

**Mental health status of double minority adolescents: Findings from national
cross-sectional health surveys**

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Abstract

Background: Little population-based work has been published about the mental health of adolescents with both sexual/gender (SG) and ethnic minority (i.e. double minority) status. This study aimed to provide an overview on their mental health.

Method: Analysis of data from a total of 17,607 high school students in New Zealand's 2007 and 2012 cross-sectional nationally representative Adolescent Health Surveys, including a total of 1,306 (7.4%) SG minority participants, of whom 581 (3.3%) were also an ethnic minority.

Results: SG minority status, minority ethnicity, and female sex were associated with higher mental distress and poorer well-being. Generally speaking, double minority students reported poorer mental health than SG majority students of the same ethnicity, but reported better mental health than SG minority European students.

Discussion: Explanations and future directions for research were suggested to further explore how double minority students negotiate mental health in the context of their communities/cultures in New Zealand.

Introduction

Depression and other forms of mental distress are common among young people and are often under-treated¹⁻³. Sexual minority young people (i.e. youth who are not exclusively opposite-sex attracted) form approximately between 2.3% and 15.5% of the youth population⁴. Less is known about gender minority young people. One of the first population-based studies estimated that 1.2% of high school students identified as transgender, with 2.5% 'not sure' of their gender⁵. Sexual and gender minority youth have been reported to have at least 1.5 times the rates of depression, suicidality and elevated rates of other mental health problems than their heterosexual or non-transgender (cisgender) peers⁵⁻⁸. This phenomenon may be due to disproportionate 'minority stress' from heteronormative (i.e. heterosexuality is the only 'normal' or acceptable sexual orientation) and cis-normative (i.e. the assumption that all people are cisgender and/or should be cisgender) challenging environments and discrimination^{4,5,9,10}.

In addition, ethnic minority groups form an important, and often substantial, population in high-income nations. New Zealand (NZ) is made up people of a European heritage (referred to as New Zealand Europeans/NZE domestically), forming about 68% of the overall population; as well as indigenous Māori (14.9%); Pacific (6.6%); Chinese (4.3%); Indian (3.9%) and other (2.3%) ethnicities¹¹. There are disparities in rates of mental health needs across specific ethnic groups, depending on age and the particular measures used. The specific needs of ethnic minority youth are sometimes overlooked due to racism and other barriers^{12,13}. Māori and Pacific youth report higher rates of suicidality, violence, and use of substances than NZ European youth^{14,15}. Chinese and Indian youth are less likely to report behavioural problems, but are more

likely to show symptoms of depression¹⁶. Notably, despite high rates of distress, Pacific and Māori youth also demonstrate higher levels of resilience, relative to NZ European youth¹⁷.

Even less attention is given to understanding the mental well-being of adolescents who are both an ethnic and SG minority (i.e. ‘double minority’¹ youth)^{18,19}. Based on the minority stress hypothesis, they would report more compromised mental health, because of the additional stressors they faced, when compared to those who are only from a single minority category²⁰. However, studies on intersectionality² suggest a more complex interaction than a linear or additive one¹⁹, and there is considerable debate regarding the factors associated with double minority populations’ risk and resilience. We identified only eight quantitative studies (all conducted in the U.S.) directly focused on double minority adolescents or college students, using either a convenience or regional sample to compare them with their White counterparts. These studies yielded mixed and conflicting findings, which are briefly summarized as follows:

Low self-acceptance for double minorities was reported in a survey of 425 lesbian, gay, and bisexual (LGB) youth²¹. In contrast, three larger surveys which did not collapse all minority ethnicities together, reported increased risk for some but not other ethnic groups. Specifically, one with 6245 LGB sample reported increased risk for Latino, Native American, Pacific and Multi-cultural but not for Black or Asian youth²². Also in a survey of 4321 college students, findings were mixed, with increased risk of suicide attempts among some ethnic groups (Black and Multi-cultural) but decreased risk of depression among some (Asian and Black)²³. Other research has identified no

¹ Although double minority can refer to anyone with dual-minority status, this term has gradually evolved to describe people who are an ethnic and sexual/gender minority.

² Intersectionality addresses an integrated understanding of how multiple social constructs interact.

additional or even lower risk for double minorities over White counterparts. A survey of 1596 LGB students in university counseling centers shown that ethnic minority status was not an added source of distress²⁴. The same pattern emerged in two other surveys: one with 246 LGB and Transgender (i.e. LGBT) youth reporting no additive distress²⁵ and the other with 1106 young LG females reporting lower PTSD severity for Asians in particular²⁶. Surprisingly, a study including 5541 LGB youth, suggested greater negative impact from victimization among White GB males²⁷. Another surveyed 4345 university students, indicating greater suicide risk for White LGB peers²⁸.

In the face of this complexity, we aim to provide a population-based overview of the mental health and wellbeing of double minority youth from a nationally representative sample. This adds to the literature in important ways: it avoids the sampling bias inherent in convenience samples²⁹; it provides the first analysis of this population from outside the US. Finally, we aim to consider not only the needs of double minority youth but also their assets and strengths.

Methods

Youth2000 is a series of national, cross-sectional, population-based youth health and well-being surveys, carried out with representative samples (3-4%) of New Zealand secondary school students in 2001, 2007 and 2012 (Youth'01, '07, and '12). Data from the Youth'07 and Youth'12 were merged to maximize the number of participants, with a statistical adjustment for the cohort effect. The Youth'01 was excluded as it lacks the use of the main ethnicity method and the wellbeing measure.

Participants

In 2012, 125 schools were invited to participate and 91 schools (73%) took part. Of the 12,503 students invited to participate 8,500 (68%) did so. In 2007, 115 schools were invited, and 96 (84%) of them took part. Of the 12,355 students invited, 9,107 (74%) participated. Ethics approval was obtained from the University of Auckland Human Subject Ethics Committee, and written consent was also obtained from each participating school as well as from the students. Their common reasons for non-participation included: not attending the school on the day of survey; being unwilling to participate; or being unavailable when the survey was administered (further details about the surveys' methodology can be found at our website³⁰ or written reports^{31,32}).

The combination of data from Youth'07 and Youth'12 gave us a total sample of 17,607 participants, including 14,706 sexual and/or gender majority and 1,306 minority students of various ethnic backgrounds, with a remainder of participants (1,595) who cannot be placed into either group due to certain responses (e.g. attracted to neither sex). Approximately 40% of participants could be categorized into more than one ethnicity³², so the main ethnicity method³³ was used to allocate each participant into only one

ethnic group. The characteristics of these participants are displayed in Tables 1 & 2.

Measures

The surveys were anonymous, self-report, branched questionnaires, with a comprehensive range of questions related to many aspects of health and wellbeing. Core questions remained the same across both survey waves except for small adjustments. The questions extracted for this analysis were:

Demographics. Sex (male or female), age (dichotomized into 15 years old or less, or 16 years old or more) ethnicity and New Zealand Deprivation Index (NZDI) scores. Participants were asked to choose one ethnicity that they identified with the most, i.e. “Which is your main ethnic group?” Responses were categorized as: NZ European; Chinese and other East Asian; Indian and other Asian; Māori; Pacific; and ‘other ethnicity’. NZDI is an indicator of neighbourhood socioeconomic deprivation derived from the NZ census, encompassing eight dimensions of deprivation³⁴. We grouped participants into three levels of deprivation: high, medium, and low.

Sexual attractions and gender identity. We dichotomized the students into those who were sexual minority (i.e. they were sexually attracted to people of the “same sex”, “both sexes”, or they were “not sure” of their sexual attractions), versus sexual majority students (i.e. young people who were exclusively sexually attracted to the “opposite sex”) based on the question “Who are you sexually attracted to?” Students who reported being attracted to “neither sex” or who did not know how to answer this question were excluded from this analysis, as prior studies have indicated that they do not appear to experience the same sort of issues experienced by sexual minority participants^{8,35}. Students in Youth’12 were also asked “Do you think you are transgender. This is a girl who feels like she should have been a boy, or a boy who feels like he should have been a girl (e.g., Trans, Queen, Fa’afafine, Whakawahine, Tangata ira Tane, Gender queer)?”

Those students who reported being transgender, and those not sure about their gender, were assigned into the 'sexual and/or gender minority' category. Students who did not understand this question were excluded from the analysis. The combined sexual and/or gender minority category are referred to as 'SG minority' for brevity. The remainder of students were categorized into the 'sexual and gender majority' group, referred to as 'SG majority' for brevity.

Mental health outcomes. The Reynolds Adolescent Depression Scale-Short Form (RADS-SF) was used to measure symptoms of depression. Previous studies have suggested that the RADS-SF has acceptable reliability and validity for NZ adolescents, and a cut-off score of 28 was used to identify those with clinically significant depressive symptoms^{36,37}. Attempted suicide was identified by an affirmative response to the question, "During the last 12 months have you tried to kill yourself?" The WHO-5 Well-being Index was used to measure the reported general psychological well-being of participants. This five-item scale has a maximum score of 25, with a cut-off point of 13 or higher used to indicate "good well-being"³⁸.

Data analyses

All analyses utilized the combined data from Youth'07 and Youth'12. Data were weighted by the inverse probability of selection and accounted for the clustering of students from the same schools using survey procedures in SAS 9.4. Sample size, adjusted percentages, odds ratios, and 95% confidence intervals were reported. Logistic regressions were conducted to look for significant interactions between sex, ethnicity, and SG status. A p-value equal or less than 0.01 was considered as an indication of statistical significance. Odds ratios (OR) were used to determine the comparisons between SG majority and minority groups, as well as between ethnic majority and minority participants within the SG minority group, while controlling for age, wave and

NZDI.

Results

The demographic characteristics are summarized in Tables 1 and 2. Of note, 78.7% of Pacific and 57.3% of Māori students were living in neighbourhoods with a high level of deprivation. As shown in Table 3, being a female or SG minority student was associated with an elevated risk of mental distress. The two-way interactions between SG status and ethnicity were significantly associated with depression, attempted suicide, and wellbeing. The two-way interaction between SG status and sex was only significant for attempted suicide.

Since the interaction terms were statistically significant, further data reports and interpretations were stratified by sex, SG status, and ethnicity (see Tables 4, 5, & 6). SG minority students consistently reported higher rates of depressive symptoms, suicide attempts, and a lower rate of good well-being (although this was far less pronounced for the Pacific and Māori groups), compared to SG majority students from the same ethnic group. Unadjusted figures have been used to report the data trends (see Figures 1, 2, 3, 4, 5, & 6).

Among SG majority students, females consistently reported higher rates of depressive symptoms, suicide attempts, and lower rates of good well-being than males across all ethnic groups. However, sex differences for SG minority students were often less pronounced or did not exist for selected outcomes (e.g. for Chinese and East Asian SG minority students in relation to suicide attempts). In comparing SG minority students according to ethnicity, NZ Europeans (both male and female) consistently reported higher rates of depressive symptoms and suicide attempts, than did their Chinese and East Asian, Indian and Other Asian, Māori, or Pacific peers. Moreover,

NZ Europeans also reported low rates of good well-being relative to Chinese and East Asian (except for male), Indian and Other Asian, Māori, or Pacific peers.

Discussion

Summary of the findings

In this cross sectional, nationally representative survey, we observed a general trend: 1) SG majority NZ European youth showed the lowest risk of mental problems; 2) SG majority youth who were an ethnic minority had a slightly elevated risk; 3) Double minority youth reported a moderate risk; and, 4) SG minority NZ European youth demonstrated the highest risk. Overall, female students reported higher rates of mental distress, and lower rates of well-being than male students. However, this distinction was less pronounced amongst SG minority students.

Our findings add to prior research highlighting that having either ethnic or SG minority status signifies an increased risk of mental ill-health, however dual-minority status does not further elevate the risk^{25,27,39}. Resiliency theorists proposed that ethnic minority youth may develop psychological hardiness by drawing upon appropriate resources (e.g. social/community support, family traditions, and cultural beliefs/values)^{17,40}, to help reduce the negative impact of dominant culture discrimination, racism and prejudice on mental health²¹. Furthermore, social evaluation theory suggests that the sense of community experienced by belonging to a minority ethnic group may act to provide a more meaningful and supportive comparison than a dominant culture⁴¹. For Māori sexual/gender minority communities in New Zealand, identity transcends traditional Western labels of gender, sexuality and ethnicity “claiming takatāpui enables us to bring all of the parts of ourselves together – to be all of who we are”⁴².

Potential implications

The present study was a response to the debate over whether students who are sexuality and gender diverse, as well as being from a non-majority ethnic group, would experience accumulative mental distress pertinent to their dual-minority status. Contrary to what was initially speculated, double minority students generally reported higher rates of good well-being and lower rates of mental distress than their NZ European peers. According to a resiliency perspective, two possible implications may be drawn from this:

Tolerance of non-European cultures towards sexual and gender diversity. The significance of the interaction may indicate that non-European SG minority students' cultures of origin may act as a buffer against mental health threats in New Zealand. Chinese and other East Asian cultures are found to be more tolerant of sexual/gender non-normative behaviours or presentations than Western cultures^{43,44}. Similarly, Māori and Pacific cultures in pre-European times were found to be inclusive of the same-gender relationships and gender diverse identities^{45,46}. Some double minority students may thus have an additional set of culturally anchored resources to draw upon as protection against a substantial decline of mental well-being, relative to their NZ European peers.

Enhanced coping linked to challenging environments. The adversity of certain social environments may sometimes stimulate young people to become resilient in relation to handling mistreatment⁴⁷. Double minority students may have developed coping skills for positive adaptation, as many grew up in an environment that was challenging (e.g. they have had to manage racism and micro-aggressions³ to do with their ethnicity from a very young age)⁴⁸⁻⁵⁰. Although many may suffer from serious socioeconomic setbacks, Māori and Pacific students generally reported high rates of

³ Micro-aggression is described as a variety of minor verbal/ non-verbal treatments to ethnic minority persons delivered by well-intentioned White persons unaware of its hidden discriminatory messages.

good well-being and their SG minority peers did not show a significant decline in reported rates of good well-being.

Strength and limitations

To the best of our knowledge, the current study is amongst a very small number of studies to examine ethnic diversity among SG minority youth in terms of their mental health and well-being, and is the first study to do so in Australasia. However, the study has some limitations. First of all, the cross-sectional nature of the surveys means that a causal relationship cannot be drawn. Second, the main ethnicity method may suffer from criticisms of over-simplifying ethnic complexities, even though this method can signify which aspect of their cultural heritage a young person felt most strongly connected with³³. Third, a potential for bias due to the self-reported nature of the outcome measures utilized may occur. It may be argued that non-European students are accustomed to under-reporting their mental distress⁵¹. Past studies suggested that Chinese people may be less likely to report severe symptoms of mental distress, and not to seek professional help as often as Westerners because of certain barriers, such as the stigma associated with mental disorders, and a limited knowledge of mental health⁵²⁻⁵⁴. Fourth, the small number of SG minority students in particular ethnic groups resulted in some small cell sizes for certain analyses. However, we have provided the 95% confidence intervals (CI), so that readers can evaluate the degree to which one can be confident that differences are meaningful (e.g. for some analyses these 95% CI are wide ranging). Finally, certain questions were missing between the two surveys. Most notably, students were not asked if they were transgender in the Youth'07 survey. Students were also not asked whether they were intersex (i.e. when one's biological sex does not fit the male/female sex binary)⁵⁵.

Conclusion

Our study provides a nationally representative and population-based snapshot of the mental health and wellbeing of double minority youth in New Zealand. Possessing ethnic or SG minority status is associated with increased risk of compromised mental health. We found that double minority students generally have increased risk over SG majority students of their own ethnicity. However, SG minority European students demonstrate increased risk relative to double minority students. In fact, overall they appear to report better mental health, relative to their European peers. Further research is needed to investigate the operation of the intersected identities (i.e. ethnicity, sexuality, gender diversity, and social class) in young people. In particular, in-depth qualitative research could be very useful to understand how potentially complex identities can be construed by young people, so that we can better support and further bolster them.

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Declaration of interest

The authors are unaware of any conflict of interest. The authors alone are responsible for the content and writing of this paper.

References

1. McGorry PD, Purcell R, Hickie IB, Jorm AF. Investing in youth mental health is a best buy. *Med J Aust* 2007;187(7):S5-S7268.
2. Burns MN, Ryan DT, Garofalo R, Newcomb ME, Mustanski B. Mental Health Disorders in Young Urban Sexual Minority Men. *Journal of Adolescent Health* 2015 01;56(1):52-5810.
3. Patel V, Flisher AJ, Hetrick S, McGorry P. Mental health of young people: a global public-health challenge. *The Lancet* 2007 4/14–20;369(9569):1302-1313269.
4. Denny S, Lucassen MF, Stuart J, Fleming T, Bullen P, Peiris-John R, et al. The association between supportive high school environments and depressive symptoms and suicidality among sexual minority students. *Journal of Clinical Child & Adolescent Psychology* 2016;45(3):248-261315.
5. Clark TC, Lucassen MF, Bullen P, Denny SJ, Fleming TM, Robinson EM, et al. The health and well-being of transgender high school students: results from the New Zealand Adolescent Health Survey (Youth'12). *Journal of Adolescent Health* 2014;55(1):93-99316.
6. Chakraborty A, McManus S, Brugha TS, Bebbington P, King M. Mental health of the non-heterosexual population of England. *Br J Psychiatry* 2011 Feb;198(2):143-148318.
7. King M, Semlyen J, Tai SS, Killaspy H, Osborn D, Popelyuk D, et al. A systematic review of mental disorder, suicide, and deliberate self-harm in lesbian, gay and bisexual people. *BMC Psychiatry* 2008 Aug 18;8:70-87324.
8. Lucassen MF, Merry SN, Robinson EM, Denny S, Clark T, Ameratunga S, et al. Sexual attraction, depression, self-harm, suicidality and help-seeking behaviour in New Zealand secondary school students. *Aust N Z J Psychiatry* 2011;45(5):376-383444.
9. Marshal MP, Dietz LJ, Friedman MS, Stall R, Smith HA, McGinley J, et al. Suicidality and depression disparities between sexual minority and heterosexual youth: A meta-analytic review. *Journal of Adolescent Health* 2011 8;49(2):115-123160.

10. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychol Bull* 2003;129(5):674-69772.
11. Statistics New Zealand. Infoshare: Connecting you to a wealth of information. 2015; Available at: <http://nzdotstat.stats.govt.nz/infoshare>. Accessed April/09, 2016.
12. LoSchiavo FM, Shatz MA. Reaching the neglected 95%. *Am Psychol* 2009 September;64(6):565-56686.
13. Harris R, Tobias M, Jeffreys M, Waldegrave K, Karlsen S, Nazroo J. Racism and health: The relationship between experience of racial discrimination and health in New Zealand. *Soc Sci Med* 2006 9;63(6):1428-1441309.
14. Crengle S, Clark TC, Robinson E, Bullen P, Dyson B, Denny S, et al. The health and wellbeing of Māori New Zealand secondary school students in 2012. *Te Ara Whakapiki Taitamariki: Youth'12*. Auckland: The University of Auckland; 2013.
15. Helu SL, Robinson E, Grant S, Herd R, Denny S. Youth '07 The health and wellbeing of secondary school students in New Zealand: Results for Pacific young people. Auckland: The University of Auckland; 2009.
16. Parackal S, Ameratunga S, Tintin S, Wong S. Youth '07: The health and wellbeing of secondary school students in New Zealand: Results for Chinese, Indian and other Asian Students. Auckland: The University of Auckland; 2011.
17. Sanders J, Munford R. The interaction between culture, resilience, risks and outcomes: A New Zealand study. In: Theron LC, Liebenberg L, Ungar M, editors. *Youth Resilience and Culture* New York: Springer; 2015. p. 81-92.
18. Boykin K. *One more river to cross: black & gay in America*. New York: Anchor Books; 1997.
19. Guittar SG, Guittar NA. Intersectionality. In: Wright JD, editor. *International Encyclopedia of the Social & Behavioral Sciences* Oxford: Elsevier; 2015. p. 657-662.
20. Jaspal R. Non-heterosexual British Asian men: Social representations, identity and social relations. In: Wright JD, editor. *International Encyclopedia of the Social & Behavioral Sciences* Oxford: Elsevier; 2015. p. 861-866.

21. Mustanski B, Newcomb ME, Garofalo R. Mental health of lesbian, gay, and bisexual youths: A developmental resiliency perspective. *Journal of Gay & Lesbian Social Services: The Quarterly Journal of Community & Clinical Practice* 2011;23(2):204-225477.
22. Bostwick WB, Meyer I, Aranda F, Russell S, Hughes T, Birkett M, et al. Mental health and suicidality among racially/ethnically diverse sexual minority youths. *Am J Public Health* 2014 Jun 2014;104(6):1129-113614.
23. Lytle MC, De Luca SM, Blosnich JR. The influence of intersecting identities on self-harm, suicidal behaviors, and depression among lesbian, gay, and bisexual individuals. *Suicide and Life-threatening Behavior* 2014;44(4):384-391447.
24. Hayes JA, Chun Kennedy C, Edens A, Locke BD. Do double minority students face double jeopardy? Testing minority stress theory. *Journal of College Counseling* 2011;14(2):117-12668.
25. Mustanski BS, Garofalo R, Emerson EM. Mental health disorders, psychological distress, and suicidality in a diverse sample of lesbian, gay, bisexual, and transgender youths. *Am J Public Health* 2010;100(12):2426-2432287.
26. Balsam KF, Molina Y, Blayney JA, Dillworth T, Zimmerman L, Kaysen D. Racial/ethnic differences in identity and mental health outcomes among young sexual minority women. *Cultural Diversity and Ethnic Minority Psychology* Jul 2015;21(3):380-390340.
27. LeVasseur MT, Kelvin EA, Grosskopf NA. Intersecting identities and the association between bullying and suicide attempt among New York City youths: Results from the 2009 New York city youth risk behavior survey. *Am J Public Health* 2013;103(6):1082-1089289.
28. Shadick R, Backus DF, Barbot B. Suicide risk among college student. The intersection of sexual orientation and race. *Crisis* 2015 - 2015;36(6):416-423512.
29. Sousa VD, Zauszniewski JA, Musil CM. How to determine whether a convenience sample represents the population. *Applied Nursing Research* 2004;17(2):130-133547.
30. Adolescent Health Research Group. About the Youth2000 survey series: National youth health and wellbeing surveys. 2016; Available at:

<https://www.fmhs.auckland.ac.nz/en/faculty/adolescent-health-research-group/youth2000-national-youth-health-survey-series.html>.

31. Adolescent Health Research Group. Youth'07: The health and wellbeing of secondary school students in New Zealand. Initial findings. Auckland, New Zealand: The University of Auckland; 2008.
32. Clark TC, Fleming T, Bullen P, Denny S, Crengle S, Dyson B, et al. Youth'12 Overview: The health and wellbeing of New Zealand secondary school students in 2012. Auckland: The University of Auckland; 2013.
33. Kukutai T, Callister P. A "main" ethnic group? Ethnic self-prioritisation among New Zealand youth. *Social policy journal of New Zealand* 2009(36):16-31544.
34. Adolescent Health Research Group. Youth'12 national health and wellbeing survey of New Zealand secondary school students: data dictionary. Auckland: The University of Auckland; 2012.
35. Lucassen MF, Clark TC, Denny SJ, Fleming TM, Rossen FV, Sheridan J, et al. What has changed from 2001 to 2012 for sexual minority youth in New Zealand? *J Paediatr Child Health* 2015;51(4):410-4184.
36. Milfont TL, Merry S, Robinson E, Denny S, Crengle S, Ameratunga S. Evaluating the short form of the Reynolds Adolescent Depression Scale in New Zealand adolescents. *Aust N Z J Psychiatry* 2008;42(11):950-954296.
37. Fleming TM, Clark T, Denny S, Bullen P, Crengle S, Peiris-John R, et al. Stability and change in the mental health of New Zealand secondary school students 2007-2012: results from the national adolescent health surveys. *Aust N Z J Psychiatry* 2014 May;48(5):472-480295.
38. World Health Organization. The WHO-5 website. 1998; Available at: <https://www.psykiatri-regionh.dk/who-5/Pages/default.aspx>.
39. Meyer IH, Dietrich J, Schwartz S. Lifetime prevalence of mental disorders and suicide attempts in diverse lesbian, gay, and bisexual populations. *Am J Public Health* 2008 Jun;98(6):1004-1006286.
40. Yu EA, Chang EC, Yang H, Yu T. Positive psychology assessment in Asian Americans. In: Chang EC, Downey CA, Hirsch JK, Lin NJ, editors. *Positive*

- psychology in racial and ethnic minority groups: Theory, research, and practice
Washington DC: American Psychological Association; 2016. p. 131-149.
41. Pettigrew TF. Social evaluation theory: convergences and applications. *Nebraska Symposium on Motivation* 1967;15:241-304515.
42. Kerekere E. Takatāpui: Part of the Whānau. Auckland: Tīwhanawhana Trust and Mental Health Foundation; 2015.
43. Fann RQ. Growing up gay in China. *Journal of Gay & Lesbian Issues in Education* 2003;1(2):35-42325.
44. Chan CS. Don't ask, don't tell, don't know: The formation of a homosexual identity and sexual expression among Asian American lesbians. In: Greene B, editor. *Ethnic and cultural diversity among lesbians and gay men* New York: Sage Publications; 1997. p. 240-248.
45. Aspin C, Hutchings J. Reclaiming the past to inform the future: Contemporary views of Maori sexuality. *Culture, health & sexuality* 2007;9(4):415-427326.
46. Wallace L. *Sexual encounters: Pacific texts, modern sexualities*. New York: Cornell University Press; 2003.
47. Egeland B, Carlson E, Sroufe LA. Resilience as process. *Development and Psychopathology* 1993;5(4):517-528300.
48. Moradi B, Wiseman MC, DeBlaere C, Goodman MB, Sarkees A, Brewster ME, et al. LGB of color and White individuals' perceptions of heterosexist stigma, internalized homophobia, and outness: Comparisons of levels and links. *The Counseling Psychologist* 2010;38(3):397-424290.
49. Della B, Wilson M, Miller RL. Strategies for managing heterosexism used among African American gay and bisexual men. *J Black Psychol* 2002;28(4):371-391328.
50. DeAngelis T. Unmasking racial micro-aggressions. 2009; Available at: <http://www.apa.org/monitor/2009/02/microaggression.aspx>. Accessed 2, 40.
51. Yeung A, Chan R, Mischoulon D, Sonawalla S, Wong E, Nierenberg AA, et al. Prevalence of major depressive disorder among Chinese-Americans in primary care. *Gen Hosp Psychiatry* 2004 0;26(1):24-30331.

52. Georg Hsu L, Wan YM, Chang H, Summergrad P, Tsang BY, Chen H. Stigma of depression is more severe in Chinese Americans than Caucasian Americans. *Psychiatry* 2008;71(3):210-218302.
53. Li PL, Logan S, Yee L, Ng S. Barriers to meeting the mental health needs of the Chinese community. *J Public Health Med* 1999 Mar;21(1):74-80301.
54. Choi I, Andrews G, Sharpe L, Hunt C. Help-seeking characteristics of Chinese- and English-speaking Australians accessing Internet-delivered cognitive behavioural therapy for depression. *Soc Psychiatry Psychiatr Epidemiol* 2015;50(1):89-97100.
55. Hofman DLC. Male, female, and other: How science, medicine and law treat the intersexed, and the implications for sex-dependent law. *Tulane Journal of Law & Sexuality* 2012;21:1-22455.

Table

Table 1. Demographics of participants (n,%).

	<u>SG majority</u>	<u>SG minority</u>	Chi-Sq
<u>Sex</u>			p<.0001
Male	7325 (50.14)	530 (40.92)	
Female	7380 (49.86)	775 (59.08)	
<u>Age</u>			p=0.1671
15 or less	9449 (64.20)	863 (66.07)	
16 or more	5249 (35.80)	442 (33.93)	
<u>Ethnicity</u>			p<.0001
NZ European	9776 (65.17)	725 (55.47)	
Male	4847	278	
Female	4929	446	
Unidentified	0	1	
Chinese and East Asian	759 (5.22)	139 (10.89)	
Male	435	57	
Female	324	82	
Unidentified	0	0	
Indian and Other Asian	779 (5.32)	68 (5.20)	
Male	410	28	
Female	369	40	
Unidentified	0	0	
Māori	1446 (9.79)	116 (8.73)	
Male	726	54	
Female	719	62	
Unidentified	1	0	
Pacific	1259 (8.54)	181 (13.82)	
Male	578	82	
Female	681	99	
Unidentified	0	0	
Other Ethnicity	687 (4.72)	77 (5.90)	
Male	329	31	
Female	358	46	
Unidentified	0	0	

Table 2. Socioeconomic Deprivation Level by ethnicity (n,%).

<u>Ethnicity</u>	<u>Level of Deprivation</u>			Chi-Sq p<.0001
	Low	Medium	High	
NZ European	4554 (41.68)	4507 (40.94)	1940 (17.38)	
Chinese and East Asian	414 (41.56)	415 (41.33)	175 (17.11)	
Indian and Other Asian	213 (23.18)	426 (46.13)	286 (30.69)	
Māori	187 (10.99)	542 (31.73)	992 (57.28)	
Pacific	60 (3.58)	298 (17.72)	1341 (78.70)	
Other Ethnicity	254 (30.55)	329 (35.16)	256 (30.29)	
Column Total	5682	6517	4990	
			Missing	418

Table 3 Testing the main effects and interactions on mental health outcomes

P<0.01

<u>Predictor</u>	<i>Depressive symptoms</i>		<i>Attempted Suicide</i>		<i>WHO-5 Well-being</i>	
	<u>P-Value</u>	<u>Significance</u>	<u>P-Value</u>	<u>Significance</u>	<u>P-Value</u>	<u>Significance</u>
wave	0.0243	No	0.0171	No	0.0287	No
age	0.3299	No	0.0057	Yes	<.0001	Yes
NZDI	0.0003	Yes	0.016	No	0.001	Yes
sex	<.0001	Yes	<.0001	Yes	<.0001	Yes
ethnicity	<.0001	Yes	0.0124	No	<.0001	Yes
SG status⁴	<.0001	Yes	<.0001	Yes	<.0001	Yes
SG status*ethnicity	0.0009	Yes	0.0003	Yes	<.0001	Yes
sex*ethnicity	0.3201	No	0.733	No	0.0201	No
SG status*sex	0.3067	No	0.0035	Yes	0.3999	No
SG status*ethnicity*sex	0.4785	No	0.6372	No	0.3315	No

⁴ Dichotomized into SG majority and minority categories.

Table 4. Associations between ethnicity and depressive symptoms in New Zealand secondary school students.**Rates of significant depressive symptoms**

		<u>SG majority</u>	<u>SG minority</u>	<u>OR (95% CL)</u>	
		<u>% (n/N)</u>	<u>% (n/N)</u>	<u>SAGI comparison</u>	<u>Ethnicity comparison</u>
NZ European	Male	6.67 (318/4741)	22.93 (62/266)	3.99 (2.95-5.39)	
	Female	13.40 (659/4873)	35.29 (151/427)	3.54 (2.88-4.35)	
Chinese and East Asian	Male	8.77 (38/430)	16.65 (9/54)	2.09 (1.10-3.97)	0.68 (0.34-1.34)
	Female	13.43 (43/320)	21.78 (17/79)	1.61 (0.99-2.62)	0.46 (0.28-0.76)
Indian and Other Asian	Male	6.64 (26/399)	15.80 (4/26)	3.18 (1.36-7.44)	0.62 (0.20-1.92)
	Female	15.16 (55/364)	36.12 (14/39)	2.74 (0.89-8.50)	0.98 (0.43-2.22)
Māori	Male	4.69 (34/693)	9.95 (5/51)	2.23 (0.87-5.71)	0.35 (0.14-0.89)
	Female	15.38 (107/700)	18.31 (11/57)	1.30 (0.63-2.70)	0.37 (0.18-0.76)
Pacific	Male	5.85 (33/554)	18.38 (14/77)	3.49 (1.68-7.27)	0.65 (0.35-1.23)
	Female	15.54 (103/664)	16.57 (16/94)	1.04 (0.60-1.79)	0.29 (0.17-0.49)
Other Ethnicity	Male	9.25 (29/316)	23.11 (6/27)	3.02 (0.99-9.23)	1.02 (0.35-2.96)
	Female	18.38 (65/354)	33.28 (15/45)	2.07 (1.05-4.08)	0.84 (0.47-1.50)

SAGI⁵ comparison was for the difference between SG majority and minority students within the same ethnicity.

Reference category (OR=1) was SG majority students in each ethnic grouping, adjusted for wave, age, and NZDI

Ethnicity comparison was for the ethnic difference amongst SG minority students

Reference category (OR=1) was NZ European sexual minority students, adjusted for wave, age, and NZDI

All OR comparisons were matched with sex

(i.e. SAGI comparison: Pacific SG majority female / Pacific SG minority female = 1 : 1.04;

Ethnicity comparison: NZE SG minority male / Māori SG minority male = 1 : 0.35)

⁵ SAGI stands for sexual attractions and gender identity

Table 5. Associations between ethnicity and attempted suicide in New Zealand secondary school students.**Rates of attempted suicide**

		<u>SG majority</u>	<u>SG minority</u>	<u>OR (95% CL)</u>	
		<u>% (n/N)</u>	<u>% (n/N)</u>	<u>SAGI comparison</u>	<u>Ethnicity comparison</u>
NZ European	Male	1.62 (77/4805)	11.93 (33/272)	8.25 (5.61-12.13)	
	Female	4.11 (202/4915)	16.45 (74/444)	4.58 (3.41-6.14)	
Chinese and East Asian	Male	1.94 (9/433)	5.68 (3/55)	3.47 (0.93-12.92)	
	Female	3.10 (10/322)	5.19 (4/82)	1.66 (0.50-5.49)	
Indian and Other Asian	Male	1.71 (7/407)	11.29 (3/27)	7.46 (1.81-30.77)	
	Female	6.49 (24/367)	10.95 (4/40)	1.75 (0.60-5.16)	
Māori	Male	4.43 (32/713)	7.98 (4/52)	2.02 (0.67-6.02)	
	Female	9.94 (70/712)	17.81 (12/62)	1.98 (1.02-3.84)	
Pacific	Male	3.40 (19/568)	8.99 (7/80)	2.74 (1.23-6.12)	
	Female	12.61 (85/678)	13.31 (13/96)	1.06 (0.57-1.96)	
Other Ethnicity	Male	2.15 (9/399)	20.12 (7/35)	10.16 (2.65-38.94)	
	Female	5.93 (25/417)	16.41 (8/51)	3.32 (1.44-7.66)	

SAGI⁶ comparison was for the difference between SG majority and minority students within the same ethnicity

Reference category (OR=1) was SG majority students in each ethnic grouping, adjusted for wave, age, and NZDI

Ethnicity comparison was for the ethnic difference amongst SG minority students

Reference category (OR=1) was NZ European SG minority students, adjusted for wave, age, and NZDI

All OR comparisons were matched with sex

(i.e. SAGI comparison: Pacific SG majority female / Pacific SG minority female = 1 : 1.06;

Ethnicity comparison: NZE SG minority male / Māori SG minority male = 1 : 0.58)

⁶ SAGI stands for sexual attractions and gender identity

Table 6. Associations between ethnicity and well-being in New Zealand secondary school students.

p<.01

Rates of good psychological well-being

		<u>SG majority</u>	<u>SG minority</u>	<u>OR (95% CL)</u>	
		<u>% (n/N)</u>	<u>% (n/N)</u>	<u>SAGI comparison</u>	<u>Ethnicity comparison</u>
NZ European	Male	84.69 (4044/4783)	68.26 (184/269)	0.40 (0.31-0.50)	
	Female	72.99 (3568/4890)	51.91 (229/440)	0.40 (0.33-0.49)	
Chinese and East Asian	Male	76.92 (329/428)	68.63 (38/55)	0.61 (0.31-1.19)	0.98 (0.49-1.93)
	Female	56.75 (211/321)	67.84 (54/80)	1.12 (0.57-2.18)	2.07 (1.23-3.48)
Indian and other Asian	Male	87.31 (356/407)	78.16 (22/28)	0.51 (0.22-1.18)	1.73 (0.75-3.99)
	Female	74.22 (271/365)	52.53 (21/40)	0.38 (0.21-0.67)	1.07 (0.58-1.95)
Māori	Male	83.83 (594/710)	81.89 (43/52)	0.83 (0.38-1.80)	2.11 (0.98-4.55)
	Female	70.36 (495/706)	70.29 (43/62)	1.02 (0.59-1.77)	2.35 (1.35-4.10)
Pacific	Male	86.37 (487/564)	87.43 (70/80)	1.05 (0.52-2.11)	3.27 (1.67-6.43)
	Female	77.25 (520/673)	71.21 (66/93)	0.72 (0.45-1.15)	2.46 (1.51-4.00)
Other Ethnicity	Male	81.64 (326/399)	55.78 (20/35)	0.30 (0.14-0.67)	0.50 (0.24-1.05)
	Female	67.73 (282/418)	60.56 (31/51)	0.74 (0.37-1.47)	1.44 (0.76-2.73)

SAGI⁷ comparison was for the difference between SG majority and minority students within the same ethnicity

Reference category (OR=1) was SG majority students in each ethnic grouping, adjusted for wave, age, and NZDI

Ethnicity comparison was for the ethnic difference amongst SG minority students

Reference category (OR=1) was NZ European SG minority students, adjusted for wave, age, and NZDI

⁷ SAGI stands for sexual attractions and gender identity

Figure

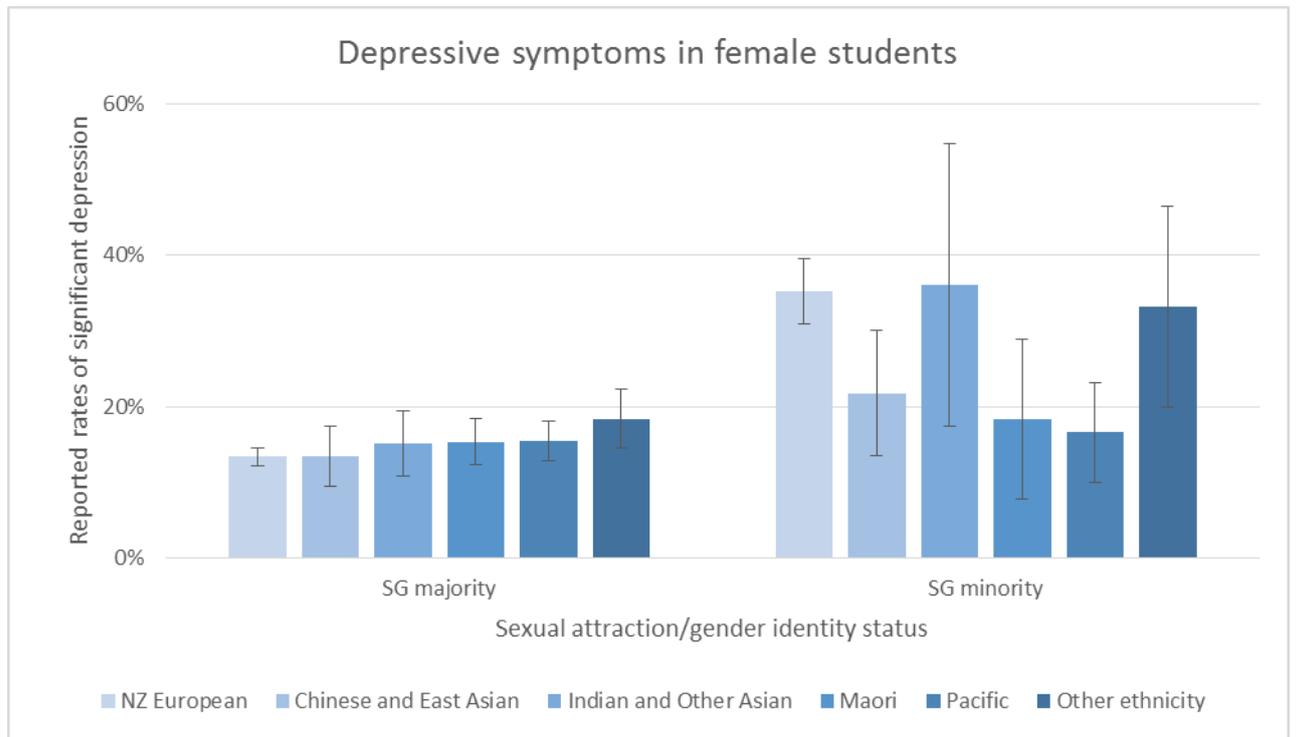


Figure 1. Reported rates of depressive symptoms in female students.

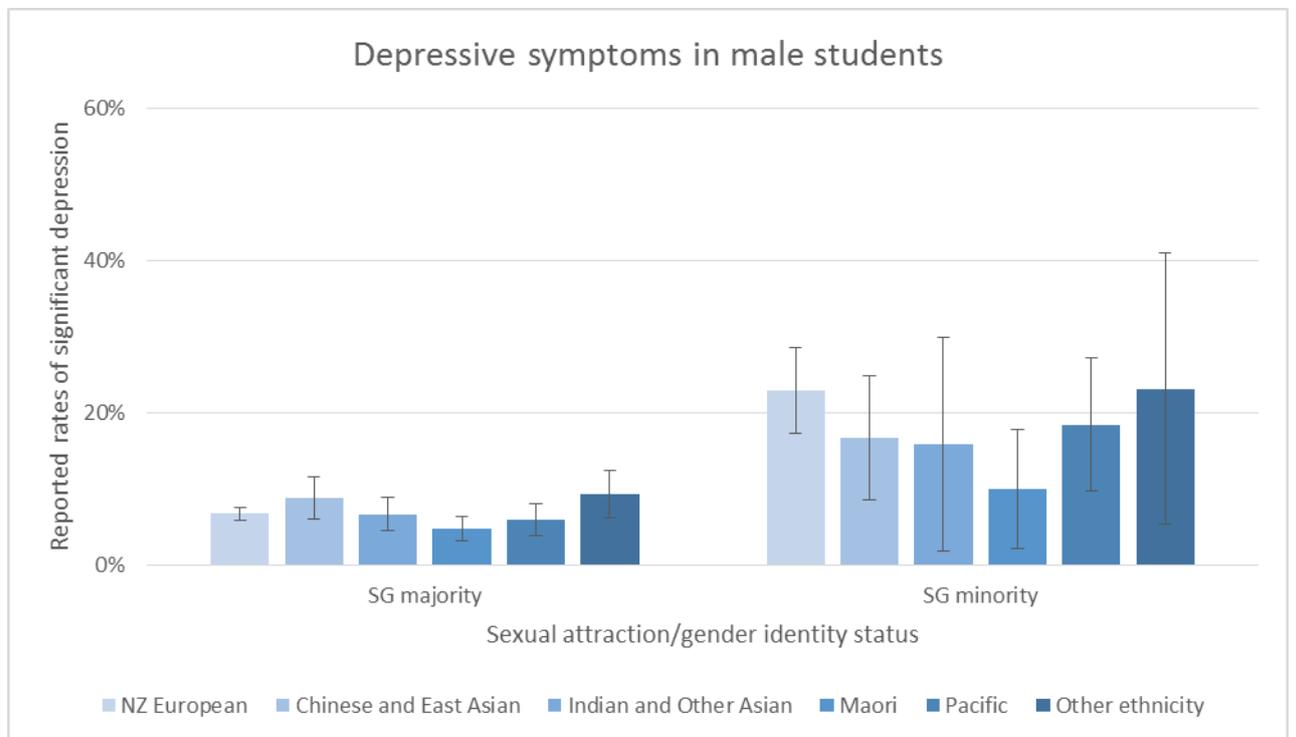


Figure 2. Reported rates of depressive symptoms in male students.

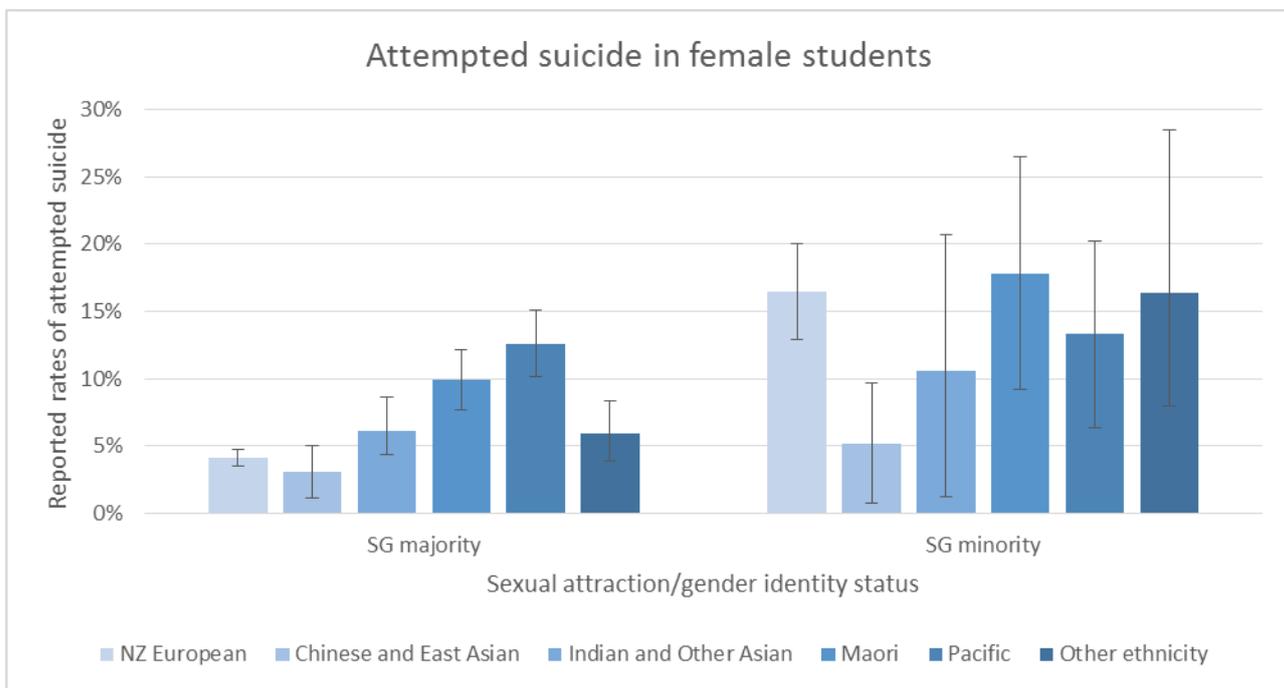


Figure 3. Reported rates of attempted suicide in female students.

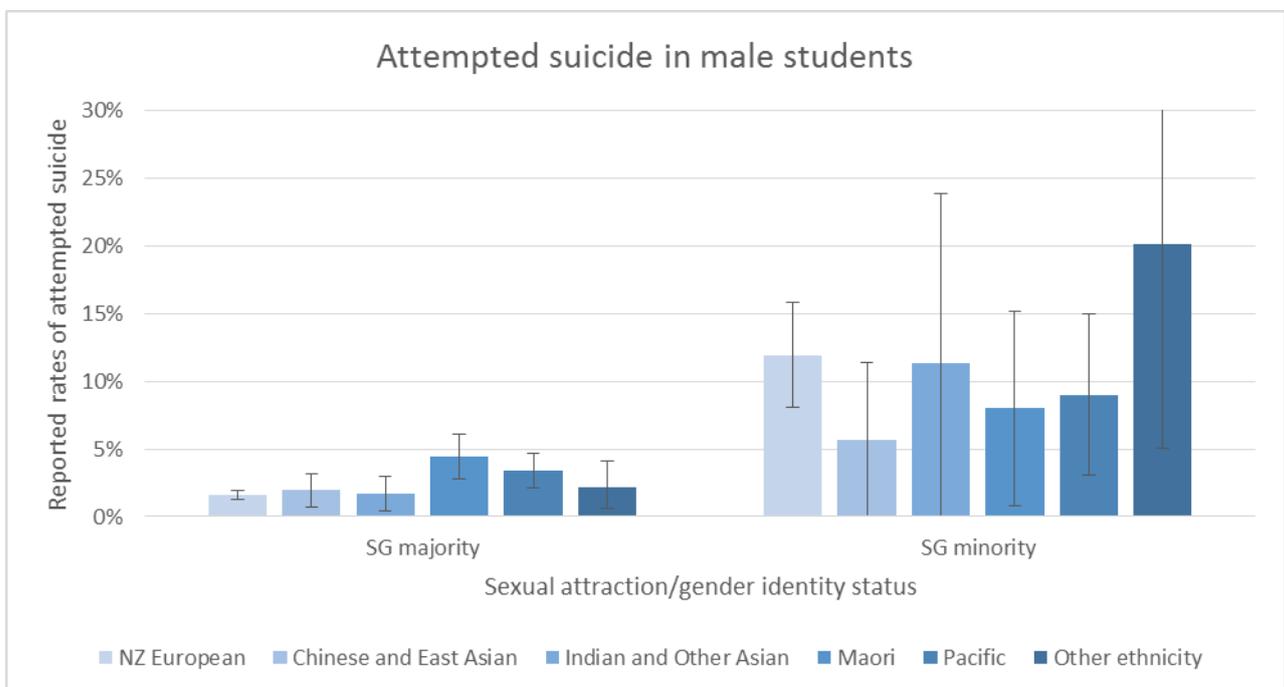


Figure 4. Reported rates of attempted suicide in male students.

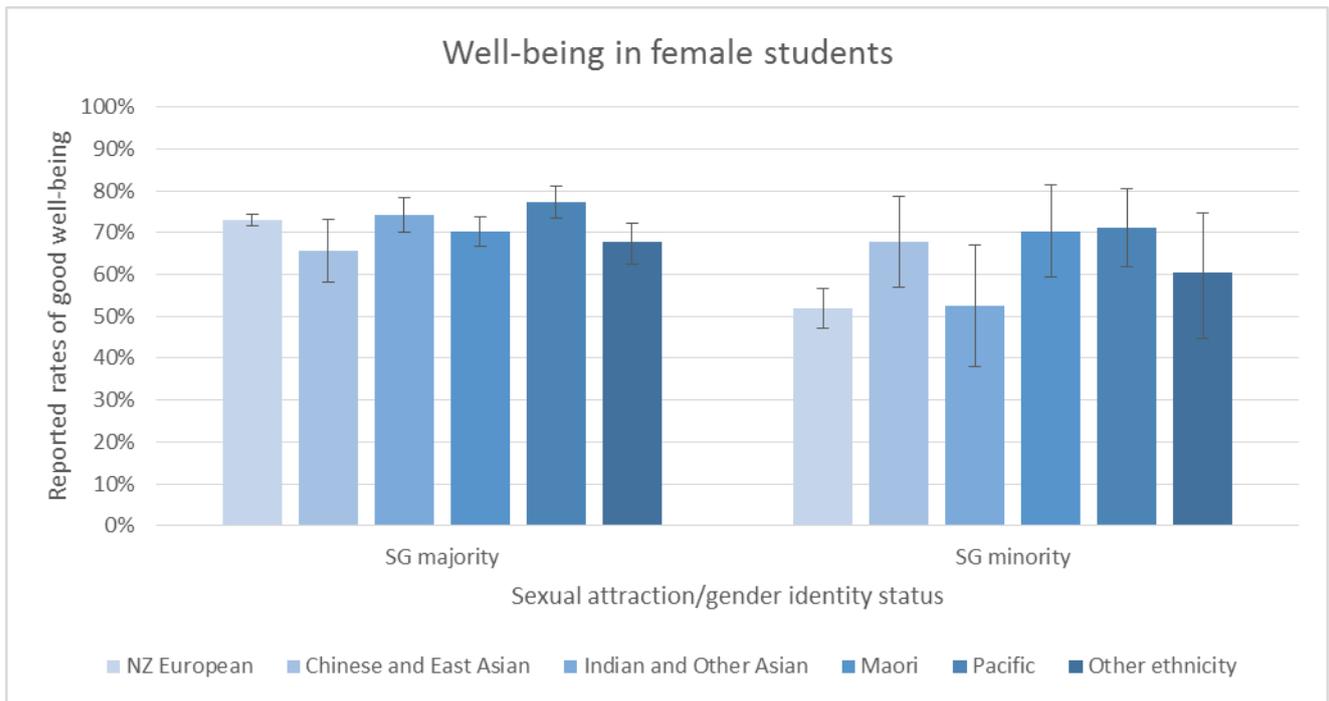


Figure 5. Reported rates of good well-being in female students.

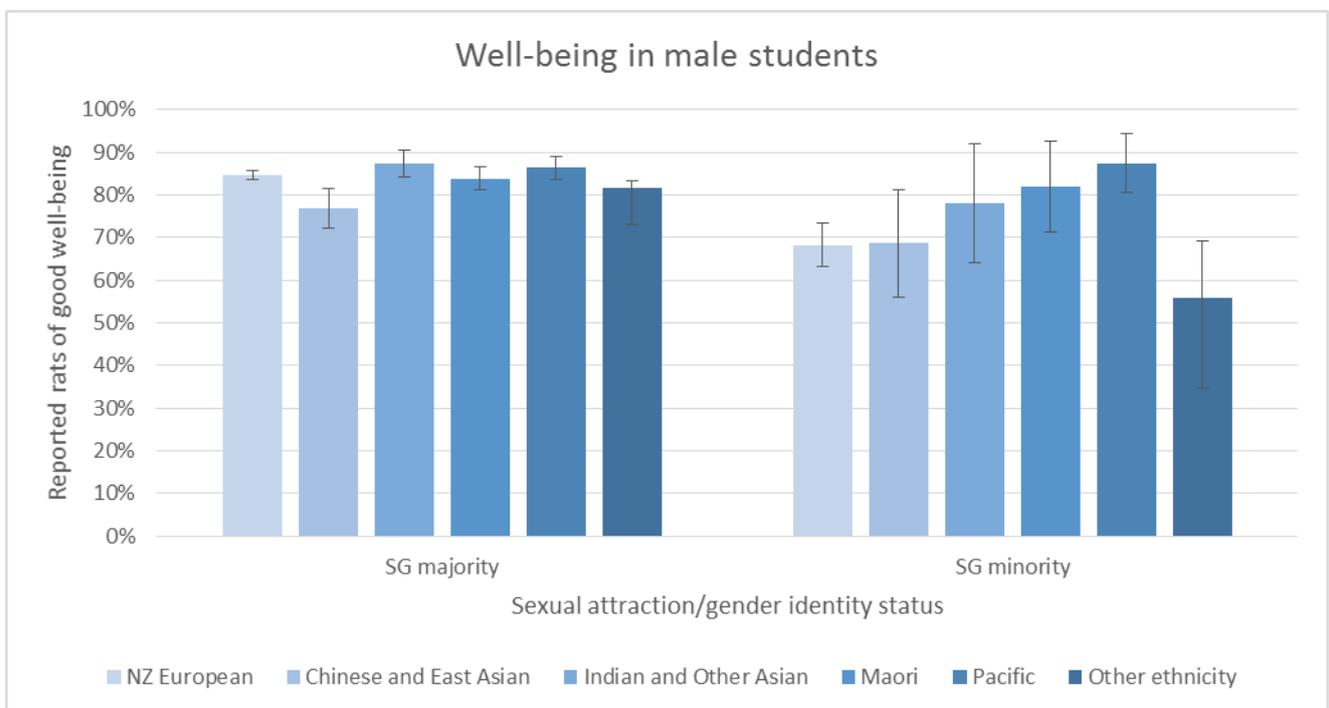


Figure 6. Reported rates of good well-being in male students.

