Variations in suicide rates among Australian male construction workers by country of birth

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In Australia, the suicide rate among male construction workers is approximately double that of non-construction workers, with the age-standardised rate from 2001 to 2019 calculated to be 26.6 per 100,000 compared to 13.2 per 100,000 among other male workers.[1]

With the rapid expansion of Australia's labour market in the past 50 years, migration has come to play an important role in meeting labour demands. In 2016, it was estimated that one in three Australian workers were born overseas.[2] Migrants are employed across all sectors, including the construction sector where it is estimated that 27% (about 255,000 workers) of the workforce was born overseas.[2]

Despite the substantial number of overseas born workers in the construction sector, little is known about the suicide risk among these workers. While suicide rates are typically lower among migrants relative to Australian born individuals,[3] there are other factors that may modify suicide risk among migrant construction workers. Globally, migrant construction workers are more vulnerable to the boom or bust nature of the global construction industry, and are more likely to experience retrenchment and unemployment.[4] In Australia, a high proportion of migrant workers are exposed to psychosocial work stressors,[5,6] job insecurity,[6] and exploitation and underpayment,[5] and high rates of bullying and discrimination are reported. The unique experiences of migrant workers may coalesce with stressors in the construction sector to modify suicide risk among these workers relative to their peers working in other sectors.

To assess this, we used data from the National Coronial Information System (NCIS)[7] to compare suicide rates among male construction workers and non-construction workers in Australia for the period 2006–2020, and examine variations by country of birth. We note that females are highly under-represented in the construction industry, making analysis of suicide among female construction workers infeasible. Thus our findings are reported for males only. Four mutually exclusive categories were used to classify country of birth: Australia, English-speaking and not Australia (hereafter referred as 'English-speaking'), non-English-speaking European country, and Other country. This classification is based on evidence that: a) English speaking migrants experience cultural assimilation advantages[8]; b) greater levels of racial discrimination are experienced by those of a visible minority group[9]; and c) that mental health and suicidal behaviours vary by country of origin. For descriptive purposes, we plotted suicide rates for the four categories of construction workers (Fig. 1). We found that while rates of suicide among construction workers born in Australia and in English-speaking countries appears to have remained steady or declined slightly, rates among construction workers born in non-English speaking European countries and Other countries show more fluctuation.

Suicide rates for both construction and non-construction workers across the years 2006–2020 were highest for those born in Australia (25.9 and 14.8 per 100,000 respectively) (Table 1). Among those born outside Australia, construction workers from English-speaking countries had the highest age-standardised rates with 19.6 suicide deaths per 100,000, compared to 16.0 per 100,000 for those born in a non-English speaking European country and 15.0 per 100,000 for those born in an Other country. Rates across all groups were lowest for non-construction workers from an Other country (5.8 per 100,000).

While rates of suicide for workers born outside Australia are lower than among their Australian born peers, some notable findings are apparent when comparing suicide rates for construction workers relative to non-construction workers. Specifically, these comparisons indicate that for workers born outside Australia, suicide rates for construction workers were markedly elevated relative to the rates of their non-construction counterparts.

The difference in suicide rates between construction and non-construction workers was particularly evident for those from Other countries, where suicide rates among construction workers were more than twice the rate observed among non-construction workers (IRR 2.22, 95% CI 1.81, 2.70). While we cannot formally exclude selection effects – that is, that the type of immigrants entering construction occupations carry different suicide risks to non-construction migrant workers – consistent evidence from other countries evidencing the way in which migrants carry the suicide risk of their country of origin suggests that this is unlikely to be the case.[10] We consider

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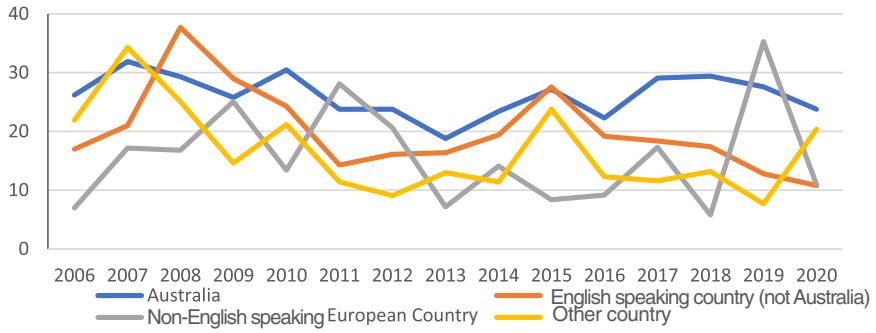

Fig. 1: Australian age-standardised suicide rates per 100,000 for male construction workers by country of origin category, for years 2006 and 2020.

it more plausible that elements of the construction industry are contributing to the elevation of suicide risks among migrant construction workers (as for Australian-born workers). Research attention is warranted to assess the extent to which this represents an ongoing trend among migrant workers, and whether, and what, industry-related factors may be associated with such trends.

Our results indicating that rates of suicide among different migrant groups are lower than among the Australian-born population aligns with other research that used Australian coronial data to show that males and females from different migrant backgrounds have significantly lower suicide rates relative to those born in Australia.[3] There are multiple potential explanations for this. One is the healthy migrant effect: that is, that the very act of migration requires a certain level of health, and at a population level this translates into the health advantage observed.[11,12]

In summary, rates of suicide are higher among construction workers relative to workers in other sectors. While suicide rates among migrant workers are lower than for their Australian born counterparts – for both construction workers and non-construction workers – migrant construction workers are at elevated risk of suicide relative to their non-construction worker peers. Our results suggest that while migrant workers carry the suicide risk of their country of origin, the construction industry appears to confer an increased risk of suicide on migrant construction workers. That is, migrant construction workers "take on" the increased risk of suicide associated with the construction industry. In the present context, this acculturation effect—moving suicide rates among construction workers from non-English speaking countries towards that of those born in Australia and other English-speaking countries—is undesirable, but crucially, it may be preventable.

Most suicide prevention programs are delivered in English and are geared to the traditional white, English-speaking profile of Australian construction workers. As workforces, including the construction sector, continue to diversify, it will be important for suicide prevention efforts to respond to this, and where necessary, modify their approaches to ensure relevance and validity to all workers including migrant workers.

Country of origin	Workers	Suicide deaths (n)	ASR	IRR (95% CI)
Australia	Construction	2618	25.9	1.76 (1.68, 1.84)
	Non-construction	7141	14.8	1.00
English-speaking countries	Construction	251	19.6	1.64 (1.41, 1.89)
	Non-construction	775	10.2	1.00
Non-English speaking European countries	Construction	103	16.0	1.43 (1.14, 1.80)
	Non-construction	304	10.9	1.00
Other countries	Construction	121	15.0	2.22 (1.81, 2.70)
	Non-construction	561	5.8	1.00

Table 1: **Age-standardised suicide rate (ASR) and incidence rate ratio (IRR) for male construction vs non-construction workers by Country of origin categories between 2006 and 2020 in Australia.**

Contributors
TLK conceived the study, interpreted the analysis and prepared the manuscript submission and revision. LFA contributed to the manuscript preparation and revision. ADL conceived the study, contributed to the manuscript preparation and revision. HM conducted and interpreted the analysis and contributed to the manuscript preparation and revision. LFA accessed and verified the underlying data. TK, LFA, HM have access to NCIS data.

Data sharing statement
The suicide count data analysed in this study were used under license for the current study are not publicly available. The data is available from the National Coronial Information System however restrictions apply to its use.

Declaration of interests
Authors Prof Anthony Lamontagne and A/Prof Tania King are current members (voluntary, unpaid) of the National Research Reference Group for MATES in Construction, and Prof LaMontagne is a (voluntary, unpaid) director on the MATES in Construction Board. Dr Humaira Maheen and Ms Ludmila Fleitas Alfonzo have no interests (financial or non-financial) to declare.

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Ethics approval and consent: The study was approved by the Victorian Justice Human Research Ethics Committee (reference CF/18/22468), Department of Justice and Community Safety and the Human Ethics Advisory Group, School of Population and Global Health, University of Melbourne. As study participants were deceased, it was not possible to obtain informed consent; therefore, both the Victorian Justice Human Research Ethics Committee, Department of Justice and Community Safety and Human Ethics Advisory Group, School of Population and Global Health, University of Melbourne approved the waiver for informed consent. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975 and its revisions.

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