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Discrimination experienced by Aboriginal and Torres Strait Islander males in Australia: associations with suicidal thoughts and depressive symptoms

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Abstract

Introduction: Globally, Indigenous populations have higher rates of suicidal behavior and psychological distress compared to non-Indigenous populations. Indigenous populations also report high rates of exposure to discrimination, which could potentially contribute to poor mental health outcomes. The objectives of this paper were to estimate the prevalence of discrimination among Aboriginal and Torres Strait Islander males in Australia, and to examine the role of discrimination in the association between Aboriginal and Torres Strait Islander status and suicidal thoughts and depressive symptoms.

Methods: We used cross-sectional data on 13,697 males aged 18-55 years from the Australian Longitudinal Study on Male Health. We undertook a Poisson regression with robust standard errors analyses to examine Aboriginal and Torres Strait Islander status and self-perceived exposure to discrimination in the past two years as correlates of recent suicidal ideation. We used zero-inflated negative binomial regression to assess Aboriginal and Torres Strait Islander status and self-perceived exposure to discrimination as correlates of recent depressive symptoms.

Results: Aboriginal and Torres Strait Islander males have a two-fold higher prevalence of self-perceived discrimination (39.2% vs 19.3%, $p<0.001$) suicidal ideation (21.8% vs 9.4%, $p<0.001$) and moderate or worse depressive symptoms (24.0% vs 12.2%, $p<0.001$) as compared to their non-Indigenous counterparts. After adjusting for socio-demographics and substance use, Aboriginal and Torres Strait Islander status was significantly associated with suicidal thoughts (OR=1.49, $p=0.019$) and depressive symptoms (IRR=1.19, $p=0.018$). About 15.3% and 28.7% of the association between

Aboriginal and Torres Strait Islander status and suicidal thoughts and depressive symptoms, respectively, was explained by discrimination.

Conclusion: Our analyses add to evidence that discrimination is a contributor to mental health disparities between Aboriginal and Torres Strait Islander and non-Indigenous populations in Australia. Reducing discrimination ought to be considered as part of strategies to improve the social and emotional wellbeing of Aboriginal and Torres Strait Islander people.

Keywords: Aboriginal and Torres Strait Islander status, suicidal thoughts, discrimination, depressive symptoms, mediation

Introduction

High rates of Indigenous suicide is a distressing phenomenon observed in several postcolonial countries, including Australia, Canada, the United States and New Zealand. Poor social and emotional wellbeing among Indigenous peoples is a complex socio-cultural, political, biological and psychological phenomenon that needs to be understood in the context of colonisation, loss of land and culture, trans-generational trauma, grief and loss, and racism and discrimination (Elias et al., 2012; Paradies, 2016). Higher levels of marginalisation and social disadvantage experienced by Indigenous peoples also increases their exposure to substance misuse and a suite of chronically stressful life events, which are well-documented contributors to poor social and emotional wellbeing, including symptoms of psychological distress and suicidality.

In Australia, suicide is the second leading cause of mortality for Aboriginal and Torres Strait Islander males (Australian Bureau of Statistics, 2020). The suicide rate for Aboriginal and Torres Strait Islander males was estimated to be 34.5 per 100,000 across 2015-2019, almost twice the rate (19.5 per 100,000) for non-Indigenous males. This disparity in suicide rates is highest in younger age groups, being approximately three times higher among Aboriginal and Torres Strait Islander males aged 15-24 years compared to their non-Indigenous counterparts. Mirroring these inequities in suicide rates, a large general population survey of Australian males observed that Aboriginal and Torres Strait Islander males were twice as likely as non-Indigenous males to report recent suicidal thoughts and more than three times as likely to report a suicide attempt in their lifetime (Armstrong et al., 2017). Other studies of Aboriginal and Torres Strait Islander people have also observed a high and potentially increasing prevalence of suicidal behavior. Additionally, a higher prevalence of symptoms

of common mental health problems have been observed among Aboriginal and Torres Strait Islander people compared to non-Indigenous Australians (Black et al., 2015; Jorm et al., 2012).

While there is good evidence establishing the higher rates of suicidality and poor mental health among Aboriginal and Torres Strait Islander people, there is very little research into the social determinants of this disparity despite calls for this through the Aboriginal and Torres Strait Islander Suicide Prevention Evaluation Project (Dudgeon P. et al., 2016). An important new area of enquiry is the role of discrimination as a contributing factor to poor mental health among Aboriginal and Torres Strait Islander people. Regardless of definition, discrimination is increasingly recognized as an important area of public health research and systematic reviews and meta-analyses consistently highlight associations between discrimination and health inequities (Priest et al., 2013; Paradies et al., 2015), including inequities in psychological wellbeing (Schmitt et al., 2014; Elias and Paradies, 2016).

Surveys targeted at Aboriginal and Torres Strait Islander people have documented high rates of self-reported discrimination (Markwick et al., 2019; Cunningham and Paradies, 2013; Temple et al.; Cave L. et al., 2018) and that these experiences of discrimination extend to the healthcare system, which carry detrimental impacts on health seeking behavior among Aboriginal and Torres Strait Islander people (Wylie and McConkey, 2019; Waterworth et al., 2015). Moreover, survey research has observed that discrimination was associated with worse social and emotional wellbeing among Aboriginal youth, including depressive and anxiety symptoms and suicidal thoughts (Priest et al., 2011b; Cave et al., 2019; Shepherd et al., 2017; Ziersch et al., 2011; Priest et al., 2011a). However, to our knowledge no prior research has examined discrimination as a potential mediator of the

association between Aboriginal and Torres Strait Islander status and poor mental health outcomes using large general population survey data.

Our paper addresses this gap by analysing data for males aged 18 to 55 years that were collected as part of the first wave of The Australian Longitudinal Study on Male Health. The objectives of our analyses were to: 1) estimate the prevalence of perceived discrimination among Aboriginal and Torres Strait Islander males, 2) assess whether discrimination was independently associated with suicidal thoughts and depressive symptoms among Aboriginal and Torres Strait Islander males, and 3) assess the potential mediation role of discrimination in the associations between Aboriginal and Torres Strait Islander status and suicidal thoughts and depressive symptoms.

Methods

Data source

The sample consisted of 13,697 adult males aged between 18 and 55 years who participated in the first wave of The Australian Longitudinal Study on Male Health (Ten to Men). This paper presents analysis of data collected in 2013-2014 for the baseline wave only, as discrimination was not measured in subsequent waves of data collection. Details of the study design and data collection methods of the Ten to Men study have been published elsewhere (Pirkis et al., 2016a; Currier D et al., 2016). In brief, the Ten to Men study used a multi-stage stratified cluster sampling to recruit Australian males from households in Australian Statistical Geographical Standard (ASGS) major city, inner regional and outer regional areas of Australia. A total of 104,484 households were approached

in 2013 and 2014, from which 15,988 Australian males were recruited, resulting in a response fraction of 35% among confirmed eligible males.

Eligible participants were males aged 18 to 55 years at the time of recruitment, who were Australian citizens or permanent residents and had a sufficient understanding of English to provide informed consent and to complete the self-administered questionnaire. Males aged under 18 years were excluded from our analyses as they were not asked about discrimination.

The Ten to Men study received ethical clearance from the University of Melbourne Human Sciences Human Ethics Sub-Committee (HREC 1237897 & 1237376).

Variables and measurement

Aboriginal and Torres Strait Islander status: Aboriginal and Torres Strait Islander status was determined through participants self-reporting as Aboriginal, Torres Strait Islander or both or neither. Participants were excluded from our analyses if they refused or did not answer the question.

Discrimination: Discrimination was assessed using the question “Over the past two years, how often have you experienced discrimination?” Those who responded, ‘very often’, ‘fairly often’, or ‘occasionally’ were grouped into one category and compared against another category that combined ‘rarely’ and ‘never’.

Depressive symptoms and suicidal behavior: Depressive symptoms were measured using the PHQ-9 for adults, a nine-item screening tool based on criteria for depressive disorders in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) (Kroenke et al., 2001). The PHQ-9 has well-established criterion, construct and external validity (Kroenke and Spitzer, 2002; Levis et al.,

2019). The PHQ-9 asks participants how often they have been bothered with nine symptoms in the past 2 weeks, with response options on a four-point Likert scale: not at all (0), several days (1), more than half the days (HelpAge International Myanmar. et al.), nearly every day (Plantinga et al.). The PHQ-9 yields scores ranging from 0 to 27, with a score of 10 representing the threshold marking the lower limit moderate depressive symptoms.

We used item 9 of the PHQ-9 as a binary measure of suicidal ideation. Item 9 asks participants how often they had been bothered by 'thoughts you would be better off dead or of hurting yourself in some way.' This measure was dichotomised to compare participants whose response was 'several days', 'more than half the days', and 'nearly every day' with those whose response was 'not at all'. Endorsement of suicidal ideation on this item has been associated with a 75% to 185% increase in the risk of suicide in a study of veterans in the United States (Louzon et al., 2016). The lifetime prevalence of suicide attempt(s) was assessed through self-report; participants were asked if they had ever tried to kill themselves. Both measures of suicidality have previously been used in a survey of Aboriginal and Torres Strait Islander youth in Australia (Brown et al., 2013; Luke et al., 2013).

Other variables: Other variables included in our analysis were age, highest educational qualification, combined household income, Socio-Economic Indexes for Areas (SEIFA), employment status, remoteness, alcohol misuse and illicit substance use. SEIFA is a measure developed by the Australian Bureau of Statistics to rank areas by their relative socioeconomic advantage and disadvantage (Australian Bureau of Statistics., 2006).

Statistical analysis

All data analyses were conducted in Stata version 15.0 and accounted for the complex multistage sampling design and unequal probability of selection. Weighted proportions were used to describe the socio-demographic characteristics of the study participants, discrimination, suicidal ideation, and depressive symptoms. Prevalence data were disaggregated by Aboriginal and Torres Strait Islander identification, and Chi-square tests were used to assess the difference between Aboriginal and Torres Strait Islander males and their non-Indigenous counterparts. We used Poisson regression with robust standard errors (Zou, 2004) (with robust variance estimate) to examine the association between Aboriginal and Torres Strait Islander identification and perceived discrimination. In model 1, we assessed the unadjusted association. In model 2, we adjusted for age, education, household income, SEIFA, employment and remoteness. In model 3, we added alcohol misuse and illicit substance use into the model.

Similarly, we also assessed Aboriginal and Torres Strait Islander status and discrimination as correlates of suicidal ideation using Poisson regression with robust standard errors. As the data for PHQ-9 scores exhibited overdispersion and excess zeros (Tang et al., 2018), zero-inflated negative binomial regression was used to assess Aboriginal and Torres Strait Islander status and discrimination as correlates of depressive symptoms. We used Stata program zinb models for this purpose and inflated parameters for Aboriginal and Torres Strait Islander status and discrimination. Incident rate ratios for the negative binomial portion of zinb models were presented along with their corresponding 95% confidence intervals and *p-values*.

Using the concepts of additive model (Hafeman, 2009) (i.e. the total effect equals the sum of direct and indirect effect), the proportion of association that could be explained by discrimination was indirectly estimated as a difference between β-coefficients in the regression models with and without discrimination. The proportion of the association between Aboriginal and Torres Strait Islander identification and suicidal ideation and depressive symptoms that can be explained by discrimination was computed as the difference between beta-coefficient (β_3) in model 3 and model 4 (β_4) divided by the beta-coefficient in model 3 (β_3) times 100%; proportion explained = $[(\beta_3 - \beta_4)/ \beta_3]*100\%$ (β_3 and β_4 are beta-coefficients in model 3 and model 4, respectively).

Results

Participant characteristics

A total of 326 (2.4%) males aged 18-55 years identified as being Aboriginal and Torres Strait Islander people, with the remaining 13,371 (97.6%) identifying as non-Indigenous. A detailed description of the weighted prevalence of participant characteristics and how these vary between Aboriginal and Torres Strait Islander and non-Indigenous Australian males is shown in Table 1. The characteristics of the Aboriginal and Torres Strait Islander and non-Indigenous sub-samples differed significantly. A higher proportion of the Aboriginal and Torres Strait Islander sub-sample were younger, never married, in the lower income category, less educated, living in regional rather than urban areas, and engaging in harmful use of alcohol and other substances. The prevalence of discrimination (39.2% vs 19.3%, $p<0.001$), suicidal ideation (21.8% vs 9.4%, $p<0.001$) and moderate or worse depressive symptoms (23.9% vs 12.2%, $p=0.001$) were significantly higher among Aboriginal and Torres Strait Islander males compared to their non-Indigenous counterparts.

Discrimination as a potential mediator of the association between Aboriginal and Torres Strait Islander status and mental health outcomes

Table 2 presents results from Poisson regression with robust standard errors and zero-inflated negative binomial regression models examining the association between Aboriginal and Torres Strait Islander status, discrimination, suicidal ideation and depressive symptoms. We observed that Aboriginal and Torres Strait Islander males had 1.90(95% CI: 1.54,2.33) times increased risk of experiencing perceived discrimination than non-Indigenous males ($p<0.001$) after adjusting for sociodemographic variables (age, education, household income, SEIFA, and employment), remoteness, alcohol misuse and illicit substance use.

After adjusting for sociodemographic and substance use characteristics, Aboriginal and Torres Strait Islander males had 1.49 (95% CI: 1.06, 2.09) times higher risk of suicidal thoughts compared to non-Indigenous males ($p=0.019$). When perceived discrimination was included in the model, the rate ratio for the association between Aboriginal and Torres Strait Islander status and suicidal ideation decreased to 1.40 (95% CI: 1.00, 1.97), with analysis of β-coefficients suggesting that discrimination explained 15.3% of the association between Aboriginal and Torres Strait Islander identification and suicidal ideation.

After adjusting for sociodemographic and substance use characteristics, Aboriginal and Torres Strait Islander males had 15% (95% CI: 3%, 29%) higher depressive symptom scores as compared to non-Indigenous males. The incidence rate ratio for the association between Aboriginal and Torres Strait Islander status and depressive symptoms decreased from 1.19 (95% CI:1.03, 1.38) to 1.13 (95% CI: 0.98, 1.31) when perceived discrimination was included in the model. Analysis of β-coefficients

suggested discrimination explained 28.7% of the association between Aboriginal and Torres Strait Islander status and depressive symptoms.

Discussion

Summary of the findings

Our study is the first to use a large general population sample to estimate the prevalence of perceived discrimination experiences among Aboriginal and Torres Strait Islander males and to examine the potential mediation role of discrimination between Aboriginal and Torres Strait Islander status and suicidal ideation and discrimination. We found a statistically significant association between Aboriginal and Torres Strait Islander identification and perceived discrimination (PRR=1.90), suicidal ideation (PRR=1.49), and depressive symptoms (PRR=1.19). The estimation of the proportion of the association between Aboriginal and Torres Islander identification and suicidal ideation and depressive symptoms that could be explained by discrimination was small and moderate, respectively.

Our findings are consistent with minority stress theory, which asserts that minority groups experience a high level of discrimination resulting in negative health impacts through various pathways, such as; stress, maladaptive behaviors, and poor access to health and social services (Meyer, 2003; Dentato et al., 2013). Similarly, social stress models propose that prejudice, discrimination and related social ills place an additional burden on socially disadvantaged populations, which can increase the risk of mental health problems (Schwartz and Meyer, 2010). The findings of this study are also consistent with studies that report the potential mediating role of minority stress factors, including discrimination, on the association between minority status and mental health outcomes. Cross-sectional and

longitudinal studies of sexual and other racial minority groups have suggested that minority stress factors, including discrimination, mediate the pathway between minority status and poor mental health outcomes (Calabrese et al., 2015a; Bränström, 2017; Baams et al., 2015; Chang et al., 2020). Therefore, reducing discrimination among minority groups may be a promising target for intervention and could potentially provide 'upstream' benefits to the prevention of suicidality and psychological distress.

There is a legitimate query as to whether the mood of participants, which was assessed at the same time as discrimination was assessed (albeit with different time parameters), influenced participant perceptions of discrimination experiences. Even though discrimination is a risk factor for suicidal ideation and depressive symptoms, there may be some reverse causality. Mood-as-information research indicates that both positive and negative moods may be influential in affecting perceptions of discrimination; individuals with positive moods may be more likely to minimize discrimination and individuals with negative moods may be more likely to acknowledge greater discrimination in their lives (Sechrist et al., 2003). Nonetheless, the accumulating body of evidence from longitudinal studies have consistently found racial discrimination on the pathway to adverse mental health, with those longitudinal studies that have been undertaken consistently finding adverse mental health effects associated with racial discrimination (Cave et al., 2020).

Implications for prevention and research

Our data indicate that perceived discrimination is a common experience for Aboriginal and Torres Strait Islander men and that this experience may be implicated in contributing to suicidality and depressive symptoms. This has important practical implications for programs seeking to improve

social and emotional wellbeing among Aboriginal and Torres Strait Islander people. Our findings support the broad assertions that discrimination is a determinant of mental health outcomes among Aboriginal and Torres Strait Islander people, and that reducing racism and discrimination ought to be considered as part of strategies to reduce suicide and improve the social and emotional wellbeing of Aboriginal and Torres Strait Islander people. Accordingly, reducing racism and discrimination has been recognized in the 2013 National Aboriginal and Torres Strait Islander Suicide Prevention Strategy (NATSISPS) (Australian Goverment., 2013) as important to preventing suicide among Aboriginal and Torres Strait Islander people. Ferdinand et al 2017 advocate that bolstering existing anti-racism policies and programs designed specifically around the histories and experiences of Aboriginal and Torres Strait Islander peoples is necessary to address racism at a community and population level (Ferdinand et al., 2017). Future research might examine the potential to reduce suicidal behvaviour among Aboriginal and Torres Strait Islander people through community-based interventions to reduce discrimination and racism. Further examination of the issue may also take an intersectionality approach, to further examine the multiple intersecting identities that increase vulnerability to discrimination in a range of contexts; for example, Aboriginal and Torres Strait Islander people may experience discrimination from other Aboriginal and Torres Strait Islander people due to their sexual minority status or their mental ill-health.

Limitations of the study

Our study had some limitations. Firstly, the use of only one wave of data does not permit rigorous conclusions to be drawn about the temporal sequence of morbidity or the underlying mechanisms of the observed mediated effects of discrimination. A longitudinal study further investigating the nature

of this relationship in an Aboriginal and Torres Strait Islander cohort is warranted (Hou et al., 2015; Priest et al., 2017; Calabrese et al., 2015b). Secondly, discrimination was measured using a question that assessed 'perceived discrimination', with the inherent weakness of relying on participants to judge whether or not they had experienced discrimination. We were not able to present data on the scope and number of experiences of discrimination, nor the context, which may have further illuminated underlying social mechanisms that could inform improved targeting of anti-discrimination strategies. Indeed, some discrimination experiences may have been the result of interactions with other Aboriginal and Torres Strait Islander people. Nonetheless, a broad assessment that does not limit the scope, locations or contexts within which discrimination has utility. Thirdly, the low response rate of 35% could affect the representativeness and limits the ability to produce reliable prevalence estimates at a national level (Pirkis et al., 2016b). Furthermore, the Ten to Men study has a relatively low age cut-off of 55 years which excludes older men at increased risk of suicide. Similarly, participants in the Ten to Men study were sampled from major cities, and inner and outer regional areas; the study did not include people from remote areas and so our findings cannot be generalized to those settings. This is an important limitation given that many remote communities have significant proportions of Aboriginal or Torres Strait Islander people. Nonetheless, there was reasonable representation of people from key groups, based on observable characteristics. For instance, the proportion of Aboriginal and Torres Strait Islander males (2.7%) is roughly equivalent to the proportion in the general population (3.0%). Finally, we used the zero-inflated negative binomial regression models as it is appropriate for the PHQ-9 score distribution. The negative binomial portion of the model can be interpreted as the total symptoms (Vyas et al., 2020). However, the inflated portion is

not clinically interpretable. Thus, we focused on the negative binomial portion as it is clinically interpretable as severity of total symptoms.

Conclusions

We observed a high prevalence of perceived discrimination among Aboriginal and Torres Strait Islander males. Poor mental health outcomes for Aboriginal and Torres Strait Islander males were strongly associated with exposure to experiences of discrimination, suggesting that discrimination may be a contributor to mental health disparities between Aboriginal and Torres Strait Islander and non-Indigenous populations in Australia. Our findings suggest that reducing discrimination ought to be a critical part of strategies to reduce suicide and improve the social and emotional wellbeing of Aboriginal and Torres Strait Islander people.

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