A Health Profile of Niue Tertiary Students in Aotearoa, New Zealand

Vili Nosa
Atefeh Kiadarbandsari
Shehana Farik
John Sluyter

University of Auckland

Abstract

Little is known about the health profile of tertiary students within Aotearoa, New Zealand (NZ), and this paper is the first to explore the health profile of Niue tertiary students within NZ. Part 1 comprises a scoping review which found that obesity, alcohol, smoking, mental health, sexual health, and drug use are the major key health issues for ethnic minority students. Part 2 presents the results of an online survey of Niue tertiary students across all major tertiary institutions within NZ. The survey results showed that most participants were at high risk of cardiovascular disease and had a moderate level of oral, vision, and hearing health. Some participants experienced domestic violence, psychological distress, and barriers to accessing health services, especially during COVID-19 lockdowns. These findings provide insights into tertiary students' health profiles and offer suggestions for future studies.

Keywords

Niue, Tertiary/university students, New Zealand, NZ, Health profile, Obesity, Alcohol, Drugs, Lifestyle factors, Mental health, Smoking, COVID-19

Introduction

Over the past decade, there has been an increased global recognition of the need for more health research investigating tertiary students. Many authors have commented upon the uniqueness of health research targeting this population, given that complex health indicators can interact with a diverse population regarding gender, age, socioeconomic circumstance, and ethnicity (Chung et al., 2014). Considering these demographic differences, mortality and morbidity patterns amongst this population are best conceptualised by analysing health indicators which can predicate an individual's quality of life (Henning et al., 2012).

Māori and Pasifika populations are known to be the most socioeconomically deprived and systematically disenfranchised ethnic groups within New Zealand (NZ) (Sheridan et al., 2011). Failure to address sociodemographic factors associated with students' wellbeing, particularly among students from minority communities, can also further their risk of more debilitating health issues (Tobias et al., 2009). While the importance of targeting health inequalities within the tertiary population has been acknowledged (Jackson, 2012), there are limited studies within health research. In this regard, assessment of tertiary students' health profile could build an understanding of their health issues. A community health profile refers to indicators that are related to most communities, such as sociodemographic characteristics, health status and quality of life, health risk factors, and health resources. Capturing basic descriptive data of these indicators could help to interpret individuals' health issues (Institute of Medicine [US] Committee on Using Performance Monitoring to Improve Community Health, 1997). The aims of this research were to conduct a scoping literature review to identify key health issues for tertiary students and implement a cross-sectional online questionnaire-based survey for Niue tertiary students studying in Aotearoa, NZ.

Part 1: Scoping literature review

Throughout the scoping review, relevant documents were sourced from MEDLINE, PubMed, Scopus, Google Scholar, CINAHL, and the Cochrane Library. The final search strategy for PubMed

is illustrated in Table 1. Literature published between 2010 and 2020 was sourced and ranged from clinically-focused literature to literature analysing broader sociocultural contexts.

Table 1

PubMed Search Strategy

Indicator of interest	Related search terms
Mental health	Depression, suicide, AND/OR ideation
Tertiary	University, college, higher level education
Student	*Student*, Freshman
Weight	Body mass index (BMI), size
Obesity	Overweight, nutrition, obese*, obesogenic
Cardiovascular health	Blood pressure (BP)
Smoking	Smoke*, tobacco, cigarette*, nicotine
alcohol	Drinking, drunk*, binge-drinking, alcoholism
Substance abuse	Drug*, addiction, rehabilitation
Respiratory health	Asthma
Physical activity	Exercise, recreation*
Oral health	Dentist, caries, oral hygiene
Family violence	Violence, *abuse*, domestic*
Hearing health	Auditory, hear*, hearing aid
Eye health	Eye*, glasses
COVID-19	Coronavirus, SARS-CoV-2, novel*, pandemic*

Note. All search terms were compounded with "New Zealand and Pacific".

The literature search yielded a total of 90 results. After screening titles and abstracts, 60 full texts were deemed potentially relevant and reviewed. However, upon further consideration, 27 international publications regarding adolescent populations were removed to satisfy the eligibility criterion of research on tertiary students. Most publications retrieved were research studies, with three pieces of literature being a systematic literature review, report, and narrative review, respectively.

Obesity

Most of the literature reported that men from wealthier, high-income countries who engaged in risky health behaviours, irrespective of significant health awareness, were more likely to have a higher prevalence of obesity (e.g., Dewes et al., 2013; Peltzer et al., 2014). Factors such as age, marital status, and level of qualification were significantly associated with obesity, whereas older students who were married and who had a high-level university qualification were more likely to maintain healthier diets (Hartman et al., 2013). Similar studies found that too much responsibility placed upon individuals in larger households contributed to a burden that enabled the acceptance and uptake of unhealthy diet behaviours (Mansouri et al., 2020; Robinson et al., 2014).

Alcohol consumption

Alcohol consumption across tertiary populations was higher than their non-student peers (Center for Behavioral Health Statistics and Quality, 2015). Several studies have reported highly hazardous levels of alcohol consumption among tertiary students (mean age = 20) in NZ (Connor et al., 2010; Samaranayake et al., 2014). International literature also showed that younger tertiary students continue to exhibit high-risk or very high-risk drinking behaviours compared to mature students (Blank et al., 2016; Perera et al., 2011). Alcohol consumption varies between genders, but ethnic differences are also a factor. Drinking frequency was reportedly low amongst Asian and Pasifika Pacific students; however, the volume of alcohol consumed by Pacific students was high (Adolescent Health Research Group 2004). Frequent users of alcohol among tertiary students in NZ could be at risk of using cognitive enhancers (e.g., methylphenidate, amphetamines, and modafinil)

(Ram et al., 2016) and experience poorer mental health (Blank et al., 2016). Frequent users of alcohol among tertiary students in NZ could be at risk of using cognitive enhancers (e.g., methylphenidate, amphetamines, and modafinil) (Ram et al., 2016) and experience poorer mental health (Blank et al., 2016).

Smoking and substance abuse

There is a large body of research focusing on students' alcohol consumption, smoking, and substance abuse in NZ. However, most research has been conducted among secondary school students (e.g., Nosa et al., 2014) and limited studies have been conducted on tertiary students.

Typically, Māori and Pacific adolescents had the highest proportion of smokers across the population in NZ. They were consistently defined as being high-risk groups across most studies due to the excessive nature in which smoking was practised within these groups (Wamamili et al., 2020). In particular, Pacific youth are at higher risk of smoking than the overall population (Statistics New Zealand and Ministry of Pacific Island Affairs, 2011). However, recent research reported a decline in smoking trends that was most likely due to the limited accessibility of cigarettes through peers and friends (Wamamili et al., 2020). Existing studies have found high smoking prevalence among tertiary students (Kypri et al., 2011).

Regarding drug use amongst tertiary students, research has shown that using recreational drugs in the previous three months was significantly linked to participants' mental health profile in a large sample of NZ tertiary students (Samaranayake et al., 2014). Students' perceptions of using such drugs could influence their usage rate (Benson et al., 2015). Studies in NZ documented that tertiary students reported substance use as a means of getting high; experimentation; being alert, being awake; and for concentrating, especially when studying (Ram et al., 2016). Furthermore, social, ethical, and health factors contributed to the use of recreational drugs; higher usage levels could be linked to the self-perception of being more social and ethical (Ram et al., 2017).

Mental health

Based on a report from the Ministry of Health (2019), the youth population (15–24 years) indicated a higher prevalence of psychological distress (i.e., anxiety, psychological fatigue, or depression) than older adults. This could be a factor in their transition to a new environment (e.g., universities) and is common among university students (Pedrelli et al., 2015). Research has shown that, along with high rates of depression and anxiety among tertiary students, thoughts of self-harm and suicide are commonly reported by this cohort (Samaranayake et al., 2014). In addition, with the onset of the COVID-19 pandemic and resulting lockdowns, university students experienced higher rates of anxiety and depressive symptoms (Coughenour et al., 2021; Jones et al., 2021).

Sexual health

National data on youth sexual health in NZ (Statistics New Zealand and Ministry of Pacific Island Affairs, 2011) noted that Pacific students reported higher sexual risk-taking behaviours (e.g., not using contraception) than their European peers. Engaging in unsafe sexual health behaviours could result in unintentional pregnancies and is an important public health concern (Psutka et al., 2012). Alcohol consumption was a consistent factor in sexual risk-taking amongst tertiary students. In a large sample of tertiary students, around one-third reported being drunk during their last sexual intercourse experience and over half did not use a condom (Connor et al., 2013).

Part 2: Cross-sectional online questionnaire-based study

This section presents the results of a cross-sectional online questionnaire-based study which drew on data collected during 2020–2021 from Niue tertiary students in NZ.

Participants

In 2018, the Niue population totalled 30,867 residing in NZ and approximately 10% of them were tertiary students (Statistics New Zealand, 2020). In total, 26 responses were received within the collection period. Six respondents started the survey but did not complete it and were omitted from the analyses. As Table 2 illustrates, 20 respondents were included in the analyses, of which 75% were females. The age range of the respondents was between 18 and 48 years, and 60% of respondents were aged between 18 and 27 years. Most participants identified themselves as Niuean (30%) or Niuean with more than one ethnic group (e.g., Samoan, Tongan, Cook Islands, or Persian). Furthermore, half of the participants had obtained a bachelor's degree (50%) and over half were from the University of Auckland (55%). Most respondents were NZ born (85%), and most were not scholarship students from Niue (90%).

Table 2

Sociodemographic Characteristics of the Study Population (N=20)

Demographic	Response	*n*	%
Age	18–27	12	60
	28–37	5	25
	38–48	3	15
Gender	Male	5	25
	Female	15	75
Ethnicity	Niuean	6	30
	Niuean & Samoan	3	15
	Niuean & Tongan	2	10
	Niuean & Cook Islands	1	5
	Niuean & other ethnicities	5	25
	Samoan	2	10
	Niuean & Samoan & Tongan	1	5
Highest qualification	Bachelor's	10	50
	Bachelor's (Honours)	1	5
	Certificate	3	15
	Doctorate	4	20
	Masters	1	5
	Postgraduate Diploma	1	5
Institute	Auckland University of Technology	2	10
	Private training establishment	1	5
	Tai Poutini Polytechnic	1	5
	Toi Ohomai Institute of Technology	1	5
	University of Auckland	11	55
	Canterbury University	1	5
	University of Otago	2	10
	University of Waikato	1	5
Country of birth	NZ	17	85
	Other country	2	10
	Missing	1	5
Scholarship student from Niue	No	18	90
	Yes	1	5
	Missing	1	5
Niuean language skills	Beginner	8	40
	Intermediate	8	40
	Advanced	3	15
	Missing	1	5
Being culturally integrated and the importance of Pacific identity	Not comfortable	1	5
	Comfortable	9	45
	Very comfortable	9	45
	Missing	1	5

Regarding their ability to communicate in Vagahau Niue (the Niuean language), equal proportions of respondents (40%) reported having beginner (a basic grasp of the language) and intermediate (being able to speak or write the language but with some difficulty) levels. Only 15% stated that they could confidently speak, read, and understand conversations in Vagahau Niue (advanced level). Furthermore, when participants were asked about their feelings towards their identity and presence within Pacific environments, 90% stated feeling very comfortable or comfortable in spaces with other Pacific people. Only one respondent reported being uncomfortable in such situations.

Measurements

The questionnaire comprised 50 questions that captured the domains highlighted in the literature as physical and mental health factors and drivers or barriers to seeking health services. The questionnaire included multi-choice questions, Likert scales, and open-ended questions.

Demographic characteristics, including age, gender, ethnicity, highest qualification, institute of study, place of birth, scholarship status, Vagahau Niue skills, and cultural integrity and identity, were collected.

Physical health was measured through the risk of cardiovascular disease (CVD), specified by blood pressure, diabetes, asthma, body mass index (BMI) (Centers for Disease Control and Prevention 2022), and self-reported health ("Overall, how would you say your health is?"). Lifestyle indicators included physical activity based on metabolic equivalents, which were scored by totalling the hours of exercise per week and metabolic equivalents (hours/week) and then categorising the scores into two groups (less than 10, 10 or more) (Stewart et al., 2017). Smoking status and substance use data were collected, along with soft drink consumption ("How many days do you have regular [non-diet] soft drinks [e.g., Coke, Sprite, Fanta] in a typical week?") and was classified into three groups (low = 0 days, moderate = 1–3 days, high = 3 or more days). The Mediterranean diet score was calculated based on daily intake of fruit, vegetables, and fish. Alcohol consumption was categorised into two groups: high risk of CVD (<15) and low risk of CVD (≥15) (Stewart et al., 2016). Self-reported body image was investigated ("How do you view your weight?") along with oral health, vision, and hearing difficulties ("Do you have trouble hearing, even if using a hearing aid?").

Furthermore, health and dental care accessibility was assessed ("Have you been able to access health care when required over the past 12 months?").

Mental health in general and during COVID-19 lockdown Levels 3 and 4 were assessed through the Generalised Anxiety Disorder 2-Item (GAD-2) questionnaire (National HIV Curriculum, n.d.a). The Patient Health Questionnaire-2 (PHQ-2) was used to screen for depression in a "first-step" approach (National HIV Curriculum, n.d.b) and suicide rates were investigated by asking, "During the last 12 months have you tried to kill yourself (attempted suicide)?". For GAD-2 scoring, a cut-off of 3 is recommended to identify possible anxiety. Results were categorised into two categories: a score of less than 3 was categorised as "No GAD symptoms" and greater than 3 was classified as "Possible GAD". Similarly, for PHQ-2, a score of 3 points is the preferred cut-off point for identifying possible depression, and a score of 3 or higher indicates a possible major depressive disorder. Scores less than 3 were categorised as "No depressive symptoms" and 3 or more were categorised as "Possible major depressive symptoms".

COVID-19 impacts included investigating domestic violence ("Did you witness adults hit other adults?"), obstacles to accessing health services during COVID-19 lockdowns ("During COVID-19 Levels 3 and 4, what barriers to accessing health services did you face [tick all that apply]?"), and financial support during COVID-19 lockdowns ("Due to COVID-19, your need for financial support for these expenses has [circle ONE]").

Procedure

Ethics approval was granted by the Auckland Health Research Ethics Committee (Ref. AH3307), University of Auckland. Participants were recruited via social media (Facebook), flyers, and email invitations. Informed consent was obtained from each participant and anonymous data was collected online using Qualtrics XM. This survey occurred between December 2020 and August 2021.

Analysis

IBM SPSS Statistics was used to calculate descriptive statistics, including frequencies and percentages related to the survey domains. We proceeded with the analysis in the current small sample given that no causality between variables was aimed to be assessed.

Results

This section provides results from the descriptive analyses.

Risk of CVD and body image

Table 3 illustrates that most respondents did not have diabetes (95%). However, there were some reports of high blood pressure (10%) and asthma (25%). Approximately three-quarters of the sample (80%) specified having very good to fair health conditions (overall self-reported health), but most believed that they were in the overweight range (60%) (body image). Further, the BMI range of most respondents was in the obesity range (45%), indicating a high level of CVD risk.

Table 3

CVD Risk Indicators

CVD contributing factor		Response	*n*	%
High blood pressure		No	17	85
		Yes	2	10
		Missing	1	5
Diabetes		No	19	95
		Yes	0	0
		Missing	1	5
Asthma		No	13	65
		Yes	5	25
		Missing	2	10
Self-reported health		Excellent	1	5
		Very Good	3	15
		Good	7	35
		Fair	6	30
		Poor	1	5
		Missing	2	10
Body image		Neither underweight nor overweight	4	20
		Overweight	12	60
		Very overweight	1	5
		Missing	3	15
BMI		Underweight (<18.5)	0	0
		Healthy weight (18.5–<25)	4	20
		Overweight range (25–<30)	4	20
		Obesity range (≥30)	9	45
		Missing	3	15
Lifestyle factors:	Physical activity based on metabolic equivalents	Less than 10 (hours/week)	3	15
		More than 10 (hours/week)	14	70
		Missing	3	15
	Smoking status	Don't smoke	16	80
		Ex-smoker (no smoking during past 6 weeks)	1	5
		Missing	3	15
	Substance use	Cannabis (marijuana, hash, hash oil)	3	15
		None	14	70
		Missing	3	15
	Soft drink consumption	Low	5	25
		Moderate	10	50
		High	2	10
		Missing	3	15
	MDS	High risk of CVD (<15)	17	85
		Low risk of CVD (≥15)	0	0
		Missing	3	15

Note. CVD = Cardiovascular disease; BMI = Body mass index; MDS = Mediterranean diet score.

The results of lifestyle factors relating to the risk of CVD show that nearly three-quarters of the sample (70%) spent more than 10 hours per week engaged in physical activity, and a significant proportion of the respondents (80%) reported being non-smokers. Likewise, most participants

(70%) reported not using recreational drugs. Half of the respondents (50%) reported moderate soft drink consumption in a typical week, and a few (10%) reported high intake levels of such drinks. Most participants (85%) in this research stated they did not follow a healthy Mediterranean diet, which could increase the risk of CVD.

Other health conditions (oral health, vision, and hearing difficulties)

Regarding oral health (Table 4), over half of the respondents indicated that they brushed their teeth twice a day (55%) or at least once a day (20%). In regard to visiting a dentist, over one-third of respondents (35%) indicated that they only visited the dentist when they had a toothache or similar problem.

Table 4

Oral, Vision, and Hearing Health

Health aspect	Response	*n*	%
Brushing teeth frequency	Less than once a day	1	5
	Once a day	4	20
	Twice a day	11	55
	No natural teeth	1	5
	Missing	3	15
Visiting dentist	At least every 2 years for a check-up	4	20
	Check-ups regularly, but with intervals of more than 2 years	2	10
	I only visit the dentist when I have a toothache or other similar trouble	7	35
	I never visit the dentist	4	20
	Missing	3	15
Trouble hearing, even if using a hearing aid	No — No difficulty	12	60
	Yes — Some difficulty	5	25
	Missing	3	15
Trouble seeing, even if wearing glasses	No — No difficulty	9	45
	Yes — Some difficulty	8	40
	Missing	3	15

As shown in Table 4, most respondents indicated no trouble hearing (60%) and a smaller percentage of the group reported some difficulty with hearing (25%). Furthermore, many respondents reported no difficulty seeing (45%), with the remainder reporting some difficulty with seeing even if wearing glasses (40%).

Health care accessibility

Regarding access to health care (Table 5), most participants (70%) stated that they accessed health care services over the past 12 months, while 15% of participants reported they did not. However, half of the respondents (50%) reported that they could access dental care within the indicated timeframe, while a considerable proportion of respondents could not (35%).

Table 5

Access to Health and Dental Care Over the Past 12 Months

Service	Response	*n*	%
Health care	No	3	15
	Yes	14	70
	Missing	3	15
Dental care	No	7	35
	Yes	10	50
	Missing	3	15

Psychological distress in general and during COVID-19 lockdowns

Questions regarding anxiety and depressive symptoms were asked twice to capture differences in participants' mental health profile in general and during COVID-19 lockdowns. As can be seen in Table 6, respondents' GAD scores were slightly lower during lockdowns (30% of possible generalised anxiety cases) than their general anxiety score (40% of possible generalised anxiety cases). However, participants reported higher levels of depressive symptoms during lockdowns (55%) in comparison with their depressive symptoms in general (10%). Moreover, in terms of suicide risk assessment, results indicated that every respondent who answered this question had not tried to self-harm and had no self-harm thoughts within the previous year.

Table 6

Mental Health Profile

Mental health indicator		Response	*n*	%
General mental health condition	GAD	No GAD symptoms	9	45
		Possible GAD	8	40
		Missing	3	15
	Depressive symptoms	No depressive symptoms	15	75
		Possible major depressive symptoms	2	10
		Missing	3	15
Mental health condition during lockdowns	GAD during lockdown	No GAD symptoms	10	50
		Possible GAD	6	30
		Missing	4	20
	Depressive symptoms during lockdown	Depressive symptoms	11	55
		Possible depressive symptoms	5	25
		Missing	4	20
Self-harm	Suicidal ideation	Yes	0	0
		No	17	85
		Missing	3	15
	Suicide attempt	Yes	0	0
		No	17	85
		Missing	3	15

Note. GAD = Generalised anxiety disorder.

Domestic violence

Participants also reported their experiences of family violence (Table 7). Many participants reported not being witness to adults hitting other adults (75%) and had not been hit or harmed on purpose (75%), with a small proportion of each group responding "Yes" (10%).

Table 7

Exposure to Domestic Violence

Exposure	Response	*n*	%
Witnessed adults hit other adults	No	15	75
	Yes	2	10
	Missing	3	15
Been hit or harmed on purpose	No	15	75
	Yes	2	10
	Missing	3	15

Obstacles to accessing health services during COVID-19 lockdowns

In response to the question designed to evaluate participants' experiences of barriers to health services during COVID-19 lockdowns, around 30% of participants reported two or more barriers, such as unavailability of services, cost of services, or lack of time (Table 8). Fear of contracting COVID-19 from the community was one of the most common barriers (25%), whereas some respondents reported facing no barriers (25%) during that time.

Table 8

Barriers to Health Services and Financial Support During COVID-19 Lockdowns

Barrier		Response	*n*	%
Accessing health services during lockdowns		Two or more of the barriers that were reported: Services were unavailable or limited during lockdowns, cost of services, lack of childcare (to supervise my children at home), fear of getting COVID-19 from the community, cost of transport, lack of time	6	30
		Fear of getting COVID-19 from the community	5	25
		No barriers	5	25
Access to financial support for these expenses (received financial aids)	Accommodation	Reduced	0	0
		Stayed the same	12	60
		Increased	4	20
		Missing	4	20
	Study expenses	Reduced	0	0
		Stayed the same	11	55
		Increased	5	25
		Missing	4	20
	Food	Reduced	0	0
		Stayed the same	11	55
		Increased	5	25
		Missing	4	20
	Recreational/leisure costs	Reduced	1	5
		Stayed the same	13	65
		Increased	2	10
		Missing	4	20

Respondents were also asked to indicate if they received any financial support for accommodation, study expenses, food, and/or recreational/leisure costs. Most reported that their financial support was not reduced for their accommodation, study expenses, and food; however, a smaller proportion of the group reported a decrease in their need for recreational/leisure costs (5%). Many respondents reported that their need for financial support stayed the same.

Discussion

The primary aim of this study was to capture the health profile of Niue tertiary students in NZ. The findings from this study highlight high levels of CVD risk among respondents. Consistent with other studies on the high rate of obesity among Pacific people in NZ (e.g., Kypri et al., 2011), obesity was frequently found among Niue tertiary students. Although the smoking rate was low in this sample, substance use deserves more attention as there were reports of cannabis use. These findings also align with previous studies (e.g., Samaranayake et al., 2014; Wamamili et al., 2020).

The results also confirm the inadequate health and dental care services that have been reported in recent investigations (e.g., Ministry of Health, 2021; Sonder et al., 2023). When looking at the barriers to accessing health care during lockdowns, the findings revealed several barriers (e.g., fear of getting COVID-19) in addition to the cost of health care services and transport. This further illustrates the vulnerability of minority communities during disasters, such as pandemics (Leal Filho et al., 2020).

Adding to the emerging literature on the impact of the COVID-19 pandemic on Pacific people, the findings revealed a slight difference between respondents' anxiety and depressive symptoms in general and during lockdowns. Consistent with earlier studies (Coughenour et al., 2021; Jones et al., 2021), the current findings indicate that tertiary students' anxiety levels during the pandemic may not have increased, but they experienced more sadness and depression. This finding may suggest that isolation during lockdowns brought a sense of safety and peace of mind, while staying at home could lead to more depressive moods. It has previously been noted that fear of contracting COVID-19 can cause depressive symptoms (Mahmud et al., 2021). Respondents' depressive symptoms were not at levels that required urgent action and there were no suicidal thoughts or attempts. However, there were some reports of domestic violence in this research. This result is not surprising, as the national rate has shown that 87,000 adults (2.2%) of victims of offences are family members in NZ (Ministry of Justice, 2020).

Finally, financial support during the lockdowns did not change remarkably, with only a few respondents experiencing increases. This was despite the fact that their financial status could have impacted their psychological wellbeing (e.g., Moore & Lucas, 2021).

Implications

Universities can play a critical role in protecting students from the harsh effects of health-threatening behaviours. Most importantly, affected students can be a focus of intervention programmes. For example, drinking intervention programmes might help reduce alcohol consumption among this population (Leeman et al., 2016). A health promotion approach could reduce health-related harm by focusing on strategies that increase students' awareness regarding their daily intakes, wellbeing, coping with challenging life events, exposure to family violence, and being financially productive while studying. In NZ-based universities, student services can play an important role in addressing the specific health needs of Niue tertiary students in NZ through more education and health promotion activities. For instance, more health programmes can be included in Pacific cultural weeks and Niue language week. More education awareness can be promoted in the ethnic-specific organisations, such as the Niue tertiary student associations, within NZ-based universities. Waterworth and Thorpe (2017) suggested the Fonofale model of health, developed for Pacific people's well-being by Pulotu-Endemann in 2001, could be used in tertiary settings to promote Pacific students' health and wellbeing. It is crucial to investigate how government policies could be modified or improved to protect Niue tertiary students' health and wellbeing.

Limitations and recommendations

This research was conducted with a small sample that has received very little attention in contemporary health-related literature. The small sample size precludes generalising the findings to a population level. Most participants were female, which may have influenced responses (for example, females may be more concerned with weight issues).

This study provides some preliminary findings upon which further research could be based. Future studies with larger sample sizes are recommended. The rate of domestic violence and substance use among Niue tertiary students is another aspect that warrants closer attention. It is highly recommended that future research design involves health service providers and tertiary institutions need to identify areas that warrant further investigation. Afterwards, sharing the findings could help them to provide better health services for Niue tertiary students. Additionally, although a quantitative approach can collect more data in a short timeframe, more qualitative research is needed. A qualitative approach affords a deeper understanding of a research problem (Creswell & Clark, 2011). Future researchers are encouraged to adopt qualitative methods that will build on the existing evidence, especially through cultural-based approaches that are suitable for the Pacific population, such as the Talanoa method (Vaioleti, 2006). Areas for further research could address Niue students' experiences around the accessibility of health care services, developing ethnic-specific services to suit Niue students, and improvement of services targeting Niue students.

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The authors may be contacted via:

Associate Professor Vili Nosa — v.nosa@auckland.ac.nz

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