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Research paper

Aboriginal and Torres Strait Islander youth suicide mortality and previous mental health, suicidality and service use in Queensland, Australia, from 2001 to 2021

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ABSTRACT

Background: The current study aimed to compare current suicide rates, trends, previous treatment, suicidality and mental health diagnoses for First Nations and non-Indigenous young people who died by suicide.
Methods: Age-specific suicide rates (ASSRs) were calculated per 100,000 persons/year using suicides aged 10–19 years in the Queensland Suicide Register. Rate Ratios (RRs) and 95 % CIs compared ASSRs for First Nations and non-Indigenous youth dying by suicide in Queensland, Australia, from 2001 to 2018. Risk ratios (RiskR) with 95 % CIs compared characteristics between First Nations and non-Indigenous youth suicides. Joinpoint regression was used to identify any changes in trends and annual percentage change (APC) in suicides with 95 % CIs.
Results: The First Nations youth ASSR was 24.71 deaths per 100,000 persons/year, 4.5 times the non-Indigenous ASSR (95 % CI = 3.74–5.38, $p < 0.001$). Both non-Indigenous and First Nations suicide trends were stable with no joinpoints (APC: 0.3 %, 95 % CI: −1.6-2.2, $p = 0.78$; APC: 0.9 %, 95 % CI: −0.2-2.1, $p = 0.11$). Less than a quarter (23.9 %) of First Nations young people had ever received mental health treatment, significantly fewer than non-Indigenous youth (RiskR = 0.80, 95 % CI = 0.71–0.90, $p < 0.001$). Similarly, in the three months preceding their death, only 14.5 % of First Nations young people had received mental health treatment (RiskR = 0.89, 95 % CI = 0.83–97, $p = 0.015$).
Limitations: Reported mental illness, suicidality and help-seeking could be underreported due to concealment from family or police.
Conclusions: The current study finds no change in the gap between the First Nations and Non-Indigenous youth suicide rates nor evidence of decrease in the First Nations youth suicide rate. There is a need for alternative approaches to Indigenous youth suicide prevention, such as assertive outreach models outside of traditional triage and mental health systems to proactively build trusting relationships with young people in communities to identify young people needing support.

The experiences of continued settler colonialism in Australia, including dispossession, genocide, and discrimination, has resulted in harms and adverse outcomes for Aboriginal and Torres Strait Islander people across education, housing, incarceration, life expectancy, mental health and many other domains (Aboriginal and Torres Strait Islander Social Justice Commissioner, 2005; Australian Human Rights Commission, 1997; De Maio et al., 2005; Dodson and Mcnamee, 2008; SCRGSP (Steering Committee for the Review of Government Service Provision), 2020; Sherwood, 2013). While accessing support is difficult for many experiencing mental ill health and suicidality (Cleary, 2017; Han et al., 2018; MacDonald et al., 2020), research continues to highlight additional barriers experienced by First Nations people of Australia, including racism when seeking support, ineffective service models, and poorer treatment outcomes (Eley et al., 2007; Gwynne et al., 2019;

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Kelaher et al., 2014; Westerman, 2010). The higher burden of suicide borne by Aboriginal and Torres Strait Islander communities has been consistently reported (Leske et al., 2022) Of particular concern, the disparities between First Nations and non-Indigenous suicide rates widen at younger ages to almost 8 times higher (Dickson et al., 2019; Gibson et al., 2021a). Despite the known higher rates, First Nations young people do not receive treatment and support commensurate with their level of need (Price and Dalgliesh, 2013; Soole et al., 2014; Westerman, 2010). It has been proposed that failure to recognise distress and suicidality within current youth mental health models and services is a key factor in these suicide disparities, with many reporting untreated mental ill health as a primary contributor(Westerman and Dear, 2023). As such, it is critical to understand the help seeking-pathways and patterns of indicators of distress and suicidality in order to identify opportunities and potential points to intervene for First Nations young people experiencing suicidality in order to reduce First Nations youth suicide. To date, there has been little examination of the prior mental health, suicidality, or support received by First Nations youth people who have died by suicide or the independent contributions of these experiences to the current suicide disparities. This analysis aims to 1) calculate and examine suicide rates for First Nations young people in Queensland over time; 2) analyse the treatment pathways (mental health service contacts, previous psychological treatment, suicidality and mental health diagnoses) of First Nations young people who died by suicide in Queensland; and 3) compare suicide rates, demographic characteristics, and treatment pathways for First Nations and other young people (aged 10–19 years) in Queensland.

1. Methods

1.1. Data sources

1.1.1. Suicide data

Data on suicides of young people aged 10–19 years during the period 2001–2018 in Queensland were extracted from the Queensland Suicide Register (QSR). The QSR is a suicide mortality database operating since 1990, and maintained by the Australian Institute for Suicide Research and Prevention (AISRAP) at Griffith University. The QSR sources data from police reports from the Queensland Police Service (QPS); and post-mortem examinations, toxicology reports, and coronial findings from the National Coronial Information System (NCIS) (Leske et al., 2022). The QPS reports, NCIS and the Queensland Registry of Births, Deaths and Marriages supply information on First Nations status. The QSR includes information on a wide range of demographic, psychosocial, psychiatric, medical, contextual, and behavioural aspects of suicides.

Additional information about suspected suicide numbers for 2019–2021 were extracted from the interim QSR (iQSR). The iQSR is a real-time suicide surveillance system which holds information about suspected suicides in Queensland and includes information only from police forms. Both, the QSR and iQSR classify the probability of suicides into either ‘unlikely’, ‘possible’, ‘probable’ or ‘confirmed’ using a decision-tree based on public health research criteria (Leske et al., 2022). This study includes suicides classified as ‘probable’ or ‘confirmed’.

The QSR records ethnicity as Caucasian, Aboriginal, Torres Strait Islander, both Aboriginal and Torres Strait Islander, Asian, another ethnicity, or unknown. For the current analysis, ethnicity is divided as First Nations (All Aboriginal, Torres Strait Islander, and both Aboriginal and Torres Strait Islander persons), non-Indigenous and unknown. As such, the phrase ‘First Nations people’ is used through the paper to refer to Aboriginal and Torres Strait Islander people.

Variables examined in the frames of the analyses included: recent or past treatment for mental health disorders; sources of treatment, previous mental health diagnoses, evidence for undiagnosed psychiatric disorders; communication of suicidal intent during young person's lifetime; and within 12 months prior to death; previous suicide attempt(s) during young person's lifetime or previous year, and exposure to suicide and experiences of bereavement (including by not limited to bereavement by suicide).

The QSR and iQSR procedures have ethical approval from the Victoria Department of Justice and Community Safety Human Research Ethics Committee (HREC; CF/18/12771) and the Griffith University HREC (2010/537).

1.1.2. Population data

Population data used to calculate suicide rates for young people in Queensland were obtained from the *Estimates of Aboriginal and Torres Strait Islander Australians* (Australian Bureau of Statistics, 2013), with midpoint year population used for comparative analysis. While it is acknowledged that significant cultural, historical, and social differences exist between the many First Nations communities across Australia, due to the limitations of population denominator data, the comparisons included suicide rates for all Aboriginal and Torres Strait Islander individuals as ‘First Nations peoples.’

1.2. Statistical analysis

Age-specific suicide rates (ASSRs) were calculated per 100,000 population among First Nations and non-Indigenous young people aged 10–19 (separated by gender and the age groups 10–14 and 15–19) in Queensland from 2001 to 2018. To compare suicide rates in different groups, rate ratios (RR), their 95 % confidence intervals and exact p values were calculated. Risk ratios (RiskR) with 95 % CI were calculated to compare differences in characteristics between First Nations and non-Indigenous youth suicides. With small numbers (below five), Fisher's Exact Test was used. A Poisson regression with robust errors was applied to determine the independent contribution of significant variables from analyses comparing First Nations and non-Indigenous suicides, and the contribution compared to a constant only model. As the current period of study covers almost two decades (in which significant changes to mental health awareness and treatment access have occurred) year of death, with age at time of death, and sex were included in addition to variables identified as significant in the previous univariate analyses. Risk Ratios with 95 % CI of variables significant from the final models are also presented. A probability level of 0.05 was considered as significant. Data analyses were performed in SPSS Statistics 27 (IBM, 2020).

Additional time trend analyses were conducted also including years 2019–2021 from the iQSR. Joinpoint regression was used to analyse suicide trends of First Nation and non-Indigenous youth in 2001–2021. The Joinpoint Regression Program version 4.9.1.0 (National Cancer Institute, 2022) was used to identify any changes in trends, using log-transformation and Poisson variance we calculated the (average) annual percentage change [(A)APC] in suicide rates with their 95 % confidence intervals (95 % CIs). Joinpoint regression fits the simplest model that the data allows, starting with zero joinpoints, and assesses if more joinpoints are statistically significant using a Monte Carlo permutation method (Kim et al., 2000).

2. Results

A total of 679 suicide deaths were recorded for all young people aged 10–19 years in 2001–2018 in Queensland, equivalent to 6.45 suicides per 100,000 persons (95 % CI = 5.97–6.95). Information regarding First Nations identification was not available for five suicide deaths (0.7 %) and were therefore not analysed. First Nations young people aged 10–19 had a suicide rate of 24.71 per 100,000, while other young people had a suicide rate of 5.5 per 100,000 (see Table 1). The rate of suicide for First Nations youth was 4.5 times higher than other young people (95 % CI = 3.74–5.38, $p < 0.001$), and as such comprised 23.6 % ($n = 159$) of all young people who died by suicide during the period from 2001 to 2018, while comprising 6.8 % of that age group in Queensland in the 2011

Table 1
Suicide Rate Ratios of First Nations and non-Indigenous youth (10–19 years) by age groups and sex, Queensland, 2001–2018.

	First Nations young people				Non-Indigenous young people				RR	95 % CI		
	N	Rate	95 % CI		*N*	Rate	95 % CI			*LL*	*UL*	*p*
			LL	*UL*			*LL*	*UL*				
Total	159	24.71	21.01	28.86	515	5.5	5.03	5.99	4.5	3.74	5.38	<0.001
Sex												
Male	103	31.34	25.58	38.01	355	7.42	6.67	8.23	4.23	3.36	5.28	<0.001
Female	56	17.78	13.43	23.09	160	3.49	2.97	4.07	5.1	3.69	6.95	<0.001
Age												
10–14	29	8.54	5.72	12.27	58	1.25	0.95	1.62	6.84	4.22	10.85	<0.001
15–19	130	42.75	35.72	50.76	457	9.66	8.79	10.59	4.43	3.61	5.39	<0.001

UL – Upper Limit; LL – Lower limit.
Information regarding Indigenous identification was not available for five suicide deaths, these deaths were omitted from analysis.

Census (Australian Bureau of Statistics, 2013), closest to the midpoint of the study period. Suicide trend analyses in Fig. 1 showed notable variance in the annual suicide rate for Aboriginal and/or Torres Strait Islander young people, however, in general the trend was stable without any joinpoints from 2001 to 2021 (APC: 0.3 %, 95 % CI: −1.6 -2.2, $p = 0.78$). Although suicide rates did not fluctuate notably among non-Indigenous young people, their suicide trend was also relatively stable without joinpoints (APC: 0.9 %, 95 % CI: −0.2 -2.1, $p = 0.11$).

First Nations males and females aged 10–19 both died by suicide at a higher rate than their non-Indigenous counterparts, with the young female suicide rate over five times that of other young females (RR = 5.1, 95 % CI = 3.69–6.95, $p < 0.001$). The young male suicide rate was 4.23 times that of other young males (95 % CI = 3.36–5.28, $p < 0.001$). For both First Nations and non-Indigenous populations, the male suicide rate was higher than the female rate (Fig. 2) with non-Indigenous young men dying by suicide at 2.13 times the rate of non-Indigenous young females (95 % CI = 1.76–2.58, $p < 0.001$), and First Nations young men dying by suicide at 1.76 times the First Nations female rate (95 % CI = 1.26–2.49, $p < 0.001$). Similarly, to the trend for both sexes, suicide trends for Indigenous youth males and females and non-Indigenous males and females were all relatively stable without joinpoints from 2001 to 2021 (Supplementary Fig. 1, Supplemetary Table 1).

First Nations children, aged 10–14, died by suicide at a rate 6.84 times higher than other children (95 % CI = 4.22–10.85, $p < 0.001$). Their suicides were a third of all suicides ($n = 29$) by those aged 10–14 from 2001 to 2018. In the age group of 15–19 years, the First Nations suicide rate was over 4 times higher than the non-Indigenous rate (RR = 4.43, 95 % CI = 3.61–5.39, $p < 0.001$). As seen in Fig. 2, for both First Nations and non-Indigenous young people, those aged between 15 and 19 died by suicide at higher rates compared to their younger counterparts, the difference was larger in non-Indigenous populations, 7.73 times (95 % CI = 5.87–10.34, $p < 0.001$) higher as compared to 5 times (95 % CI = 3.33–7.77, $p < 0.001$) the rate.

2.1. Mental health diagnoses and prior treatment

Of First Nations young people who died by suicide from 2001 to 2018, 15.7 % had been diagnosed with a mental illness, significantly fewer than the 29.5 % of other young people who had received mental health diagnoses (RiskR = 0.84, 95 % CI = 0.77–0.91). As seen in Table 2, one in 40 (2.5 %) First Nations young people had a diagnosis of anxiety, and approximately one in 9 (11.3 %) had a diagnosis of depression before their deaths, lower than other young people with 8.9 % (Fisher's Exact $p = 0.003$) and 22.9 % (RiskR = 0.87, 95 % CI = 0.81–0.94) respectively. Substance use disorders and psychotic disorders were not significantly different (RiskR = 1.03, 95 % CI = 0.99–1.07; iskRR = 0.99, 95 % CI = 0.96–1.03). Over a third (37.1 %) of First Nations young people had evidence for an undiagnosed mental health disorder prior to suicide according to their family and friends, which was similar to non-Indigenous young people (31.3 %; RiskR = 1.1, 95 % CI = 0.96–1.25).

Less than a quarter (23.9 %) of First Nations young people who died

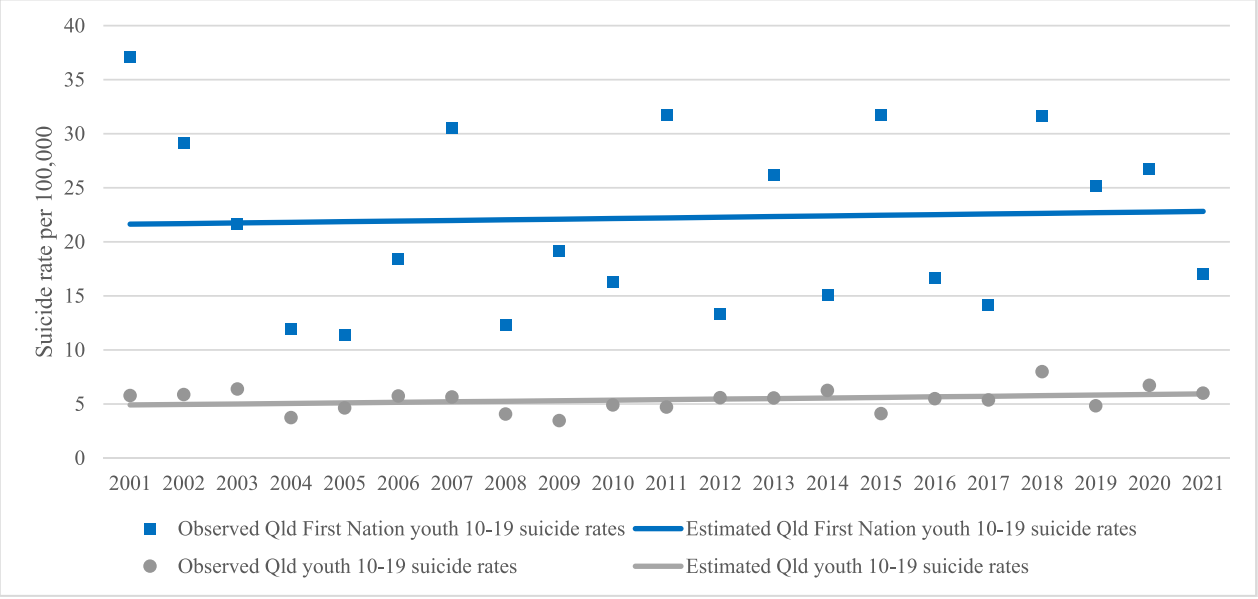

Fig. 1. Annual observed and estimated suicide rates of First Nations and non-Indigenous young people aged 10 to 19 in Queensland from 2001 to 2021.

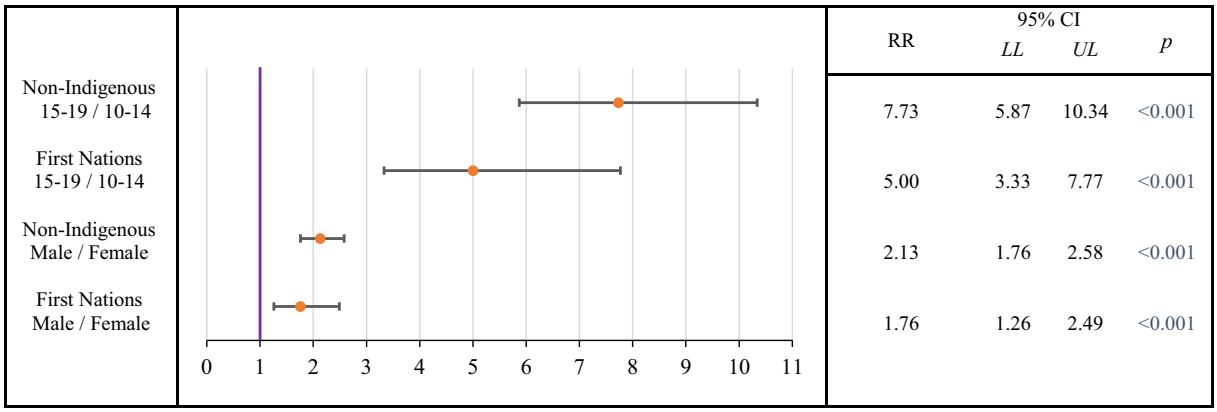

Fig. 2. Suicide rate ratios for First Nations and non-Indigenous young people in Queensland by age groups and sex in 2001–2018 *Note:* UL – Upper Limit; LL – Lower limit.

Table 2
Risk Ratios for treatment, Mental health, suicide-related, and demographic variables of First Nations and non-Indigenous young people (10–19 years), Queensland, 2001–2018.

	First Nations young people		Non-Indigenous young people		RiskR	95 % CI		
	n	%	*n*	%		*LL*	*UL*	*p*
Demographic variables								
Sex								
Male	103	64.8	355	68.9	0.94	0.83	1.07	0.329
Female	56	35.2	160	31.1				
Age group								
10–14 years	29	18.2	58	11.3	1.62	1.08	2.44	0.027
15–19 years	130	81.8	457	88.7				
Mental health (MH) diagnoses								
Any mental health diagnosis	25	15.7	152	29.5	0.84	0.77	0.91	<0.001
Depression	18	11.3	118	22.9	0.87	0.81	0.94	<0.001
Anxiety	<5	2.5	46	8.9	Fisher's Exact = 0.003			
Psychosis/Psychotic disorder	5	3.1	19	3.7	0.99	0.96	1.03	0.746
Substance use disorder	9	5.7	15	2.9	1.03	0.99	1.07	0.102
Evidence of undiagnosed MH disorder	59	37.1	161	31.3	1.10	0.96	1.25	0.169
Mental health treatment								
Current or past MH treatment	38	23.9	203	39.4	0.80	0.71	0.90	<0.001
GP	13	8.2	102	19.8	0.87	0.82	0.93	<0.001
Inpatient	19	11.9	88	17.1	0.94	0.88	1.01	0.121
Any MH treatment in previous 3 months	23	14.5	121	23.5	0.89	0.83	0.97	0.015
Previous suicidality								
Communication of intent during lifetime	83	52.2	249	48.3	1.08	0.90	1.30	0.396
Communication of intent in 12 months prior	71	44.7	205	39.8	1.1	0.93	1.27	0.277
Suicide attempt in lifetime	43	27.0	158	30.7	0.95	0.85	1.06	0.381
Suicide attempt in 12 months prior	28	17.6	127	24.7	0.91	0.84	1.0	0.065
Suicide note left	23	14.5	168	32.6	0.79	0.72	0.86	<0.001
Exposure to suicide	25	15.7	58	11.3	1.05	0.98	1.13	0.135
Bereavement	30	18.9	54	10.5	1.10	1.02	1.2	0.005

Note: UL – Upper Limit; LL – Lower limit.

by suicide had received mental health treatment over their lifetime, significantly lower than almost 40 % (39.4 %) of other young people (RiskR = 0.80, 95 % CI = 0.71–0.90). Similarly, in the three months preceding their death, First Nations young people were less likely to have received mental health treatment (14.5 % vs. 23.5 %, RiskR = 0.89, 95 % CI = 0.83–97). Approximately one in twelve (8.2 %) First Nations young people who had died by suicide had received help from a GP for mental health concerns, significantly fewer than non-Indigenous young people (19.8 %, RiskR = 0.87, 95 % CI = 0.82–0.93). There was no significant difference in the history of previous admissions to inpatient mental health facilities (11.9 % vs. 17.1 %, RiskR = 0.94, 95 % CI = 0.88–1.01).

For both First Nations and non-Indigenous young people who died by suicide approximately half, 52.2 % and 48.3 % respectively, had communicated suicidal intent during their lifetimes (RiskR = 1.08, 95 % CI = 0.90–1.30). There was no significant difference in communication of suicidal intent during the previous year, although odds were greater for First Nations people (44.7 % vs. 39.8 %, RiskR = 1.1, 95 % CI = 0.93–1.27). Less than a third of both First Nations and non-Indigenous young people (27.0 % and 30.7 % respectively) had attempted suicide sometime during their lifetimes (RiskR = 0.95, 95 % CI = 0.85–1.06). In the year prior to their deaths, 17.6 % of First Nations young people had attempted suicide, compared to approximately a quarter (24.7 %) of other young people (RiskR = 0.91, 95 % CI = 0.84–1.0).

First Nations young people who had died by suicide had odds of experiencing bereavement approximately two times higher than non-Indigenous young people (18.9 % vs. 10.5 %, RiskR = 1.10, 95 % CI = 1.02–1.2). Though the odds of suicide-specific exposure were times higher in First Nations young people, this difference was not significant (15.7 % vs. 11.3 %, RiskR = 1.05, 95 % CI = 0.98–1.13).

2.2. Poisson regression model

A Poisson regression using the demographic variables of year of death, sex, and age, in addition to all previously significant univariate variables was statistically significant ($\chi^2(11) = 45.35$, $p < 0.001$) indicating the model was capable of distinguishing between First Nations and non-Indigenous youth suicides relative to a constant only model, with an adequate model fit, $\chi^2(662) = 505.53$, $p = 0.764$. The final model showed that the independent variables distinguishing non-Indigenous and Aboriginal and Torres Strait Islander youth suicides were bereavement and presence of a suicide note, as seen in Table 3. More specifically experiencing bereavement, and not leaving a suicide note increased the likelihood of First Nations compared to non-Indigenous youth suicides.

3. Discussion

This study aimed to analyse the suicide mortality rates and trends, patterns of service contacts, prior suicidality and mental health diagnoses for First Nations young people who had died by suicide, and to compare rates and patterns of suicide with non-Indigenous young people in Queensland. The analysis found that First Nations young people died by suicide at higher rates than non-Indigenous young people across age and sex demographic groups, with the rate for First Nations young people aged 15–19 years equivalent to over one suicide death per 2500 persons annually. The analysis illustrates a rather stable trend in suicides for First Nations and non-Indigenous young people from 2001 to 2021, without any significant change in suicide rates or patterns. Sadly, the current analyses find no change in the gap between the First Nations and Non-Indigenous youth suicide rates nor evidence of decrease in the First Nations youth suicide rate.

While over a third (37.1 %) of First Nations young people who had died by suicide had evidence of undiagnosed mental illness, only 15.7 % had received a mental illness diagnosis. Just over half (52.2 %) of First Nations young people who had died by suicide had communicated suicidal intent and just over a quarter (27.0 %) had attempted suicide. Overall, fewer First Nations young people who died by suicide had received mental health treatment or diagnoses than non-Indigenous young people, with the exceptions of psychotic disorders, substance use disorders, or inpatient admission. The similar rates of inpatient admissions prior to suicide deaths between First Nations and non-Indigenous young people suggests that barriers to acute or crisis mental health services are not a significant contributor to the current suicide disparities. Whereas the differences in mental health treatment access at earlier intervention timepoints may have a greater effect, and in turn provide greater opportunity to reduce Indigenous suicide disparities.

Both populations had similar rates for most indicators of previous suicidality including lifetime experiences of suicide attempts and communication of intent. Surprisingly First Nations young people were somewhat less likely to have attempted suicide in the previous year (17.6 %) compared to non-Indigenous young people who died by suicide (24.7 %). While this difference did not reach significance and should be interpreted with caution, this could be a true difference, alternatively this could reflect that First Nations youth were less likely to report previous suicide attempts due to or fewer treatment options with healthcare potentially not culturally safe or physically accessible.

Despite significantly lower prevalence of mental health diagnoses, First Nations young people who died by suicide did not have significantly more evidence for undiagnosed mental illness than their non-Indigenous peers. This suggests that the higher suicide rates of First Nations young people may not be attributed solely to untreated mental illness (Armstrong et al., 2017; Davison et al., 2017; Dudgeon et al., 2017). This could be that psychological distress in First Nations young people may often be misclassified or unrecognised due to differences in distress occurring outside of traditional Western indicators of mental illness or psychiatric classification systems (Dudgeon and Walker, 2015; Soole et al., 2014; Westerman, 2010). (Haregu et al., 2022; Jamieson et al., 2011; Priest et al., 2011). As mental illness and recent suicidality are often key risk indicators for screening or triage (Hawgood and De Leo, 2016), it is somewhat unsurprising that First Nations young people were less likely to have received any mental health treatment as they were less likely to have a diagnosis of a mental illness and slightly less likely to have recently attempted suicide. Indeed, the majority (76.1 %) of First Nations young people who died by suicide had never received treatment, and specifically 85.5 % had not received mental health treatment in the three months prior to suicide.

The gap between this low prevalence of treatment received and almost half communicating suicidal intent (44.7 % in previous year) represents a sobering disparity. There are many factors likely contributing to this gap. This may reflect that pathways for help-seeking are unknown, unclear, perceived as inaccessible, or simply do not exist (Gibson et al., 2022; Isaacs et al., 2010; Price and Dalgliesh, 2013; Skerrett et al., 2017). Additionally, extant fear of removal and service mistrust have also been identified as key barriers for young people and families (Baba et al., 2014). Further, the frequent experiences of racism and discrimination First Nations people face when seeking support are of particular concern (Durey et al., 2012; Kelaher et al., 2014; Larson et al., 2007) as discrimination is a known risk factor for suicidality (Haregu et al., 2022; Jamieson et al., 2011) and even a precipitating 'breaking-point' for suicide (Brooks et al., 2020). (Gibson et al., 2022; Price and Dalgliesh, 2013; Westerman, 2010) There is a need for further research to understand Aboriginal and Torres Strait Islander young people's experiences of trying to access support when suicidal in order to elucidate barriers to these pathways. While the reasons contributing to this low rate of service contact are complex and multifaceted, these findings highlight the need for suicide prevention solutions beyond models that rely on identifying and triaging which specific First Nations young people are provided support, such as promoting protective factors through community to increase resilience for all First Nations young people (Dudgeon et al., 2016, 2022; Summerton and Blunden, 2022). As such, assertive outreach models which proactively build relationships with young people in communities may be able to build trust to earlier or pre-emptively identify young people needing support and could be a strategy to address the cyclical challenge of service reluctance and fear of discrimination to facilitate pathways for young people experiencing suicidal ideation (Gibson et al., 2022; Price and Dalgliesh, 2013; Westerman, 2010). While First Nations young people did not have significantly higher odds of exposure to suicide, the odds of bereavement was

Table 3
Poisson regression model and risk ratios for suicides by Aboriginal and Torres Strait Islander compared to non-Indigenous youth suicides (ages 10–19 years).

	Risk R	95 % CI		*p*
		LL	*UL*	
Sex (male/female)	0.82	0.61	1.09	0.166
Depression diagnosis	1.21	0.68	2.16	0.511
Any mental health diagnosis	0.72	0.43	1.19	0.198
Anxiety diagnosis	2.57	0.99	6.70	0.054
Current or past MH treatment	0.82	0.54	1.24	0.342
Any MH treatment in previous 3 months	1.05	0.68	1.63	0.816
GP	1.57	0.87	2.83	0.134
Suicide note	2.29	1.52	3.45	<0.001
Bereavement	0.66	0.47	0.91	0.010
Age (10–19 years continuous)	0.94	0.89	1.00	0.068
Year of Death (2001–2018 continuous)	1.00	0.98	1.03	0.772
Deviance (*662*)	413.93, $p = 0.63$	Akaike crit. (AIC)		755.93
Pearson X^2 (*662*)	505.53, $p = 0.76$	Bayesian crit. (BIC)		810.09

Note: UL – Upper Limit; LL – Lower limit; $X^2(11) = 45.35$.

significantly higher. The constant cycles of prolonged grief and bereavement - in which First Nations people experience the inability to recover from one loss to the next - are well known, as is their impact on First Nations health (Darwin et al., 2023; Elliott-Farrelly, 2004; Tatz, 2005). The current findings highlight the need to incorporate these contextual community stressors and risk factors to understand the needs for First Nations young people experiencing suicidality (Dudgeon et al., 2017).

It is important to note that while the poisson regression model which included previous treatment, suicidality and mental health diagnoses significantly differentiated First Nations and non-Indigenous youth suicides, it is important to note that there is likely many other important critical variables the underlie the variance in experiences of suicidal First Nations and non-Indigenous young people which are not included within the current mortality surveillance data. As such, there is a need for further research to explore the contributions of other risk factors and experiences, such as attention from youth justice and child protection services, discrimination and racism (Haregu et al., 2022; Leckning et al., 2023).

While the primary aim of this study was to compare the rates and trajectories of First Nations and non-Indigenous young people, it is critical to note that no significant changes were observed for either population between 2001 and 2021. As notable changes have occurred since the beginning of the century with regards to mental health awareness, societal attitudes, and psychological treatment access, it is somewhat surprising that these have not resulted in lower youth suicide mortality (Jorm, 2018; Reavley and Jorm, 2012). This may be due to the lower variation within the smaller count data for young people as compared to adult-aged populations. Alternatively, this may reflect the need for suicide prevention activities that expand beyond traditional mental health domains to target social determinants of suicide (Bastiampillai et al., 2023; Jorm, 2020). As suicide continues to represent a significant burden of youth mortality as the leading cause of death for Australians aged under 15 (Australian Bureau of Statistics, 2021), the stagnant rates highlight the need for new approaches to reduce suicide for both non-Indigenous and Aboriginal and Torres Strait Islander young people.

4. Limitations

There are some limitations that should be considered. While the iQSR is a comprehensive suicide surveillance system, determinations of suicides in the iQSR are preliminary. Data from 2019 to 2021 may therefore be incomplete with potential information included from coronial reporting. Reported diagnoses of mental illness may be reported by health records accessible to police officers but are also often reported to police by friends and family of the deceased. This data is also not cross-checked with any public or private mental health data for confirmation of diagnosis, which could have a difference influence on reporting by families due to fear and mistrust of police offices due to First Nations deaths occurring in custody and other adverse treatment. Thus, numbers and proportions may underestimate true numbers of diagnosed or undiagnosed mental health conditions.

Other types of support or treatment services outside of traditional medical and mental health frameworks may be missed through the current data collection procedures, additionally we are unable to determine services young people may have been referred but not triaged and accepted into or did not attend. Further, prevalence of undiagnosed mental illness as reported to police through friends and relatives may be influenced through community understandings and interpretations of mental illness and psychological distress. The current analyses which compare access to treatment and previous diagnoses between First Nations and Aboriginal and Torres Strait Islander youth suicides across Queensland, do not account for the potential variations within different communities across the state which would possibly confound the reported effects. There is a need for future research with larger datasets to explore the potential interactions of community-level factors on the relationship between Indigenous services access and suicide mortality, particularly factors which previous research has identified to influence Indigenous suicide mortality and other preventable fatalities, such as access to Indigenous health services (ACCHOs), cultural and mental health services, attitudes to mental illness and help-seeking, and racial discrimination (Gibson et al., 2021b; Lalonde and Chandler, 2009; Australian Institute for Health and Welfare, 2015).

5. Conclusion

First Nations young people continue to die by suicide at elevated rates, especially in comparison to non-Indigenous young people, with little evidence of improvement in the rates of suicide or the gap with non-Indigenous young people over the previous two decades. The lower prevalence of mental illness diagnoses, and previous service contacts of First Nations young people highlight the need for interventions outside of traditional referral and service pathways, such as promoting strength based protective factors at a community level to prevent progression to suicidality, and assertive community outreach to connect with First Nations young people in need of support.

CRediT authorship contribution statement

M. Gibson: Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis, Conceptualization. **S. Leske:** Writing – review & editing, Validation, Methodology, Formal analysis, Conceptualization. **R. Ward:** Writing – review & editing, Validation, Methodology, Conceptualization. **B. Weir:** Writing – review & editing, Validation, Formal analysis. **K. Russell:** Writing – review & editing, Validation, Conceptualization. **K. Kolves:** Writing – review & editing, Writing – original draft, Validation, Methodology, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that there is no conflicting or competing interests. The funding for the QSR/iQSR did not influence the study design, the analysis, the interpretation of data, or the decision to submit the article for publication.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jad.2024.03.013.

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