Received: 4 April 2022 | Revised: 15 November 2022 | Accepted: 3 January 2023

DOI: 10.1111/sltb.12946

ORIGINAL ARTICLE

Demographic and psychosocial factors associated with recent suicidal ideation and suicide attempts among trans and gender diverse people in Australia

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Funding information
Victorian Government Department of Health and Human Services; Victorian Government Department of Premier and Cabinet

Abstract

Introduction: Correlates of suicidal ideation and suicide attempts among a large cross-section of trans and gender diverse populations in Australia were examined.
Methods: A national survey was conducted that included 1466 trans and gender diverse participants aged 18+ years. Multivariable regressions identified factors associated with recent suicidal ideation and suicide attempts.
Results: Overall, 62.4% reported suicidal ideation and 9.5% suicide attempt in the past 12 months. The likelihood of suicidal ideation was higher for younger participants or those who felt treated unfairly or socially excluded due to their gender identity in the past 12 months. It was lower for those with a postgraduate degree, who felt accepted by family or work, or who felt their gender identity was respected when accessing a mainstream medical clinic in the past 12 months. The likelihood of suicide attempts was greater for those aged younger or who had recently experienced sexual harassment based on their sexual orientation or gender identity, and lower for those who were non-binary.
Conclusion: Urgent attention for suicide prevention is necessary for trans and gender diverse communities. These findings point to a range of risk and protective factors, which may help inform the targeting and design of suicide prevention strategies.

KEYWORDS
Australia, LGBTQ, suicidal ideation, suicide, suicide attempt, trans and gender diverse

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INTRODUCTION

Trans and gender diverse people, henceforth collectively referred to as trans people in this paper, are one of the most at-risk populations globally for mental health issues, including suicidal ideation, attempts, and death by suicide (Marshall, Claes, et al., 2016; Reisner et al., 2016; Wolford-Clevenger et al., 2018). Trans people refers to people who have a gender identity or gender expression that is different from the sex assigned to them at birth and includes trans women (who identify as a woman but were presumed male at birth), trans men (who identify as a man but were presumed female at birth), and those who do not identify with a binary gender (this includes a variety of non-binary gender identities often combined into the umbrella-term "non-binary"). Studies point to substantial rates of suicide-related experiences among trans populations. In Australia, recent studies have shown 43%–44% of trans people reported ever attempting suicide in their lifetimes (Boza & Nicholson Perry, 2014; Zwickl et al., 2021) compared to 3.2% among the general Australian population. Similarly, elevated patterns have been found in North America, with 29% of trans people reporting ever attempting suicide across their lifetimes according to a meta-analysis of 42 studies (Adams et al., 2017).

Despite this, comprehensive knowledge of risk and protective factors for suicidal ideation and suicide attempts among trans people is limited. With two notable Australian exceptions (Treharne et al., 2020; Zwickl et al., 2021), most have been conducted in North America, but point to a range of important factors. Key among these are experiences with gender-based physical or sexual violence, discrimination, and familial or social exclusion, which have been linked to reduced psychological wellbeing and increased likelihood of suicidal behavior (Goldblum et al., 2012; Haas et al., 2014; Klein & Golub, 2016; Suen et al., 2018; Testa et al., 2012; Valentine & Shipherd, 2018; Virupaksha et al., 2016). Trans people are known to report a significantly higher incidence of experiencing physical and sexual violence compared to the general population (Australian Human Rights Commission, n.d.; Callander et al., 2019). Delayed or denied access to treatment among trans people pursuing medical transition has also been linked to a greater likelihood of suicidality compared to those whose treatment was timely and comprehensive (Coleman et al., 2012; Zwickl et al., 2021). Other social and demographic issues associated with suicidality include intersections with sexual identity, experiencing housing instability or homelessness, lower income or educational attainment, and living with a disability (Haas et al., 2014; Lytle et al., 2014).

Some protective factors have also been associated with lower odds of suicidal ideation and suicide attempts in trans populations. Psychological resilience is one such factor (Virupaksha et al., 2016). However, psychological resilience alone is not likely to be sufficient in many instances; existing in spaces that necessitate a sense of survival or resistance can be physically and psychologically exhausting, and can carry its own toll on the wellbeing of trans people (Nicolazzo, 2016). Rather, studies also suggest that trans people benefit from feelings of community and family support, as well as relative life stability (Moody, 2015; Moody & Smith, 2013). It is also important to create affirming and respectful social environments and medical/governmental settings, guidelines and policies that explicitly affirm and support trans people (Bauer et al., 2015; Marshall, Socías, et al., 2016; Moody & Smith, 2013; Nuttbrock et al., 2012).

Although previous research has identified some factors associated with suicidality, further comprehensive knowledge is needed, such as understanding the role of sexual identity. Sexual identity subpopulations among cisgender people report different levels of suicidal ideation and suicide attempts, with bisexual people often reporting higher levels of mental health conditions, suicidal ideation, and suicide attempts than their mono-gender attracted peers (Conron et al., 2010; Swannell et al., 2015; Taylor et al., 2020). There is, however, limited research on whether suicidal ideation or suicide attempts vary between sexual identity sub-populations among trans people, such as pansexual, queer, or asexual identifying trans people. Importantly, there is a particular lack of research in Australia, where framings, language, and discourse surrounding gender diversity differ from North America, and the recent public, and at times hostile, 2017 Australian marriage equality debate that negatively impacted lesbian, gay, bisexual, trans, intersex, and queer (LGBTIQ) communities and their allies (Ecker et al., 2019). Previous Australian research has focused on correlates of lifetime suicide attempts among trans people, and there are no studies to our knowledge that examine correlates of experiences of suicidal ideation or recent experiences of suicide attempts among trans adults. In addition, population surveys in Australia tend to be limited by inadequate questions on gender, which often render trans people invisible and thus inhibit knowledge of the impact of suicide in this group (Haas et al., 2010; Haas & Lane, 2015).

In this paper, we report on a study that examined potential demographic and social factors in relation to recent suicidal ideation and suicide attempts among trans adults in Australia. This included examining different sexual identity and gender identity subpopulations as well as a range of sociodemographic variables and gender-affirming

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and stigma-related experiences. The main aim was to undertake an analysis of a wide range of variables to provide further knowledge of potential risk and protective factors, and to therefore help inform targeted suicide prevention strategies.

MATERIALS AND METHODS

Sample and procedure

This study sample is from Private Lives 3 (Hill, Bourne, et al., 2020), a cross-sectional, anonymous online, national survey of the health and well-being of LGBTIQ people age 18+ years we conducted in Australia. The Private Lives 3 survey was designed through close consultation with an Expert Advisory Board and Gender Advisory Board comprising members who were experts on the health and wellbeing of LGBTIQ populations in Australia. The advisory boards provided guidance and advice on the measures used throughout the survey. conducted from July to October 2019. The survey was predominantly promoted through paid Facebook and Instagram advertising, as well as by LGBTIQ organizations through their respective networks. The study received ethics approval from the La Trobe Human Research Ethics Committee. All survey questions were optional, and informed consent was obtained from all participants.

Participation in the survey was voluntary and compensation was not provided for completion. In addition, several approaches were used to prevent or remove fake responses from the survey. The survey was run through Qualtrics, an online survey software, which uses cookies to prevent users from responding to the survey multiple times for malicious reasons. The *Private Lives 3* investigator team also conducted a thorough check through the survey responses and removed any that appeared to be fake. This included looking carefully at responses from participants who were over the age of 80 years old or who scored extremes on standardized scales, for example a score of 50/50 or 10/50 on the K10. It also included any responses to open-text questions, particularly to gender identity and sexuality questions, that appeared intentionally malicious. Finally, many fake responses were likely removed during data cleaning because they did not finish the survey as it took 30–50 min to complete.

In total, the survey was received 6835 valid responses, including 1640 participants who identified as trans or gender diverse. For the purpose of the present study analyses, we include only those trans or gender diverse participants who answered the survey questions regarding recent suicidal ideation or suicide attempts, resulting in a total sample of 1466 participants.

Materials

We used the following variables from the Private Lives 3 survey in this paper:

Demographics

Demographic questions included age, gender identity, sexual orientation, area of residence (capital city—inner suburban, capital city—outer suburban, regional, rural), weekly pre-tax income, country of birth (Australia, other English-speaking country, other non-English-speaking country), highest educational attainment, current engagement in paid employment, and relationship status.

Suicidal ideation and suicide attempts

Participants were first asked if they had experienced "thoughts about suicide, wanting to die or about ending your life" and then asked if they had "attempted suicide or to end your life." Response options for both items were "no," "yes, in the past 12 months," "yes, more than 12 months ago", and "prefer not to answer." Multiple responses were permitted. To focus on recent experiences, a variable was computed for each item to indicate whether participants had experienced suicidal ideation in the past year or attempted suicide in the past year. Although previous research found suicide risk is not increased when people are asked about suicide (Mathias et al., 2012), contact details for suicide call-back services and emergency services were provided prior to these questions in the survey. Participants could also choose the option "I prefer not to answer these questions" without viewing the questions and skip all questions regarding suicide. Overall, 78 trans participants skipped the questions by indicating "I prefer not to answer these questions." Those who selected "prefer not to answer" for a particular question were likewise not included in the analyses.

Stigma and discrimination

We assessed overall experiences of sexual orientation discrimination by asking, "In the past 12 months, to what extent do you feel you have been treated unfairly because of your gender identity?" Response options ranged on a five-point scale from "not at all" to "very often." For analysis, responses of "not at all" were coded as "no" and all other responses as "yes."

We assessed how accepted participants felt with family and at work. Response options were "not applicable," "not

at all," "a little," "somewhat," "a lot," and "always." For ease of analysis, responses were combined into three categories: "not at all/a little/somewhat," "a lot/always," and "not applicable."

Participants were further asked whether they had experienced verbal abuse (including hateful or obscene phone calls), sexual harassment or assault, or social exclusion based on their sexual orientation or gender identity in the past 12 months. Responses for each of these three items were coded into three categories: "yes," "no," and "not applicable."

Community connectedness

Participants were provided with a statement "you feel you're a part of the Australian LGBTIQ community?" and were asked the extent to which they agreed with this on a five-point scale from "strongly disagree" to "strongly agree." For analysis, responses were recoded to "yes" or "no" to reflect whether participants "agreed/strongly agreed" with the statement.

Gender identity respected at mainstream health services

Participants were asked to what extent they felt their gender identity was respected at a mainstream health service in the past 12 months. Response options were "not applicable," "not at all," "a little," "somewhat," "very," and "extremely." For analysis, responses were combined into three categories: "not at all/a little/somewhat," "very/extremely," and "not applicable."

Statistical analyses

All analyses, including descriptive statistics and logistic regressions, were conducted in STATA (Version 16 SE, StataCorp, College Station, TX, USA). We conducted multivariable logistic regressions (using the enter method) to examine associations between independent and dependent variables. Suicidal ideation and suicide attempts in the past 12 months were assigned as two distinct dependent variables. All other variables were assigned as independent variables. Separate univariable logistic regressions were first performed for unadjusted associations between each independent variable and the dependent variables, reporting the unadjusted odds ratios, 95% confidence intervals, and p-values for each univariable model. We then performed two multivariable logistic regression analyses to examine independent associations between the independent variables and each dependent variable (suicidal ideation and suicide attempt in the past 12 months), adjusting for other independent variables. Only variables with *p*-values of <0.250 in the univariable analyses were entered into the multivariable models. For these models, no evidence of quasi-separation or convergence was found in either model. To provide consistent comparisons, we used the same predictor variables and categories in both models. Models did not have multicollinearity issues, with all VIFs under 2.0 and mean VIFs of 1.31 for suicidal ideation and 1.31 for suicide attempt, respectively. Adjusted odds ratios (AOR), 95% confidence intervals (CIs), and p-values were reported for the two multivariable models.

RESULTS

Descriptive statistics

Table 1 displays the characteristics of the sample and descriptive statistics for all study variables. The sample is diverse across a number of characteristics including gender, sexual orientation, age, and residential location. Notably, 62.4% of participants reported suicidal ideation in the past 12 months and 9.5% reported a suicide attempt in the past 12 months. In addition, many reported experiences of abuse and discrimination.

Suicidal ideation in the past 12 months

Table 2 presents the regression results for suicidal ideation in the past 12 months. In the multivariable analysis, significantly higher adjusted odds of reporting recent suicidal ideation were found for participants who felt they had been treated unfairly due to their gender identity in the past 12 months (AOR = 1.55, 95% CI = 1.08–2.22). Significantly lower adjusted odds of reporting recent suicidal ideation were found for participants who had a university postgraduate degree (AOR = 0.52, 95% CI = 0.33–0.83), were older than 18–24 years (e.g., 35–44 years: AOR = 0.50, 95% CI = 0.31–0.80), felt accepted at work (AOR = 0.67, 95% CI = 0.48–0.92) or with family members (AOR = 0.62, 95% CI = 0.47–0.82), or felt their gender was very/extremely respected when accessing a mainstream medical clinic in the past 12 months (AOR = 0.67, 95% CI = 0.50–0.91). Although university undergraduate education, paid employment and experiences of verbal abuse were significantly associated with suicidal ideation in univariable regressions, these were no longer significant in the multivariable regression after controlling for other variables.

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TABLE 1 Descriptive statistics for all study variables.

	Number (*n*)	Percent (%)
Age group		
18–24	544	37.1
25–34	501	34.2
35–44	220	15.0
45–54	107	7.3
55+	94	6.4
Total	1466	100.0
Sexual orientation		
Lesbian	176	12.1
Gay	102	7.0
Bisexual	273	18.7
Pansexual	217	14.9
Queer	411	28.2
Asexual	91	6.2
Something else	189	13.0
Total	1459	100.0
Gender		
Trans man	297	20.3
Trans woman	277	18.9
Non-binary	892	60.8
Total	1466	100.0
Residential location		
Capital city, inner suburban	590	40.5
Capital city, outer suburban	438	30.1
Regional city or town	345	23.7
Rural/remote	83	5.7
Total	1456	100.0
Educational attainment		
Secondary or below	436	29.8
Non-university tertiary	379	25.9
University—undergraduate	373	25.5
University—postgraduate	277	18.9
Total	1465	100.0
Weekly income (AUD)		
0–$399	652	44.9
$400–$999	411	28.3
$1000–$1999	303	20.9
$2000+	85	5.9
Total	1451	100.0
Paid employment		
No	538	36.7
Yes	928	63.3
Total	1466	100.0
Country of birth		
Australia	1240	84.7

(Continues)

TABLE 1 (Continued)

	Number (*n*)	Percent (%)
Other English-speaking country	169	11.5
Other non-English-speaking country	55	3.8
Total	1464	100.0
Current committed romantic relationship		
No	694	47.4
Yes	769	52.6
Total	1463	100.0
Feel treated unfairly due to gender identity in past 12 months		
No	294	20.1
Yes	1166	79.9
Total	1460	100.0
Agree/strongly agree you feel a part of the Australian LGBTIQ community		
No	554	37.9
Yes	908	62.1
Total	1462	100.0
Feel accepted at work		
Not at all/a little/somewhat	546	37.3
A lot/always	459	31.4
Not applicable	457	31.3
Total	1462	100.0
Feel accepted with family members		
Not at all/a little/somewhat	902	61.6
A lot/always	524	35.8
Not applicable	39	2.7
Total	1465	100.0
Verbal abuse (including hateful or obscene phone call) based on sexual orientation or gender identity in the past 12 months		
No	676	46.6
Yes	643	44.3
Not applicable	132	9.1
Total	1451	100.0
Sexual harassment or assault based on sexual orientation or gender identity in the past 12 months		
No	1081	74.7
Yes	201	13.9
Not applicable	166	11.5
Total	1448	100.0
Socially excluded based on sexual orientation or gender identity in the past 12 months		
No	586	40.4
Yes	744	51.3
Not applicable	121	8.3
Total	1451	100.0

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TABLE 1 (Continued)

	Number (n)	Percent (%)
Gender respected when accessing mainstream medical clinic in past 12 months		
Not at all/a little/somewhat	714	61.4
Very/extremely	410	35.3
Not applicable	39	3.4
Total	1163	100.0
Suicidal ideation in past 12 months		
No	549	37.6
Yes	910	62.4
Total	1459	100.0
Suicide attempt in past 12 months		
No	1118	90.5
Yes	117	9.5
Total	1235	100.0

Suicide attempts in the past 12 months

Table 3 displays the regression results for suicide attempts in the past 12 months. In the multivariable analysis, significantly higher adjusted odds of reporting a recent suicide attempt were found for participants who reported sexual harassment or assault based on their sexual orientation or gender identity in the past 12 months (AOR = 2.54, CI = 1.34–4.82). Significantly lower adjusted odds of reporting a recent suicide attempt were found for participants who were older than 18–24 years (e.g., 25–34 years: AOR = 0.46, 95% CI = 0.25–0.86) and for non-binary participants (compared to trans men) (AOR = 0.38, 95% CI = 0.21–0.71).

DISCUSSION

Almost two-thirds (62.4%) of trans participants reported suicidal ideation and approximately one-tenth (9.5%) a suicide attempt in the past 12 months. This was approximately twice the levels of suicidal ideation (37.2%) and suicide attempts (3.9%) reported by cisgender participants in the past 12 months in the *Private Lives 3* study (Hill, Bourne, et al., 2020), and substantially higher than general population estimates in Australia (2.3% for suicidal ideation; 0.4% for suicide attempts) (Johnston et al., 2009). These findings are comparable to the averages reported across 42 studies of trans people in North America, in which 51% reported suicidal ideation and 11% a suicide attempt (Adams et al., 2017). The reported levels of suicidal ideation and suicide attempts in the past 12 months among trans people in this sample are alarmingly high when compared to both their cisgender LGBQ peers and the general population in Australia. These findings underscore the necessity for urgent action aimed at reducing suicidality and improving the health and wellbeing of trans people.

Pansexual, queer, or asexual identifying people have historically been understudied in suicidality research. Previous research has found that among cisgender people, bisexual people often report poorer mental health than gay and lesbian people (Conron et al., 2010) due to social attitudes toward bisexual people resulting in marginalization and mono-sexism from both heterosexual and lesbian and gay communities (Angelides, 2001; Balsam & Mohr, 2007; Persson & Pfaus, 2015; Ross et al., 2010). However, an intersectionality-informed analysis stratified by gender identities of LGBTQ people in Canada found that although bisexual, pansexual, and queer identities were associated with higher levels of depression among cisgender people, they were smaller in magnitude and not statistically significant among trans people (Ferlatte et al., 2020). Supporting these findings, our study observed that although multi-gender attracted (bisexual and pansexual) and queer identifying participants reported higher odds of suicidal ideation in univariable regressions, these associations were no longer significant in the multivariable regressions after controlling for other variables. It could be that experiences related to gender identity feature more prominently in mental health outcomes among trans people due to high levels of gender identity-based harassment and abuse (Ferlatte et al., 2020), cisgenderism (Rosenberg et al., 2021), and discrimination when accessing health services and medical professionals (Dolan et al., 2020). Another potential factor could be a greater inclusion of multi-gender and queer identities, and thus lower levels of biphobia, among trans communities. Our sample comprised 61.8% of people who identified as bisexual, pansexual, or queer, which compares to 33.7% of cisgender participants (Hill, Bourne, et al., 2020).

Non-binary participants reported lower levels of recent suicide attempts, consistent with findings in North America (Adams et al., 2017) and a study of lifetime suicide attempts in Australia (Zwickl et al., 2021). This may reflect that a larger proportion of this group, compared to trans women and men, were not necessarily seeking gender affirmation that involved surgeries (Hill, Bourne, et al., 2020). Therefore, fewer may have been exposed to gender discrimination and other challenges associated with gaining access to medical intervention and engaging with health services. This study also found that participants aged 18–24 had higher odds of reporting suicidal ideation or a suicide attempt, in line with findings in the Australian general population (Fairweather et al., 2007). Young trans people may be subject to additional difficulties

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TABLE 2 Regression results for suicidal ideation in past 12 months.

	Suicidal ideation		Univariable regression		Multivariable regression	
	Number	%	Unadjusted odds ratio (95% CI)	*p*-Value	Adjusted odds ratio (95% CI)	*p*-Value
Age group						
18–24	396	73.1	REF		REF	
25–34	305	61.1	0.58 (0.45–0.75)	0.000	0.70 (0.48–1.02)	0.064
35–44	114	52.1	0.40 (0.29–0.55)	0.000	0.50 (0.31–0.80)	0.004
45–54	64	59.8	0.55 (0.36–0.84)	0.006	0.70 (0.36–1.35)	0.285
55+	31	33.7	0.19 (0.12–0.30)	0.000	0.22 (0.11–0.44)	0.000
Sexual orientation						
Gay	55	53.9	REF		REF	
Lesbian	98	55.7	1.07 (0.66–1.75)	0.776	1.26 (0.66–2.41)	0.492
Bisexual	183	67.0	1.74 (1.09–2.76)	0.020	1.47 (0.82–2.62)	0.196
Pansexual	147	67.7	1.79 (1.11–2.91)	0.018	1.30 (0.71–2.38)	0.387
Queer	265	65.0	1.58 (1.02–2.46)	0.040	1.38 (0.79–2.42)	0.257
Asexual	47	52.8	0.96 (0.54–1.69)	0.878	0.82 (0.41–1.66)	0.578
Something else	111	59.4	1.25 (0.77–2.03)	0.372	1.54 (0.83–2.83)	0.170
Gender						
Trans man	183	61.8	REF		REF	
Trans woman	165	60.2	0.93 (0.67–1.31)	0.695	1.25 (0.74–2.10)	0.405
Non-binary	562	63.2	1.06 (0.81–1.39)	0.668	0.94 (0.65–1.35)	0.733
Residential location						
Capital city, inner suburban	356	60.3	REF		REF	
Capital city, outer suburban	284	65.1	1.23 (0.95–1.59)	0.117	1.09 (0.78–1.52)	0.599
Regional city or town	210	61.8	1.06 (0.81–1.40)	0.668	0.94 (0.65–1.35)	0.728
Rural/remote	55	66.3	1.29 (0.80–2.10)	0.301	1.49 (0.77–2.85)	0.235
Educational attainment						
Secondary or below	311	71.8	REF		REF	
Non-university tertiary	244	65.1	0.73 (0.54–0.98)	0.039	0.85 (0.57–1.26)	0.422
University—undergraduate	215	57.6	0.53 (0.40–0.72)	0.000	0.68 (0.45–1.03)	0.068
University—postgraduate	139	50.2	0.40 (0.29–0.54)	0.000	0.52 (0.33–0.83)	0.007
Weekly income (AUD)						
0–$399	437	67.5	REF		REF	
$400–$999	266	64.9	0.89 (0.68–1.15)	0.371	1.39 (0.95–2.02)	0.091
$1000–$1999	156	51.7	0.51 (0.39–0.68)	0.000	0.96 (0.61–1.50)	0.851
$2000+	42	49.4	0.47 (0.30–0.74)	0.001	1.38 (0.70–2.70)	0.352
Paid employment						
No	362	67.9	REF		REF	
Yes	548	59.2	0.68 (0.55–0.86)	0.001	0.90 (0.59–1.36)	0.614
Country of birth						
Australia	778	63.0	REF		REF	
Other English-speaking country	104	62.3	0.97 (0.69–1.35)	0.856	1.29 (0.84–2.00)	0.245
Other non-English-speaking country	26	47.3	0.53 (0.31–0.91)	0.020	0.91 (0.43–1.93)	0.812

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TABLE 2 (Continued)

	Suicidal ideation		Univariable regression		Multivariable regression	
	Number	%	Unadjusted odds ratio (95% CI)	*p*-Value	Adjusted odds ratio (95% CI)	*p*-Value
Current committed romantic relationship						
No	440	63.9	REF		REF	
Yes	468	61.0	1.13 (0.91–1.40)	0.264	0.87 (0.65–1.15)	0.313
Feel treated unfairly due to gender identity in past 12 months						
No	134	45.9	REF		REF	
Yes	772	66.5	2.34 (1.80–3.04)	0.000	1.55 (1.08–2.22)	0.017
Agree/strongly agree you feel a part of the Australian LGBTIQ community						
No	336	61.2	REF		REF	
Yes	571	63.0	1.08 (0.87–1.34)	0.487	1.17 (0.89–1.56)	0.260
Feel accepted at work						
Not at all/a little/somewhat	371	68.1	REF		REF	
A lot/always	225	49.1	0.45 (0.35–0.59)	0.000	0.67 (0.48–0.92)	0.013
Not applicable	313	69.2	1.06 (0.81–1.38)	0.691	1.34 (0.87–2.07)	0.190
Feel accepted with family members						
Not at all/a little/somewhat	611	68.0	REF		REF	
A lot/always	277	53.2	0.54 (0.43–0.67)	0.000	0.62 (0.47–0.82)	0.001
Not applicable	21	55.3	0.58 (0.30–1.12)	0.106	1.09 (0.36–3.27)	0.884
Verbal abuse (including hateful or obscene phone call) based on sexual orientation or gender identity in the past 12 months						
No	373	55.6	REF		REF	
Yes	448	69.9	1.85 (1.48–2.33)	0.000	1.13 (0.82–1.55)	0.449
Not applicable	78	59.1	1.15 (0.79–1.69)	0.459	0.90 (0.45–1.77)	0.749
Sexual harassment or assault based on sexual orientation or gender identity in the past 12 months						
No	644	59.8	REF		REF	
Yes	156	77.6	2.33 (1.64–3.32)	0.000	1.16 (0.74–1.82)	0.513
Not applicable	99	60.7	1.04 (0.74–1.46)	0.819	1.02 (0.54–1.94)	0.944
Socially excluded based on sexual orientation or gender identity in the past 12 months						
No	314	53.9	REF		REF	
Yes	519	70.0	2.00 (1.60–2.51)	0.000	1.23 (0.90–1.68)	0.186
Not applicable	68	56.7	1.12 (0.75–1.66)	0.574	1.00 (0.51–1.96)	0.996
Gender respected when accessing mainstream medical clinic in past 12 months						
Not at all/a little/somewhat	485	68.0	REF		REF	
Very/extremely	217	53.3	0.54 (0.42–0.69)	0.000	0.67 (0.50–0.91)	0.009
Not applicable	27	71.1	1.15 (0.56–2.37)	0.696	1.47 (0.62–3.48)	0.384

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval; OR, odds ratio; REF, reference category.

such as disclosing their gender to family, friends, and healthcare providers (Sequeira et al., 2020), and have been the target of transphobic discourse especially in relation to gender affirmation and medical intervention in media and medical circles. Education has been found to be protective in the general population (Rosoff et al., 2020), which also aligns with our findings related to having a higher education and may be indicative of environments that are more accepting of diverse genders.

As Australian and international literature attests, the high levels of harassment, abuse, and prejudice that trans people experience are associated with poorer mental health outcomes and suicidality (Boza & Nicholson Perry, 2014; Wolford-Clevenger et al., 2018; Zwickl et al., 2021). Correspondingly, in our study, participants who reported feeling they had been treated unfairly due to their gender identity in the past 12 months were 1.5 times more likely to report suicidal ideation and those

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TABLE 3 Regression results for suicide attempts in past 12 months.

	Suicide attempt		Univariable regression		Multivariable regression	
	Number	%	OR (95% CI)	*p*-Value	AOR (95% CI)	*p*-Value
Age group						
18–24	71	15.0	REF		REF	
25–34	27	6.2	0.37 (0.24–0.60)	0.000	0.46 (0.25–0.86)	0.014
35–44	10	6.1	0.36 (0.18–0.72)	0.004	0.23 (0.07–0.78)	0.019
45–54	7	8.0	0.49 (0.22–1.11)	0.089	0.88 (0.32–2.42)	0.797
55+	2	2.6	0.15 (0.04–0.63)	0.009	0.30 (0.05–1.70)	0.172
Sexual orientation						
Gay	6	7.7	REF		REF	
Lesbian	10	7.2	0.93 (0.32–2.67)	0.893	0.90 (0.22–3.63)	0.880
Bisexual	26	10.7	1.44 (0.57–3.63)	0.443	1.37 (0.44–4.23)	0.588
Pansexual	18	9.8	1.30 (0.50–3.41)	0.593	1.13 (0.34–3.73)	0.841
Queer	26	7.5	0.97 (0.38–2.44)	0.947	1.11 (0.35–3.47)	0.860
Asexual	3	3.8	0.47 (0.11–1.97)	0.304	0.76 (0.17–3.37)	0.719
Something else	28	17.6	2.56 (1.01–6.49)	0.047	2.33 (0.73–7.37)	0.151
Gender						
Trans man	36	14.1	REF		REF	
Trans woman	27	11.6	0.80 (0.47–1.37)	0.415	0.66 (0.29–1.52)	0.331
Non-binary	54	7.2	0.48 (0.30–0.75)	0.001	0.38 (0.21–0.71)	0.002
Residential location						
Capital city, inner suburban	41	8.2	REF		REF	
Capital city, outer suburban	38	10.4	1.29 (0.81–2.06)	0.276	1.04 (0.58–1.87)	0.897
Regional city or town	26	8.9	1.09 (0.65–1.82)	0.748	0.87 (0.47–1.62)	0.653
Rural/remote	12	17.6	2.39 (1.19–4.82)	0.015	1.97 (0.88–4.42)	0.100
Educational attainment						
Secondary or below	46	12.3	REF		REF	
Non-university tertiary	42	13.6	1.13 (0.72–1.76)	0.607	1.70 (0.90–3.21)	0.102
University—undergraduate	18	5.7	0.43 (0.24–0.76)	0.004	0.95 (0.44–2.06)	0.901
University—postgraduate	11	4.7	0.35 (0.18–0.70)	0.003	1.44 (0.57–3.64)	0.442
Weekly income (AUD)						
0–$399	69	12.1	REF		REF	
$400–$999	32	9.2	0.74 (0.47–1.15)	0.179	0.83 (0.44–1.55)	0.551
$1000–$1999	11	4.7	0.36 (0.19–0.69)	0.002	0.84 (0.33–2.13)	0.719
$2000+	4	5.8	0.45 (0.16–1.27)	0.131	0.84 (0.15–4.58)	0.838
Paid employment						
No	61	13.0	REF		REF	
Yes	56	7.3	0.53 (0.36–0.78)	0.001	0.86 (0.44–1.68)	0.668
Country of birth						
Australia	100	9.6	REF		REF	
Other English-speaking country	13	9.2	0.96 (0.52–1.76)	0.889	0.98 (0.42–2.27)	0.954
Other non-English-speaking country	4	8.2	0.84 (0.30–2.38)	0.740	1.29 (0.27–6.20)	0.746
Current committed romantic relationship						
No	60	9.8	REF		REF	
Yes	57	9.1	1.08 (0.74–1.59)	0.681	0.94 (0.57–1.55)	0.810

(Continues)

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TABLE 3 (Continued)

	Suicide attempt		Univariable regression		Multivariable regression	
	Number	**%**	**OR (95% CI)**	***p*-Value**	**AOR (95% CI)**	***p*-Value**
Feel treated unfairly due to gender identity in past 12 months						
No	13	5.3	REF		REF	
Yes	104	10.6	2.13 (1.17–3.86)	0.013	1.19 (0.54–2.62)	0.658
Agree/strongly agree you feel a part of the Australian LGBTIQ community						
No	49	10.7	REF		REF	
Yes	68	8.8	0.81 (0.55–1.19)	0.281	0.86 (0.52–1.41)	0.540
Feel accepted at work						
Not at all/a little/somewhat	45	9.9	REF		REF	
A lot/always	23	6.2	0.60 (0.35–1.00)	0.052	0.88 (0.48–1.64)	0.689
Not applicable	49	12.1	1.24 (0.81–1.91)	0.318	0.81 (0.42–1.57)	0.540
Feel accepted with family members						
Not at all/a little/somewhat	80	10.5	REF		REF	
A lot/always	35	8.0	0.74 (0.49–1.12)	0.159	0.78 (0.47–1.29)	0.333
Not applicable	2	6.1	0.55 (0.13–2.35)	0.420	1.03 (0.18–5.95)	0.972
Verbal abuse (including hateful or obscene phone call) based on sexual orientation or gender identity in the past 12 months						
No	35	6.0	REF		REF	
Yes	71	13.3	2.42 (1.58–3.69)	0.000	1.37 (0.76–2.50)	0.299
Not applicable	10	9.3	1.60 (0.77–3.34)	0.210	1.57 (0.59–4.16)	0.366
Sexual harassment or assault based on sexual orientation or gender identity in the past 12 months						
No	68	7.4	REF		REF	
Yes	39	23.6	3.88 (2.51–6.00)	0.000	2.54 (1.34–4.82)	0.004
Not applicable	10	7.2	0.98 (0.49–1.95)	0.952	0.79 (0.28–2.27)	0.665
Socially excluded based on sexual orientation or gender identity in the past 12 months						
No	30	6.0	REF		REF	
Yes	78	12.5	2.23 (1.44–3.46)	0.000	1.33 (0.72–2.46)	0.368
Not applicable	8	7.7	1.30 (0.58–2.92)	0.526	1.65 (0.56–4.90)	0.366
Gender respected when accessing mainstream medical clinic in past 12 months						
Not at all/a little/somewhat	55	9.1	REF		REF	
Very/extremely	31	9.0	0.98 (0.62–1.56)	0.940	1.00 (0.56–1.79)	0.995
Not applicable	2	5.7	0.60 (0.14–2.59)	0.498	0.49 (0.06–3.91)	0.500

Abbreviations: AOR, adjusted odds ratio; CI = confidence interval; OR, odds ratio; REF, reference category.

who experienced sexual harassment or assault due to their gender identity were 2.5 times more likely to have attempted suicide. While this study further supports previous findings regarding the damaging effects of discrimination and harassment on trans people, it also highlights the importance and protective nature of social inclusion and acceptance in social settings, including among family members and at work. For example, participants who reported feeling accepted among family or at work were one-third less likely to report suicidal ideation in the past 12 months.

Improving trans affirmative practice in health services is also important for reducing suicide risk. Previous studies have identified that structural stigma and a subsequent lack of education regarding trans health and gender affirmation among medical professionals, allied health, and nursing staff have led to a limited number of health providers and crisis support providers, including telephone support lines, who are competent in providing appropriate trans healthcare in Australia (Dolan et al., 2020; Lim et al., 2021; Poteat et al., 2013). This may result in potential pathologizing of trans individuals seeking care, leading to a delay in seeking medical treatment and increasing distress (Cruz, 2014). Pathologizing medical interventions for gender affirmation may also result in continued barriers for non-binary people who

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may present with different experiences and needs. As we found, trans participants who felt that their gender identity was affirmed when accessing a mainstream health service in the past 12 months were one-third less likely to report suicidal ideation, which demonstrates the important protective role that gender-affirming care can play in healthcare services. Moreover, the lack of training also results in referral to a very limited range of specialist tertiary care for trans affirming healthcare, which increases access barriers due to cost and long waiting times (Korpaisarn & Safer, 2018; Safer et al., 2016). However, recent developments in informed consent for trans affirming care in primary care are designed to mitigate these major barriers for a majority of "low risk" low complexity trans people (Ashley et al., 2021; Cundill, 2020).

The provision of inclusive and culturally informed gender affirming care in health services is therefore vital. This may be realized through LGBTQ training and accreditation for healthcare providers that enables culturally safe services for both cisgender LGBQ people as well as trans people. It is important to note, however, that the development and expansion of LGBTQ-accredited mainstream health services inclusive of trans people should be made in parallel with the expansion of LGBTQ community-controlled health service providers that cater exclusively to the needs of LGBTQ people, which also play an important role in suicide prevention in these populations (Goldbach et al., 2018). Trans people in particular report a higher preference for health services that cater specifically to their needs than their cisgender LGBQ peers(Hill, Bourne, et al., 2020). It is therefore important to expand dedicated services that are also provided, where possible, by trans professionals in order to attend to the specific health and wellbeing needs of this group. This may also allow for expansion of services to be self-deterministic and led by trans experience. Suitable trans-specific mental health and suicide prevention programs may include: community outreach; working with families, workplaces, medical and allied health providers and educational settings to improve trans support and acceptance; trauma-informed counseling for gender-identity based experiences of discrimination, harassment or assault; and referral pathways to trans peer support networks, which were found to be a protective factor against suicide in trans populations (Kia et al., 2021). However, it is of note that peer support around suicide is challenging and re-traumatizing for people who have experienced suicidal ideation themselves or of people they know. Peer support leaders may therefore need adequate supervision and training (McNair & Bush, 2016).

Findings from this study could also inform more targeted suicide prevention strategies. Based on our findings, additional focus may be required for younger trans people and those with lower educational attainment. In addition, targeted strategies that focus on the diverse subpopulations of trans people may be beneficial. Ultimately, until steps are taken to fully address prejudice, harassment, and assault that trans people often experience, suicide disparities are likely to continue between trans people, their cisgender LGBQ peers, and the general population. Primary prevention strategies could be developed including educating the wider community about the impact of trans marginalization. For example, social interventions could include education campaigns addressing transphobia and promoting affirmative representation of trans people in the media and news. It will also be important to include trans people as a key priority population across federal, state, and territory policy frameworks in Australia that is distinct from, but still part of, the LGBTIQ human rights movement. It is further critical to make structural changes, such as improving access to gender affirming hormones and surgical interventions, trans-led events, services and spaces, legal gender recognition (including on confirmation of Aboriginality) and dedicated programming for and by trans professionals, as part of addressing issues of equity and wellbeing. It is also important that health and service providers use language that is respectful, non-pathologizing, and consistent with human rights standards (Bouman et al., 2017).

This research had some limitations. A convenience sampling methodology was used, as is common for hidden populations such as sexual minorities (Hill, Distefano, et al., 2020), and may therefore not be representative of all trans people in Australia. However, the majority of the sample was recruited through paid Facebook and Instagram advertising, which are utilized by the majority of Australians. Moreover, representative sampling methodologies have been found to potentially underrepresent sexual minorities (Ferlatte et al., 2017). Being an online survey, undertaken in participants own time, the data are self-reported and standard limitations relating to such data are acknowledged. In terms of ensuring integrity of the data, during the initial data cleaning of the full *Private Lives 3* sample, several measures were taken by study investigators to identify and remove any obviously fake responses to the survey. This included assessing inappropriate text responses to open-text items, such as the use of homophobic or transphobic slurs. This study was cross-sectional and we are therefore unable to ascertain the direction of causality between the predictor variables and suicidality. It would be valuable for longitudinal research to examine this in future. In particular, as there is a great variation in how a person may affirm their gender, both socially and medically, it may be beneficial to examine associations between different forms of gender

affirmation and suicidality. Lastly, participant responses to questions (including suicidal ideation and suicide attempts) were self-reported. Self-reported data can involve imprecisions as well as age-related differential memory biases (Fairweather et al., 2007). Social desirability bias can also influence participants to moderate certain responses they believe to be undesirable (Kelly et al., 2013). However, this survey was conducted anonymously online, and the suicide variables referred to relatively recent experiences, likely minimizing these risks. Future research could seek to further nuance our understanding of suicidality among this population by examining clinical attendance or ambulance callout records where attempts by a patient to take their own life were documented. However, it should be noted that such a research approach would require gender diversity being effectively, accurately, and sensitively captured within all such clinical interactions.

CONCLUSION

These findings have potential implications for health providers, governments, and suicide prevention services. We found high rates of reported suicidal ideation and suicide attempts among trans people in Australia as well as a range of subpopulations at greater risk. Feeling accepted by family and at work, and respected when accessing medical services, were among factors associated with lower suicidal ideation. Taken together, these findings highlight an urgent need to provide suicide prevention programming and related strategies that tackle stigma, support the mental health of trans people, and enable culturally safe gender-affirming care in health and medical settings.

ACKNOWLEDGMENTS

We wish to thank members of the Private Lives 3 Expert Advisory Group and Gender Advisory Board, who supported this research and gave valuable support, advice, and feedback at various stages of this study, as well as the many other individuals and organizations who gave assistance at different stages. We further wish to thank Shoshana Rosenberg for their contributions toward the preparation of this paper. Open access publishing facilitated by La Trobe University, as part of the Wiley - La Trobe University agreement via the Council of Australian University Librarians.

CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

DATA AVAILABILITY STATEMENT

Research data are not shared.

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How to cite this article: Hill, A O., Cook, T., McNair, R., Amos, N., Carman, M., Hartland, E., Lyons, A., & Bourne, A. (2023). Demographic and psychosocial factors associated with recent suicidal ideation and suicide attempts among trans and gender diverse people in Australia. *Suicide and Life-Threatening Behavior*, *00*, 1–14. https://doi.org/10.1111/sltb.12946

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