *Br J Psychiatry* 2013;203:409–16.
- LaMontagne AD, Keegel T, Vallance D, Ostry A, Wolfe R. Job strain—attributable depression in a sample of working Australians: assessing the contribution to health inequalities. *BMC Public Health* 2008;8(1):1–9.
- Niedhammer I, Sultan-Taieb H, Chastang JF, Vermeylen G, Parent-Thirion A. Fractions of cardiovascular diseases and mental disorders attributable to psychosocial work factors in 31 countries in Europe. *Int Archives Occup Environ Health* 2014;87(4):403–11.
- Nieuwenhuijsen K, Bruinvels D, Frings-Dresen M. Psychosocial work environment and stress-related disorders, a systematic review. *Occup Med (Lond)* 2010;60(4):277–86.