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Mental Health of People of Diverse Genders and Sexualities in Aotearoa/New Zealand: Findings from the New Zealand Mental Health Monitor

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ABSTRACT:

Issues addressed*: To examine mental health inequities, and social exclusion and isolation and protective factor differences between people of diverse genders and sexualities (lesbian/gay, bisexual, gender diverse, and takatāpui) and cisgender and heterosexual people in Aotearoa/New Zealand.*

Methods*: We employed data from the pooled probability sample of 2016 and 2018 New Zealand Mental Health Monitor. The sample comprised of 2,938 people at least 15 years old, of which 93 had diverse gender and sexuality identities. Generalised linear models were used to test for differences in mental health (current and lifetime mental distress, depression, anxiety, self-harm and suicide), social exclusion and isolation, and friend and family support for people of diverse genders and sexualities. We also conducted exploratory linear regression analyses to examine whether mental health difficulties were associated with social exclusion and isolation and friend/family support.*

Results*: People of diverse genders and sexualities had high rates of mental health difficulties across all variables we examined. For example, people identifying as diverse genders and sexualities had three times the risk of considering self-harm and suicide than their cisgender and heterosexual counterparts (22% vs 5%; RR = 3.12). People of diverse genders and sexualities also scored an average of 6.08 points higher on the 27-point PHQ-9 depression scale when they had experienced social isolation, and 4.01 points higher when they experienced social exclusion.*

Conclusion*: Our results are consistent with current literature on the large mental health inequities faced by people of diverse genders and sexualities.*

So what?*: Policy makers and healthcare providers in Aotearoa/New Zealand should consider the negative mental health consequences of social exclusion and isolation for people of diverse genders and sexualities.*

KEYWORDS: mental health, health inequities, sexuality diverse, gender diverse, social exclusion

Introduction

Populations of diverse genders and sexualities encompass people whose sexual orientations, or gender identities or expressions differ from the conventional cisgender and heterosexual social norms.[1, 2] In Aotearoa/New Zealand, some of the common diverse gender and sexuality identities include lesbian, gay, bisexual, transgender, non-binary, and takatāpui people.[2-4] Non-European (or non-Pakēha) populations such as Māori, Pasifika, and Asian may use specific cultural terms (e.g., Māori takatāpui, Samoan fa'afafine, and Chinese tongzi) that carry historical, political, and social connotations without necessarily having equivalent Western meanings.[2, 3]

International studies on people of diverse genders and sexualities have consistently found evidence of mental health inequities affecting this population, including higher risks of poor subjective wellbeing, psychological distress, and suicide.[5-8] A recent systematic review of 23 population-based studies across eight countries found that 22 of these studies had produced findings indicating a higher rate of depression among youth of diverse sexualities than their heterosexual counterparts.[9] Data from the 2018 New Zealand General Social Survey, which was collected via face-to-face interviews, indicated lower life satisfaction among bisexual people (35%) than heterosexual (22%) and gay/lesbian (21%) people.[10] Another population-based study, the Youth'12 adolescent health survey in 2012, found that same or both-sex attracted youth were more likely to exhibit depressive symptoms (41% vs 11%) and attempt suicide (18% vs 4%) than those who were opposite-sex attracted.[11] These findings were similar for transgender youth, as the Youth'12 study reported a higher likelihood of transgender youth reporting depressive symptoms (42% vs 12%) and attempting suicide (20% vs 4%) than their cisgender counterparts.[12] The preliminary findings of the latest Youth2000 survey series, the Youth'19 study, also showed that transgender youth had the highest rate of reporting suicide attempts (26%), and this is followed by same or multiple-sex attracted youth (13%) and cisgender and heterosexual students (6%).[13, 14]

The health equity framework posits that elevated levels of mental issues among people of diverse genders and sexualities are related to exclusion and barriers in accessing social determinants of health.[15] Prejudices such as cisgenderism and heterosexism, that perpetuate discriminatory attitudes, policies, and practices at systemic levels against people identifying as diverse genders and sexualities,[16, 17] may cause social exclusion in the forms of institution (e.g., non-inclusive

policy), labour market (e.g., unemployment), economic (e.g., poverty), culture (e.g., social norms that are not affirming of diverse genders and sexualities), and social services (e.g., difficulty accessing health care). Social isolation is depicted by loneliness, limited social networks, and a lack of sense of belonging which has been found to be an interpersonal sequela of social exclusion among people of diverse genders and sexualities.[17-19] These prejudices assume people of diverse genders and sexualities to be inferior, unnatural, or disordered,[17] and can manifest as discrimination and victimisation (e.g., physical and verbal attacks) that compromise the mental health of these populations.[6, 7, 20, 21] People of diverse genders and sexualities are more likely to report discrimination and social exclusion relative to their cisgender and heterosexual counterparts, as well as higher rates of mental health problems.[7, 22, 23] The negative effects of cisgenderism and heterosexism, however, may be mitigated when people of diverse genders and sexualities have access to protective factors such as friends, family members, and significant others.[7, 21, 24]

Although there has been increasing international research examining mental health and wellbeing of people of diverse genders and sexualities, many published studies in the last decade focused on youth or employed convenience sampling methods that were not representative of the wider populations.[9, 25] To date, the Youth'12 and Youth'19 studies remain the only population-based studies that have investigated mental health inequities among people of diverse genders and sexualities in Aotearoa/New Zealand.[11-14] The Youth2000 survey series, however, did not include adults and older adults in its sample. Research that includes older age groups is needed to allow a more comprehensive understanding of the extent of mental health inequities experienced by people of diverse genders and sexualities in Aotearoa/New Zealand as a whole. While the 2018 New Zealand General Social Survey has recruited participants across age groups, their findings were restricted to people of sexuality diverse.[10] The present study sought to fill in these gaps.

Methods

Data

Data were drawn from the New Zealand Mental Health Monitor (NZMHM), a national face-to-face survey of adults living in Aotearoa/New Zealand aged 15 and over.[26-28] This study employed data from the pooled 2016 and 2018 NZMHM to explore mental health inequities in smaller populations (e.g., people of diverse genders and sexualities).[26-28] The New Zealand Ethics Committee approved both the 2016 and 2018 waves of the New Zealand Mental Health Monitor (NZEC Application 2015#10, NZEC Application 2015#10_2). Unless otherwise stated, variables used in this study did not significantly differ across years in the pooled data set.

The sampling frame was based on the 2013 New Zealand Census data. The NZMHM oversampled Māori, Pasifika and young people aged 15 to 24 years old.[26-28] The final dataset was weighted to correct for the sampling method (clustered and stratified) and a final post-stratification weight was applied to ensure survey age, gender, and ethnicity proportions matched the 2016 Statistics New Zealand projected population.[26-28]

Study measures

Demographic characteristics. Participants' age, race/ethnicity, gender, and sexual orientation were identified using the following questions: "How old are you?" with response options: 15-17, 18-24, 25-34, 35-44, 45-54, 55-64, and 65+ years (these are recoded as 15-24 and 25+ to simplify our analyses due to low sample size); "Which ethnic group or groups do you belong to?" (response options used New Zealand 2013 Census multiple answer options, and these were recoded using prioritised ethnicity[29] in the order of Māori, Pacific Islander, Asian, and Pākehā/New Zealand European and Other); "What gender do you identify with?" with response options: female, male, gender diverse, and don't know ; and "Which of the following options best describes how you think of yourself?" with response options: heterosexual or straight, gay or lesbian/takatāpui, bisexual/takatāpui, and other.[30] Participants were coded as gender diverse if they selected "gender diverse" as their gender, and sexuality diverse if they selected "gay or lesbian/takatāpui", "bisexual/takatāpui", or "other" as their sexual identities.

Lifetime and current mental distress. To identify lifetime experiences of mental distress, we asked "Have you ever personally had an experience of mental illness? (including self-defined and diagnosed)" with response options: yes, no, and don't know. We recoded "no" and "don't know" as not having a history of mental illness. The 10-item Kessler Psychological Distress Scale (K10) was used to measure current experiences of mental distress.[31] Items in the K10 include "feeling restless or fidgety" and "feeling worthless". Responses were answered on a 5-point Likert scale (0 = none of the time; 4 = all of the time) and total scores ranged from 0 to 40, with higher scores suggesting higher level of current mental distress. A cut-off score of 12 was used to indicate no or low current mental distress (K10 < 12) and high or very high current mental distress (K10 ≥ 12) – the same scoring used by the Ministry of Health, Aotearoa/New Zealand.[32] The internal consistency of the K10 was high in this study (α = .93).

Depression. The prevalence and severity of depression was assessed using the 9-item Patient Health Questionnaire (PHQ-9).[33] Items in PHQ-9 include "feeling tired or having little energy" and "feeling down, depressed, or hopeless". Responses were answered on a 4-point Likert scale (0 = not at all; 3 = nearly every day). Total scores ranged from 0 to 27, with higher scores suggesting greater severity of depression. A cut-off score of 10 was used to indicate no or mild depression (PHQ-9 < 10) and moderate or severe depression (PHQ-9 ≥ 10).[33] This study found a high internal consistency of PHQ-9 (α = .87).

Anxiety. The prevalence and severity of generalised anxiety disorder was assessed using the 7-item Generalised Anxiety Disorder scale (GAD-7).[34] Items in GAD-7 included "feeling

nervous, anxious, or on edge" and "trouble relaxing". Responses were answered on a 4-point Likert scale (0 = not at all; 3 = nearly every day), and total scores range from 0 to 21, with higher scores suggesting greater severity of anxiety. A cut-off point of 10 was used to indicate no or mild anxiety (GAD-7 < 10) and moderate or severe anxiety (GAD-7 ≥ 10).[34] The internal consistency of GAD-7 in this study was high (α = .90).

Subjective wellbeing. Life satisfaction and life worthwhileness were measured using the Organisation for Economic Co-operation and Development (OECD) subjective wellbeing single-item questions[35] such as "Overall, how satisfied are you with life as a whole these days?" and "Overall, to what extent do you feel the things you do in your life are worthwhile?".[35] Response options ranged from 1 = very satisfied/very worthwhile to 5 = very dissatisfied/not at all worthwhile; these were recoded into binary variables of satisfied with life (satisfied and very satisfied) and life worthwhile (worthwhile and very worthwhile).

Thoughts of self-harm and suicide. This was assessed with an item from the PHQ-9, "Over the last two weeks, how often have you been bothered by thoughts that you would be better off dead, or thoughts about hurting yourself?".[33] Participants who indicated "several days", "more than half the days" and "nearly every day" over the last two weeks were used to denote that a participant had thoughts of self-harm and suicide.

Social exclusion and isolation. Social isolation was assessed with a single-item question, "In the last four weeks, how often have you felt isolated from others?". Response options ranged from 1 = none of the time to 5 = all of the time; only those who selected "none of the time" were classified as not socially isolated.[30] For social exclusion, the question was "In the recent past, has there been an occasion when you felt personally excluded from a social situation?" with response options: yes, no, and don't know.[30] We coded "no" as not feeling excluded. "Don't know" responses were excluded from analyses.

Protective factor. This study examined friend and family support as a protective factor with a single-item measure: "I can always rely on a friend or family/whānau member for support if I need it".[30] The Māori term "whānau" translates as family members, including those from an extended kinship system.[3] Response options ranged from 1 = strongly agree to 5 = strongly disagree; those who selected "agree" and "strongly agree" were coded as affirmative responses.

Data analyses

Data analyses were carried out in three stages. First, we calculated the weighted prevalence of mental health, social variables (social exclusion and social isolation, and protective factors (i.e., friend and family support) for people of diverse genders and sexualities, and cisgender and heterosexual people using cut-off scores. Second, we utilised generalised linear models (GLM using Jackknife estimations, adjusted for age groups) to test whether the risk of incidence of these mental health, social variables, and protective factors (presented as risk ratios) differed between the two populations. It is suggested that a minimum $n = 8$ is informative given very little variance, but minimum $n \geq 25$ is required for more variance for regression models;[36] our minimum sample in any model is 93. Third, we conducted a series of exploratory multiple linear regression models to examine the relationship between mental health (i.e., current high mental distress, depression, and anxiety) and social variables and protective factors among participants of diverse genders and sexualities, adjusting for age groups.

We intended to include all social variables and protective factors in the models simultaneously; this would have resulted in three models (one for current high mental distress, depression, and anxiety) but the sample size of people of diverse genders and sexualities was too small to meet the guidelines for minimum cases per variable.[37] Consistent with statistical guidelines,[38] we instead used the fewest variables possible (mental health variable = a social variable or protective factor + age) to reduce the likelihood of overfitting; this resulted in nine models. Given the exploratory nature of these analyses and to account for multiple comparisons, *p*-values were adjusted using a conservative Holm-Bonferroni sequential correction for GLM models and exploratory multiple linear regression.[39] Data were analysed in STATA v15.0 and Holm- Bonferroni sequential corrections were calculated using Gaetano's calculator.[40]

Table 1.
Demographic characteristics of participants of diverse genders and sexualities, and cisgender and heterosexual in the New Zealand Mental Health Monitor

Variables	Unweighted *n* for people of diverse genders and sexualities	Diverse genders and sexuality populations[a] (%)	Cisgender and heterosexual populations[a] (%)
Age groups			
15-17	14	9.3	6.0
18-24	29	34.7	10.9
25-34	14	18.8	17.0
35-44	9	8.0	15.6
45-54	13	15.6	16.8
55-64	7	6.3	12.6
65+	7	7.2	21.1
Prioritised ethnicity[b]			
Maori	29	22.7	13.0
Pacific	10	8.7	5.4
Asian	5	5.7	15.2
New Zealand European/Pākeha and Other	49	62.8	66.5

[a]A post-stratification weight was applied to ensure survey age, gender, and ethnicity proportions matched the 2016 Statistics New Zealand projected population (see Health Promotion Agency)[25-27]
[b]Prioritised ethnicity was determined by the New Zealand ethnicity prioritisation method (see Ministry of Health)[28]

Table 2.

Inequities in mental health and wellbeing, and differences in social exclusion, social isolation, and protective factors for populations of diverse genders and sexualities, and cisgender and heterosexual

Variables	Diverse genders and sexuality populations (%; 95% CI)	Cisgender and heterosexual (%; 95% CI)[R]	RR (95% CI)	*t*	p_{adj}
Mental health					
Mental illness (lifetime)[a]	56.2 (42.6–69.9)	30.3 (27.9–32.8)	1.74 (1.34–2.25)	4.22	<.001
Mental distress (current)[b]	29.6 (19.7–39.5)	8.4 (7.1–9.7)	2.48 (1.77–3.47)	5.28	<.001
Depression[c]	23.6 (14.0–33.1)	8.8 (7.5–10.1)	1.87 (1.22–2.86)	2.90	.020
Thoughts of self-harm and suicidal ideation[d]	21.6 (11.9–31.3)	5.2 (4.2–6.2)	3.12 (1.97–4.95)	4.86	<.001
Anxiety[e]	20.9 (11.5–30.4)	6.7 (5.5–7.9)	2.25 (1.39–3.64)	3.30	.006
Subjective wellbeing					
Satisfied with life[f]	66.4 (54.2–78.5)	84.2 (82.5–86.0)	0.81 (0.68–0.97)	-2.28	.072
Life worthwhile[g]	74.9 (63.9–86.0)	87.6 (86.1–89.2)	0.89 (0.77–1.04)	-1.50	.272
Social variables					
Socially isolated[h]	56.8 (43.7–70.0)	37.8 (35.4–40.2)	1.32 (1.05–1.66)	2.40	.068
Socially excluded[i]	55.5 (41.9–69.1)	23.3[k] (21.0–25.5)	1.85 (1.37–2.51)	3.99	<.001
Protective factor					
Friend and family support[j]	91.7[l] (82.3–100.0)	94.3 (93.1–95.4)	0.96 (0.87–1.06)	-0.79	.432

Notes. Risk ratios were adjusted for age groups. p_{adj} were adjusted following Holm-Bonferroni correction.[37] R = reference group. [a]people who report ever having an experience of mental illness (including self-defined and diagnosed) [b]people who report high or very high level of current mental or psychological distress (K10 ≥ 12) [c]people who report moderate or high level of depression (PHQ ≥ 10) [d]people who report thoughts of self-harm or suicidal thoughts on "several days", "more than half the days" and "nearly every day" over the last two weeks [e]people who report moderate or high levels of anxiety (GAD-7 ≥ 10) [f]people who "agree" or "strongly agree" that they are satisfied with life [g]people who report that the things they do in their life are worthwhile or very worthwhile [h]people who report feeling isolated a little, some, most or all of time in the last four weeks [i]people who report feeling excluded from a social situation in the recent past [j]people who agree or strongly agree that they can rely on a friend or family/whānau member for support [k]there was a small difference in proportion in feeling socially excluded for cisgender and heterosexual participants between 2016 and 2018 NZMHM (25.2% vs 20.2%, $p < .05$) [l]there was a small difference in proportion of friend and family support between 2016 and 2018 NZMHM for participants of diverse genders and sexualities (99.4% vs 85.4%, $p < .05$).

RR, risk ratios CI, confidence interval

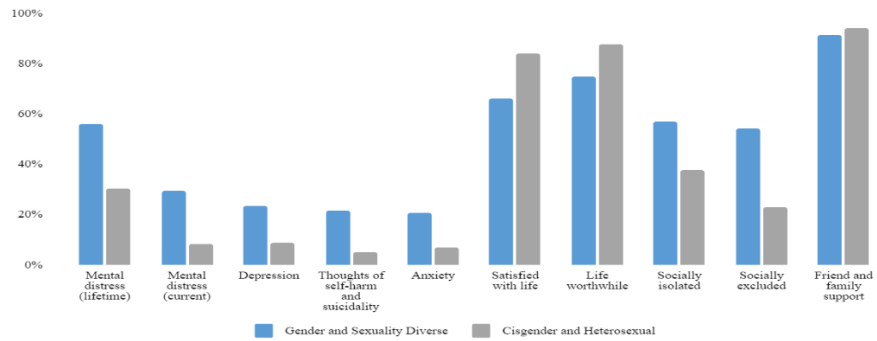

Figure 1. Rates of mental health concerns, social exclusion, social isolation, and protective factor for populations of diverse genders and sexualities, and cisgender and heterosexual from the pooled 2016 and 2018 New Zealand Mental Health Monitor

Results

Participants

A total of 93 participants (gender diverse: n = 10; gay or lesbian/takatāpui, bisexual/takatāpui, or other sexual orientation: n = 88) selected responses to represent diverse gender and sexuality identities and 2810 participants were cisgender and heterosexual. As shown in Table 1, compared with cisgender and heterosexual participants, participants of diverse genders and sexualities were more likely to be below the age of 25 and more likely to be categorised as New Zealand European/Pākehā and Other, and Asian based on the prioritised ethnic groups.

Table 3.

Series of exploratory multiple linear regression models predicting mental health by social exclusion, social isolation, and protective factor for participants of diverse genders and sexualities (n = 93)

Variables	K10 Current mental distress		PHQ-9 Depression		GAD-7 Anxiety	
	β (95% CI)	p_{adj}	β (95% CI)	p_{adj}	β (95% CI)	p_{adj}
Socially isolated[a]	8.44 (4.91, 11.99)	<.001	6.08 (3.69, 8.47)	<.001	4.92 (2.71, 7.12)	<.001
Socially excluded[b]	5.82 (2.32, 9.31)	.006	4.01 (1.59, 6.42)	.006	3.93 (1.62, 6.25)	.006
Friend/family support[c]	-4.39, (-12.37, 3.58)	.837	-0.95 (-9.44, 7.55)	1.00	0.39 (-8.03, 8.81)	1.00

Notes. [a]people who report feeling isolated a little, some, most or all of time in the last four weeks [b]people who report feeling excluded from a social situation in the recent past [c]people who agree or strongly agree that they can rely on a friend or family/whānau member for support. Findings were adjusted for age groups. p_{adj} were adjusted following Holm-Bonferroni correction.[37]

K10, 10-item Kessler Psychological Distress Scale

PHQ-9, 9-item Patient Health Questionnaire

GAD-7, 7-item Generalized Anxiety Disorder scale

Inequities in mental health and wellbeing, and differences in social exclusion and isolation, and protective factor

Table 2 outlines comparisons between populations of diverse genders and sexualities, and cisgender and heterosexual in Aotearoa/New Zealand for various mental health outcomes, social exclusion and isolation, and protective factor. Graphical depiction of the extent of differences is presented in Figure 1. Based on findings from the mental health screening measures (K10, GAD-7 and PHQ-9), we found that after controlling for age, people of diverse genders and sexualities had more than twice the risk of exhibiting high levels of current mental distress, and moderate or severe levels of anxiety, and approximately twice the risk of reporting moderate or severe levels of depression. People of diverse genders and sexualities also had approximately twice the risk of experiencing lifetime mental illness, about twice the risk of feeling socially excluded, and more than three times the risk of thinking about self-harm and suicide in the last two weeks. Although people identifying as diverse genders and sexualities reported lower subjective wellbeing and friend and family support, and were more likely to experience social isolation, these were not statistically different from the rates reported by cisgender and heterosexual people.

Relationship between mental health and social exclusion, social isolation,, and protective factors.

As outlined in Table 3, among people of diverse genders and sexualities, feeling isolated and excluded—but not support from family and friends—were associated with poorer mental health (after controlling for age). For example, people of diverse genders and sexualities who felt isolated were more likely to score higher for K10 current mental distress, GAD-7 anxiety, and PHQ-9 depression than those who did not feel isolated. Likewise, compared with those who had not experienced social exclusion, people of diverse genders and sexualities who felt excluded had higher scores for current mental distress, anxiety, and depression.

Discussion

This is the first population-based study that we are aware of in Aotearoa/New Zealand on mental health inequities among people of diverse genders and sexualities to use identity rather than attraction and include adults as well as youth. Drawing data from the New Zealand Mental Health Monitor (NZMHM), the current study showed stark inequities in rates of mental health concerns faced by people of diverse genders and sexualities in Aotearoa/New Zealand ranging from low subjective wellbeing, mental distress, depression, anxiety, to thoughts of self-harm and suicide. The higher rate of mental health difficulties among people of diverse genders and sexualities relative to cisgender and heterosexual people align with overseas research of people of diverse sexualities[5, 6] and transgender people[7]. Concerningly, we found the increased risk to be highest in rates of thoughts of self-harm and suicide, echoing the findings from previous Aotearoa/New Zealand studies that found high rates of self-harming and suicidality among people of diverse sexualities[10, 11, 13, 41, 42] and transgender[4, 12, 14] people.

A recent large-scale study of transgender people in Aotearoa/New Zealand, the Counting Ourselves survey, which also used the K10 scale found that 72% of participants exhibited a high level of current mental distress;[8] this was approximately 2.5 times higher than the reported rate in this study (30%). Although the Counting Ourselves study utilised convenience sampling,[4, 8] heightened level of mental health difficulties among transgender people has been noted in previous studies with people of diverse genders and sexualities.[43, 44]

We found people of diverse genders and sexualities experienced a higher level of social exclusion than their cisgender and heterosexual counterparts, and this is likely the consequences of cisgenderism and heterosexism that generate a context of marginalisation and oppression for these populations.[1, 16, 17] Similar to international studies that reported higher levels of mental health difficulties among people of diverse genders and sexualities who had experienced

discrimination and victimisation,[6, 7, 19, 23] we found participants who experienced social exclusion had higher rates of current psychological distress, depression, and anxiety. While our question did not investigate the types of social situations that people of diverse genders and sexualities felt excluded from, previous research has found that those who experienced issues in accessing education, healthcare services, and social programmes had worse mental health outcomes.[23] Our study also found people of diverse genders and sexualities who felt socially isolated had higher rates of mental health concerns, supporting previous research that noted social isolation as one of the strongest proximal predictors for poor mental health outcomes among these populations.[19, 22, 45] Given that studies have shown the adverse effects of social exclusion in preventing people of diverse genders and sexualities from building supportive social ties,[19] future research should consider the mediating role of social isolation in the relationship between social exclusion resulting from cisgenderism and heterosexism, and mental health.[19, 45]

Our nationally representative findings on the heightened rates of mental health concerns among people of diverse genders and sexualities indicate an urgent need to name these populations as a priority in all national and regional health promotion efforts in Aotearoa/New Zealand.[2] Specifically, there needs to be targeted approaches in increasing social acceptance and belongingness for people of diverse genders and sexualities as we found higher levels of depression, anxiety, and mental distress among those who had experienced social exclusion and isolation. Some examples of how associated agents such as policy makers, educational institutions, and healthcare providers can contribute to this process are creating safe and supportive school environments, training health practitioners to be culturally competent towards health needs of people identifying as diverse genders and sexualities, and designing interventions for the general public to combat cisgenderism and heterosexism.[2]

Friend and family support did not demonstrate a statistically significant association with mental health concerns. This could be due to the low sample size of participants with diverse gender and sexuality identities in this study (n = 93), meaning we did not have enough statistical power to detect a protective effect. International studies with large samples of people of diverse genders and sexualities have found support from friend and family members to offer mental health benefits such as mitigating the negative effects of cisgenderism and heterosexism and improving quality of life.[21, 24] We do not expect that this would be any different in Aotearoa/New Zealand, and this topic needs to be explored in future research.

The current study found that 3.1% of the Aotearoa/New Zealand population identified as sexuality diverse (lesbian/gay, bisexual, takatāpui, and other non-heterosexual identities). The prevalence of people of sexuality diverse in the NZMHM was slightly lower than the proportion reported in the 2019/20 New Zealand Health Survey (NZHS; 3.4%)[32] and the 2018 New Zealand General Social Survey (NZGSS; 3.5%)[10]. Another survey with a probability sample, the 2013/14 New Zealand Attitudes and Values Study (NZAVS), which allowed participants to describe sexual orientation in an open-ended comment box reported 3.6% identified as bisexual and 5.3% as gay/lesbian.[46] The smaller proportion of people of sexuality diverse in the NZMHM, NZHS, and NZGSS could be due to the face-to-face nature of collecting data from participants that prevent anonymous responses. Until there is a standardised method in population-based surveys that capture the breadth of sexual and gender diversity, however, it is unlikely that the prevalence of diverse gender and sexuality identities can be precisely and consistently determined across surveys in Aotearoa/New Zealand.

The latest Statistics New Zealand guideline recommends the inclusion of a sexual identity question for general social statistics to fulfil two requirements: 1) cater for all sexual identities (including heterosexual, lesbian or gay, bisexual, and "other" with a write-in option) and 2) elicit a single response.[47] The collection of sexual identity data should also consider for the cultural context (i.e., some ethnic groups may adopt cultural-specific identities), collection mode (i.e., a self-complete option offers a higher degree of privacy than an interviewer-administered survey) and when/where to ask the question (i.e., it is recommended to only ask sexual identity towards the end of the demographic section to normalise its sensitive nature).[47]

Limitations and Strengths

A notable limitation is that our survey measure likely undercounted the transgender participants. The use of a single-item question with only "male", "female", and "gender diverse" response options in NZMHM has been critiqued because it may undercount transgender people who identify as men and women (i.e., trans men and trans women), rather than gender diverse.[48] This is particularly the case because participants could only select one response option to this gender question, meaning they could not respond as male or female, along with gender diverse. The current standard international practice for identifying transgender people in population-based surveys is the two-step method, which asks participants both sex assigned at birth (i.e., female or male), and current gender identity in an inclusive manner.[48] The two-step method has been adopted in a more recent Statistics New Zealand survey and recommended in a consultation document for the latest proposed Statistics New Zealand's Sex and Gender Statistical Standards.[49] Future research should a more inclusive measure of transgender participants to achieve a more accurate sample. Intersectionality of multiple identities (including sexuality, gender, disability, race, and language) has often been overlooked in the existing research on people of diverse genders and sexualities.[50] While this article has explored the relationship between social exclusion and isolation, and mental health specific to people of diverse genders and sexualities, a limitation of our study is that we did not examine other identities and systems of oppression

that can influence the mental health of these populations. In order to ground research as contextually relevant to the multicultural Aotearoa/New Zealand context, future research should employ an intersectionality framework to understand the mental health differences for people of diverse genders and sexualities who are subjected to social exclusion from multiple and overlapping prejudices (e.g., heterosexism, racism, and ableism).[17, 50]

Strengths of this research included using a large population-based sample of the general population of Aotearoa/New Zealand and its comprehensive coverage mental health using a range of variables. The main limitation of this study was its relatively small sample of people of diverse genders and sexualities; this limitation meant that we were not able to examine differences across subpopulations. Similar to overseas population-based surveys,[5] there was a higher number of people of diverse genders and sexualities in our sample who were youth. As it was not possible to examine age as a continuous variable in our analyses, we decided to categorise participants of diverse genders and sexualities into two age groups due to a low sample size of those in older age groups. Studies with people of diverse genders and sexualities have shown that age is a significant predictor in explaining mental health differences;[5, 8] we recommend future population-based studies in Aotearoa/New Zealand to oversample people of diverse genders and sexualities so that meaningful analyses can be conducted on this topic. Furthermore, causal relationships cannot be inferred from our cross-sectional analyses. Despite the strong and clear correlations between social exclusion and social isolation, and mental health difficulties, future longitudinal studies are required in Aotearoa/New Zealand to follow up people of diverse genders and sexualities over time to establish temporal precedence.

Conclusion

To our knowledge, this study is the first to employ a probability sample to examine mental health and wellbeing of people of diverse genders and sexualities across all age groups in Aotearoa/New Zealand. Our findings are consistent with overseas studies in uncovering stark mental health inequities affecting people of diverse genders and sexualities. The high rates of mental health difficulties among people of diverse genders and sexualities support the recent recommendation to list this population as a priority for mental health intervention and prevention in Aotearoa/New Zealand.[2] This study also highlighted a need to understand the sociocultural context of cisgenderism and heterosexism, as we found heightened rates of social exclusion and social isolation to be linked to compromised mental health among people who identified as diverse genders and sexualities.

Footnote.

The indigenous Māori term "takatāpui" traditionally connotes "intimate companion of the same sex".[3] In contemporary understanding, takatāpui is an inclusive term for Māori people with diverse sexual and gender identities.[3]

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