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RESEARCH ARTICLE

Rural secondary school leaver attainment inequities for students entering medical programmes in Aotearoa New Zealand

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ABSTRACT

The education literature suggests that there are rural–urban differences in educational achievement. Lower educational achievement in rural schools may impact entry into highly competitive medical programmes and disadvantage rural students. Within this study, the National Certificate of Educational Achievement (NCEA) and University Entrance (UE) attainment rates are compared across Aotearoa New Zealand secondary schools for 2012–2021. High schools were classified as urban or rural according to the two rural admission schemes used in the medical programmes at the University of Otago and the University of Auckland. Descriptive statistics were calculated and regression models created to adjust for a range of variables. The data demonstrates that rural high schools have lower NCEA and UE attainment. Lower Māori student NCEA and UE attainment, greater socioeconomic disadvantage and differing characteristics account for the majority of differences between rural and urban schools. The lower UE attainment rate for rural schools will likely mean that rural students will have greater difficulty in entering medical programmes and that this inequity is worse for rural Māori students. Medical programme admission pathways need to undergo a fundamental shift–from workforce pathways to workforce and equity pathways in order to address rural workforce issues.

Introduction

Within Aotearoa New Zealand (NZ), regional and rural admission schemes have been created to increase the proportion of regional and rural origin students entering a medical programme of study (Poole et al. 2009; Wilkinson et al. 2019). Although these admission schemes are positioned as workforce schemes, there is evidence that there may also be an equity component with some educational disadvantage experienced by

rural students. This is evidenced by the lower grade point average than general entry students for rural students on entry into medical programmes (Curtis et al. 2017). The international literature suggests that there are fewer educational opportunities in regional and rural areas (Creswell and Underwood 2004; Denaux 2009). However, there is limited Aotearoa NZ literature comparing regional and rural students' secondary school academic attainment to that of urban students (Sullivan et al. 2018). Rural areas have the lowest socioeconomic status and the highest proportion of Māori (Nixon and Lawrenson 2019), and rural students may not receive the same opportunities as urban students, all potentially leading to disparities in educational outcomes. Rural students are less likely to enter health education programmes compared to their urban counterparts (Crampton et al. 2023). This paper will look at the differences in educational outcomes between rural, regional and urban secondary schools to try to understand if differences exist in secondary school academic attainment rates, which may impact entry into medical programmes.

The main secondary school qualification in Aotearoa NZ is the National Certificate of Educational Achievement (NCEA) and begins for most students when they are in Year 11 (aged 15–16). While the majority of secondary schools offer NCEA, a small number of schools also offer external qualifications such as Cambridge or International Baccalaureate (IB). University Entrance (UE) requires NCEA, Cambridge or IB in a specific number of university-endorsed subjects and standards. Significant differences in NCEA and UE attainment exist between ethnic groups, reflecting differences in privilege and opportunity, with Asian students achieving the highest and Māori the lowest (Poskitt 2022). Evidence also shows that gender, socioeconomic status and geography influence educational attainment (Sullivan et al. 2018; OECD 2021). Youth attending urban schools tend to have better educational opportunities and outcomes than their rural counterparts, and this has been attributed to a range of factors, including a shortage of qualified teachers and limited subject offerings in the senior levels of secondary school (Sullivan et al. 2018). Rural students' disadvantage is likely to impact their ability to access tertiary education (van Maarseveen 2021) and subsequently their entry into medical programmes.

In order to address these educational differences and increase diverse representation in the medical workforce, both Otago and Auckland Universities offer equity admission schemes for students who are Māori, Pacific, migrants, have disabilities or are from lower socioeconomic backgrounds. Both universities also offer rural admissions schemes; however, these later schemes are devised as workforce schemes, rather than equity admission schemes.

At the University of Otago, the rural admission scheme admits 55 students out of a class average of 282 annually. Students are eligible for entry via the rural admissions scheme if they have undertaken schooling in a rural area as defined by the Geographical Classification of Health (GCH) (Whitehead et al. 2022) or lived in a rural area for a certain period of time.

At the University of Auckland, regional and rural students enter through a Regional Rural Admission Scheme (RRAS). From 2024, entry into this pathway is determined by a modified Urban Accessibility classification, which is a Statistics New Zealand geographical standard based on distance from an urban centre and population size. Students are eligible if they attended school within a rural or regional location. Approximately 58 students enter RRAS each year out of a class of 257 domestic students.

Despite the existence of rural admission schemes, Aotearoa NZ faces a significant shortage of rural health professionals. General Practitioners (GPs) are maldistributed, with 71% of GPs working in main urban areas compared with 61.5% of the population, and just 16.6% of GPs working in rural areas compared to 24.3% of the population (Medical Council of New Zealand 2021). Evidence suggests that students from rural backgrounds are more likely to practice within rural areas (Wilkinson et al. 2019; Poole et al. 2021; Seal et al. 2022). Increasing the number of rural origin students into medical programmes is one potential solution, amongst many, in addressing the rural workforce crisis. However, the higher socioeconomic and educational disadvantage faced by Māori, and reduced opportunities in rural secondary schools, may limit the pool of rural origin students eligible to enter a medical programme. This paper compares NCEA and UE attainment at schools classified as rural, regional and urban, to better understand differences in medical programme admissions.

Materials and methods

Data were obtained from the Ministry of Education database 'Qualification Statistics 2012–2022'. The data set included NCEA attainment counts, UE attainment counts and school deciles for each school in NZ. Deciles are household ratings within each school's zone determined by socioeconomic measures from census data such as income, occupation and household education. Lower deciles equate to greater socioeconomic disadvantage. School addresses were mapped to the University of Otago's dichotomised GCH categories (rural or urban) and to the University of Auckland's regional–rural admission scheme categories (rural, regional or urban). School rolls and student ethnicities at each school in 2021 were obtained from the Ministry of Education.

Schools that no longer existed in 2021 were removed from the data set. Descriptive statistics on school characteristics and school rolls were calculated. Mean NCEA Level 3 and UE attainment rates were calculated. However, attainment rates were only calculated for those schools solely offering NCEA. An assumption was made that those schools offering non-NCEA qualifications, i.e. Cambridge exams or IB would direct their higher-achieving students into these external qualifications. This would, therefore, distort the NCEA achievement rates.

School attainment counts for UE were modelled using negative binomial regression. Poisson regression fitted poorly due to overdispersion of the dependent variable, and so a negative binomial regression was used. The dependent variable was the count of students attaining UE per school. The exposure variable was the total student count enrolled in NCEA per school. In the statistical package used, the exposure variable's coefficient is constrained to one and adjusts for the size of population sampled. The proportion of students from different ethnicities in the total school population were used as a proxy variable for ethnicity, as individual level data for NCEA were not available. Only schools offering solely NCEA are included in the models. Schools with missing attainment data were also excluded. These latter schools all had less than five students enrolled in NCEA. Three models were created for RRAS and GCH definitions of schools that reported on incident rate ratios for each independent variable. The first model adjusted for the proportion of Māori students, Pacific students and Asian students in each school. The second model included adjustments for school decile and school authority (state,

private or religious integrated schools). The third model included adjustments for school gender (co-educational, girls' or boys') and special characteristics (boarding facilities, Kura Kaupapa Māori, Māori secondary boarding schools and designated character schools). Kura Kaupapa Māori schools are Māori language immersion schools in which a Māori world view is centralised. Designated character schools are schools with a special focus, for example hearing impaired students, alternative education schools and schools for teen parents. The Akaike information criterion and the Bayesian information criterion were calculated to compare the fit of the models.

All statistics were calculated in Stata/BE 17.0 for Mac (Stata Corp, Texas).

Ethics permission: No ethics permission was required, as data are publicly available.

Results

Characteristics of 464 schools for each rural entry scheme are shown in Table 1. Compared to urban schools, rural schools are generally smaller, have higher Māori rolls and a lower decile. They are also less likely to offer non-NCEA qualifications and are more likely to be co-educational and be state schools. Under the RRAS classification, regional schools have similar demographics to rural schools and are more likely to offer only NCEA qualifications than urban schools. A greater proportion of single-sex schools and boarding schools are in regional areas compared to rural areas.

School Level 3 NCEA attainment rates are shown in Figures 1 and 2, which show gradually increasing attainment rates over the last decade. The peak in achievement in 2020 and subsequent decline in 2021 are likely to be related to the COVID-19 pandemic, when face-to-face instruction in New Zealand was interrupted due to extended periods of lockdown. The New Zealand Qualifications authority (NZQA) introduced changes to the
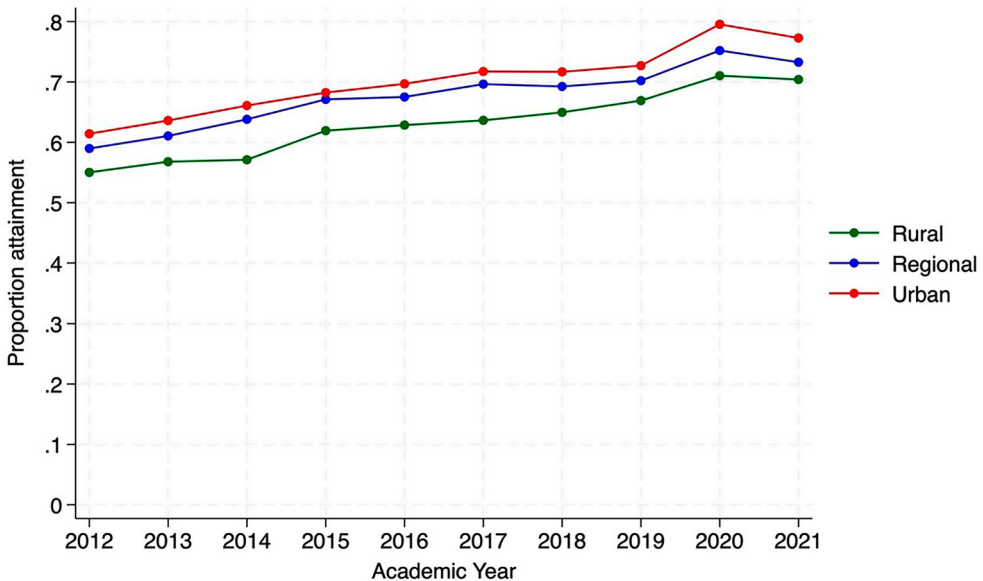

Figure 1. Mean school Level 3 National Certificate of Educational Achievement attainment per Regional Rural Admission Scheme category.

Table 1. Characteristics of schools, as defined by Regional Rural Admission Scheme and Geographical Classification of Health, in 2021 (with 95% confidence intervals).

	Regional Rural Admission Scheme			Geographical Classification of Health	
	Urban	Regional	Rural	Urban	Rural
Number of schools	178	85	201	320	144
Number of students	177,048	57,340	85,220	269,080	50,528
Mean school roll	994	674	424	840	351
	(899–1090)	(578–772)	(374–474)	(775–906)	(305–397)
Mean proportion of students in each ethnic group per school[1]					
European	0.41	0.41	0.49	0.43	0.47
	(0.37–0.45)	(0.35–0.46)	(0.45–0.53)	(0.40–0.46)	(0.42–0.51)
Māori	0.22	0.44	0.43	0.30	0.46
	(0.19–0.26)	(0.38–0.51)	(0.38–0.47)	(0.27–.34)	(0.41–0.52)
Pacific	0.15	0.06	0.02	0.10	0.02
	(0.11–0.18)	(0.03–0.09)	(0.02–0.03)	(0.08–0.12)	(0.02–0.02)
Asian	0.15	0.05	0.03	0.10	0.03
	(0.13–0.17)	(0.04–0.06)	(0.03–0.04)	(0.09–0.12)	(0.03–0.04)
Middle Eastern, Latin American and African	0.03	0.01	0.01	0.02	0.01
	(0.02–0.03)	(0.01–0.02)	(0.01–0.01)	(0.02–0.02)	(0.01–0.01)
Other	0.01	0.01	0.01	0.01	0.00
	(0.01–0.01)	(0.00–0.01)	(0.00–0.01)	(0.01–0.01)	(0.00–0.01)
International	0.01	0.01	0.01	0.01	0.00
	(0.01–0.01)	(0.00–0.01)	(0.00–0.01)	(0.01–0.01)	(0.00–0.01)
Mean decile of schools	6.19	4.72	4.73	5.75	4.25
	(5.73–6.64)	(4.15–5.28)	(4.37–5.08)	(5.43–6.07)	(3.85–4.65)
Exam type offered (proportion of schools)					
National Certificate of Educational Achievement	0.84	0.95	0.98	0.89	0.99
	(0.78–0.89)	(0.89–0.98)	(0.95–0.99)	(0.85–0.92)	(0.95–1.00)
Cambridge	0.11	0.05	0.01	0.08	0.01
	(0.07–0.16)	(0.02–0.12)	(0.00–0.05)	(0.05–0.11)	(0.00–0.05)
International Baccalaureate	0.06	0.00	0.00	0.03	0.00
	(0.03–0.10)	(0.00–0.00)	(0.00–0.03)	(0.02–0.06)	(0.00–0.00)
Mean number of students sitting National Certificate of Educational Achievement **Level 3**[2]	136	86	49	110	38
	(124–148)	(74–94)	(44–55)	(99–121)	(31–45)
School gender (proportion of schools)					
Co-educational	0.65	0.68	0.91	0.68	0.97
	(0.58–0.72)	(0.58–0.77)	(0.86–0.94)	(0.62–0.73)	(0.92–0.99)
Boys	0.15	0.16	0.03	0.14	0.01
	(0.10–0.21)	(0.10–0.26)	(0.02–0.07)	(0.11–0.18)	(0.00–0.05)
Girls	0.20	0.15	0.05	0.18	0.02
	(0.15–0.27)	(0.09–0.25)	(0.03–0.10)	(0.14–0.22)	(0.01–0.06)
School authority (proportion of schools)					
State	0.63	0.73	0.86	0.67	0.92
	(0.56–0.70)	(0.63–0.81)	(0.80–0.90)	(0.62–0.72)	(0.86–0.95)
State integrated	0.25	0.25	0.13	0.25	0.08
	(0.19–0.32)	(0.17–0.35)	(0.09–0.18)	(0.21–0.30)	(0.04–0.13)
Private	0.12	0.02	0.01	0.08	0.01
	(0.08–0.17)	(0.01–0.9)	(0.00–0.05)	(0.05–0.11)	(0.00–0.05)
Special characteristics (proportion of schools)					
Boarding facilities	0.15	0.25	0.13	0.19	0.09
	(0.11–0.21)	(0.17–0.35)	(0.9–0.18)	(0.15–0.24)	(0.05–0.15)
Designated character school	0.06	0.05	0.04	0.05	0.05
	(0.03–0.11)	(0.02–0.12)	(0.02–0.08)	(0.03–0.08)	(0.02–0.10)
Kura Kaupapa Māori	0.05	0.11	0.09	0.08	0.10
	(0.03–0.10)	(0.06–0.19)	(0.06–0.14)	(0.05–0.11)	(0.05–0.16)

(Continued)

Table 1. Continued.

	Regional Rural Admission Scheme			Geographical Classification of Health	
	Urban	Regional	Rural	Urban	Rural
Secondary Māori boarding school	0.00 (0.00–0.00)	0.01 (0.00–0.08)	0.01 (0.00–0.05)	0.01 (0.00–0.03)	0.01 (0.00–0.05)
None	0.73 (0.66–0.79)	0.59 (0.48–0.69)	0.72 (0.66–0.78)	0.68 (0.62–0.72)	0.76 (0.68–0.82)

[1]May not add to 1.0 due to missing values.
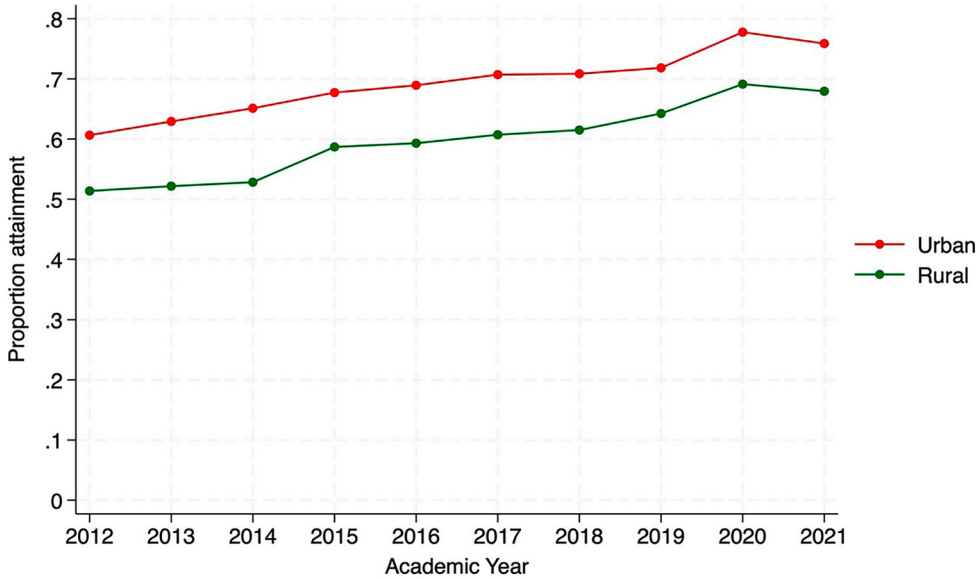[2]For those schools only offering National Certificate of Educational Achievement.

Figure 2. Mean school Level 3 National Certificate of Educational Achievement attainment per Geographical Classification of Health category.

NCEA and UE award criteria in 2020 and 2021. Therefore, caution is recommended when comparing attainment rates in 2020 and 2021 to rates in previous years (NZQA 2022). Nevertheless, there is a consistently lower attainment rate for students in rural schools compared to urban, and a slightly lower attainment rate for students in regional schools compared to urban, under the RRAS definition.

School UE attainment rates are shown in Figures 3 and 4. These show more pronounced differences between urban and rural schools. Under the RRAS definition, there is lower attainment for regional schools compared to urban and lower attainment for rural schools compared to regional. The proportion of urban students gaining UE is slightly lower in the GCH definition compared to RRAS.

Three regression models for UE attainment count for 2021 data for each rural classification scheme are presented in Table 2. The models show lower incident rate ratios for attainment for rural school in all but one of the models. However, only in the first model, which adjusted for ethnicity, is the incident rate ratio for rural schools statistically
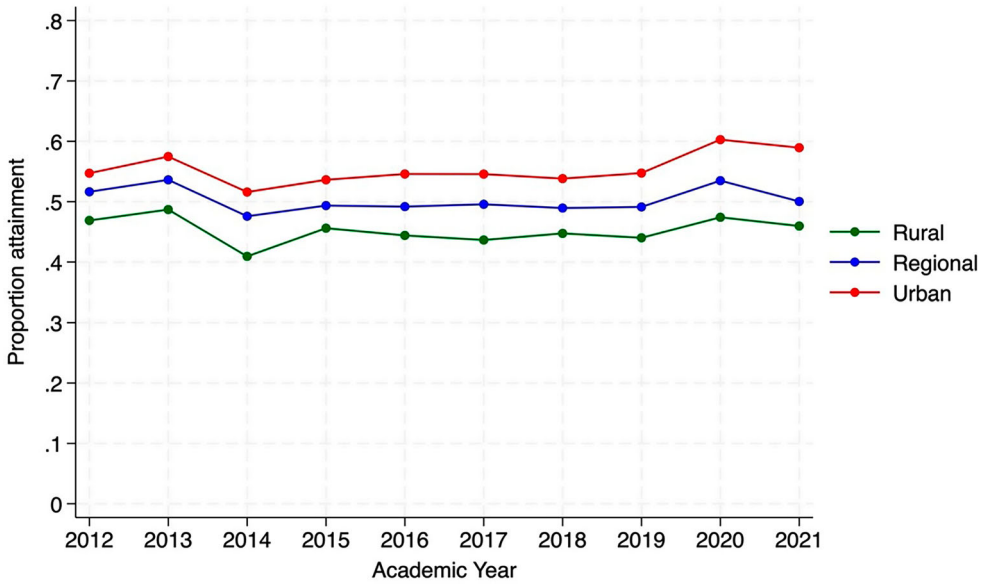
Figure 3. Mean school University Entrance attainment per Regional Rural Admission Scheme category.

significant. Variables that increased attainment, in the model with the best fit, include increasing decile ranking, increasing proportions of Asian students, girls' schools, Kura Kaupapa and Māori boarding schools. Lower attainment is seen with increasing proportions of Māori students and state schools.
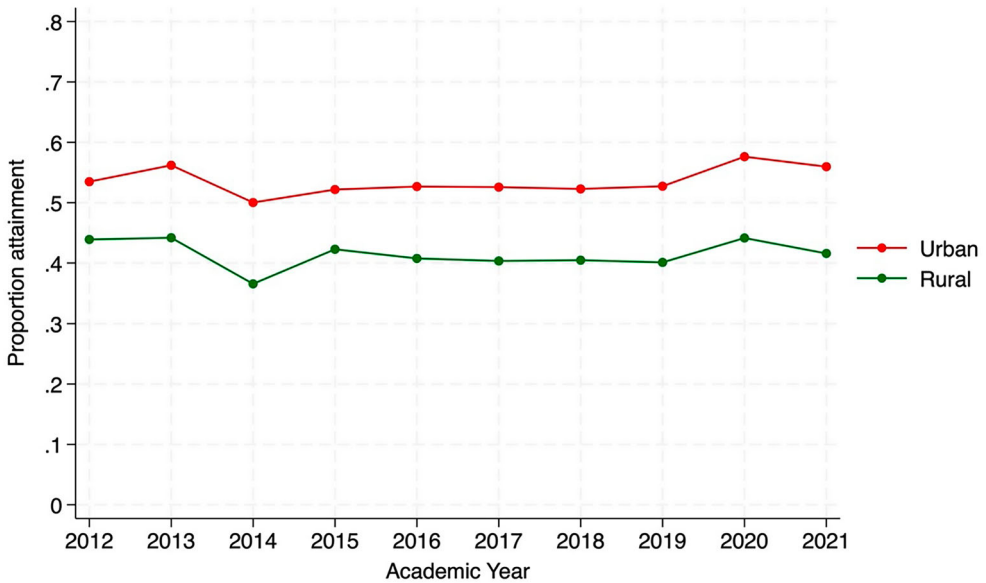

Figure 4. Mean school University Entrance attainment per Geographical Classification of Health category.

Table 2. Regression models reporting adjusted incident rate ratios for independent variables, for number of students per school achieving University Entrance in 2021. Adjusted for number of students enrolled in National Certificate of Educational Achievement per school.

Variable	Regional Rural Admission Scheme regression models			Geographical Classification of Health regression models		
	A	B	C	A	B	C
Urban	Ref	Ref	Ref	Ref	Ref	Ref
Rural	0.815***	0.988	1.027	0.805***	0.960	0.991
	(0.044)	(0.046)	(0.047)	(0.039)	(0.041)	(0.041)
Regional	0.950	1.028	1.053			
	(0.551)	(0.050)	(0.050)			
Proportion Māori	0.347***	1.060	0.751*	0.361***	1.057	0.754*
	(0.033)	(0.142)	(0.114)	(0.035)	(0.138)	(0.113)
Proportion Pacific	0.378***	1.222	1.055	0.404***	1.184	1.000
	(0.043)	(0.198)	(0.162)	(0.048)	(0.177)	(0.144)
Proportion Asian	1.350	2.184***	2.249***	1.622**	2.126***	2.102***
	(0.306)	(0.140)	(0.407)	(0.337)	(0.359)	(0.339)
Decile		1.124***	1.100***		1.122***	1.097***
		(0.078)	(0.013)		(0.0136)	(0.013)
Private		Ref	Ref			Ref
State		0.809**	0.823**		0.812**	0.835**
		(0.080)	(0.077)		(0.079)	(0.076)
Integrated		1.035	0.979		1.039	1.000
		(0.104)	(0.093)		(0.103)	(0.092)
Coeducational			Ref			Ref
Boys			1.033			1.033
			(0.056)			(0.055)
Girls			1.282***			1.276***
			(0.057)			(0.056)
No special characteristics			Ref			Ref
Boarding school			1.026			1.036
			(0.047)			(0.046)
Designated character school			1.228*			1.204
			(0.145)			(0.140)
Kura Kaupapa			1.787***			1.745***
			(0.280)			(0.272)
Secondary Māori boarding school			1.539*			1.527*
			(0.349)			(0.343)
Constant	0.749	0.258	0.296	0.699	0.265	0.306
	(0.043)	(0.042)	(0.046)	(0.031)	(0.042)	(0.046)
Akaike information criterion	2971	2838	2800	2966	2836	2798
Bayesian information criterion	2999	2877	2862	2990	2871	2858
Number	385			385		

Standard errors reported in parentheses.
*, **, *** indicates significance at 90%, 95% and 99% level respectively.

Discussion

The results show lower UE attainment for students attending rural high schools than those attending urban high schools. There is also lower attainment for regional high schools, but these differences are less pronounced. These results are consistent with international literature, with studies showing that urban high school students are likely to perform better than students attending rural high schools (Creswell and Underwood 2004; Denaux 2009; Reeves 2012; Sullivan et al. 2013; Sullivan et al. 2018). In a cross-sectional study, conducted in Australia, urban high school students achieved higher literacy scores compared to rural high school students (Sullivan et al. 2013). In contrast, Jordan et al. (2012) and Yeung et al. (2013) found no statistically significant difference between urban and rural high school achievements. Jordan et al. (2012) and Reeves (2012)

postulated that the differences between rural and urban high school students are indirect, attributed to the influence of family and friends and other factors outside of school. While non-school factors are likely important, this study did find that particular school characteristics influenced rural students' educational outcomes.

Our study findings highlight the disparities in educational achievement between Māori and non-Māori across all school types and socioeconomic levels. Furthermore, UE attainment decreased as the proportion of Māori students in a school increased. Aotearoa NZ's state education system was founded upon a Western worldview, which privileges Pākehā (European) students and may fail to meet Māori aspirations of wellbeing (Pihama 2019). While there is increasing use of te reo Māori in schools, the enactment of Māori language and culture occurs within the structural and cultural constraints of Pākehā-dominated, Eurocentric society and the linguistic racism towards te reo Māori (May 2023). Evidence suggests that in-school factors, such as low teacher expectations and deficit theorising about Māori students and their families, negatively impact Māori academic success (Turner et al. 2015; Hynds et al. 2017). In contrast, Māori achievement is higher in Kura Kaupapa Māori, where a Māori worldview is centralised (Pihama 2019). This finding is reflected in our study with higher UE attainment in Kura Kaupapa Māori and Māori boarding schools than English-medium schools.

More Māori students (19/100) leave school without qualifications than non-Māori (9/100) (Green and Schulze 2019). That means Māori students are less likely to pursue higher education, achieve a tertiary degree (Green and Schulze 2019) or attain the required grades to enter a medical programme. Research by Meehan et al. (2019) found that secondary school performance is a strong predictor of enrolment in university studies. Although not specific to medical school entry, their research suggests that early interventions in secondary school to improve student attainment in NCEA are more likely to increase university participation than ethnic-based university entry schemes.

Socioeconomic disadvantage also appears to be an explanatory factor for rural–urban educational difference, with increasing UE attainment with increasing school decile. In this study, urban schools had a higher mean decile compared to regional and rural schools. However, the decile rating system has recently been replaced with an Equity Index (Vester 2018; Ministry of Education 2022), which has been proposed as a more accurate funding model, as it focuses on individual student characteristics rather than those of the wider school community. The decile rating used in this study may therefore under- or over-represent socioeconomic privilege. Socioeconomic factors can impact high school performance, causing differences between urban and rural settings (James 2001; Frenette 2006; Denaux 2009; Jordan et al. 2012; Klugman 2012; Reeves 2012; Sullivan et al. 2013; Sullivan et al. 2018). Klugman (2012) reported that the high schools with greater socioeconomic advantage are more likely to offer advanced classes and more sports, and have more teachers with graduate degrees.

International literature suggests that there are more resources in urban high schools compared to rural high schools (Creswell and Underwood 2004; Sullivan et al. 2013; Sullivan et al. 2018; Eckert 2019). Additional resources include computers, library materials, multimedia resources, laboratory equipment and arts facilities (Creswell and Underwood 2004). Sullivan et al. (2018) compared rural educational disadvantage across New

Zealand, Australia and Canada, finding that the quality of educational resources was significantly lower for rural high schools compared to urban high schools in all three countries. Across the three, New Zealand had the most significant resource disparities.

Private high schools in our study appear to achieve better educational outcomes than state schools, which might explain some rural–urban differences. There are proportionally more private schools in urban and regional areas, which would limit rural students' access to these schools. The advantage of attending a private school is partially attributable to their ability to attract students of high socioeconomic backgrounds, increasing the likelihood of better-performing students and more associated resources (OECD 2011). Other advantages of a private education are likely due to the social composition of private schools and a more favourable school climate (Dronkers 2008).

One strength of this study was using evidence-based definitions of rurality. The GCH and the modified UA used in RRAS show similar disparities between urban and rural schools. While the GCH was designed to measure differences in health outcomes, this study has shown its utility in measuring educational differences. NCEA and UE attainment, for rural students, are lower under the GCH definition compared to RRAS. However, urban students' attainment is also lower under GCH, likely reflecting the inclusion of resource-deprived regional urban schools in the urban GCH category. The RRAS definition does highlight unique differences with regional schools. These tend to have higher Māori rolls than urban schools, are more deprived and have smaller overall school roles.

Weaknesses of this study include using school-level data rather than individual student-level data. Individualised data would have provided a more in-depth picture of the academic achievement between socioeconomic status, ethnicity and gender. Secondly, UE attainment does not indicate students' academic ability to obtain entry into medical programmes. In addition to achieving UE, students must complete certain subjects in school, such as the sciences, in order to have a solid foundation leading into the competitive medical programme admission process. Investigating student performance in science subjects and the teaching of science subjects in high schools may give further insights into rural–urban differences in medical programme admission. A third weakness is that this study excluded schools that did not solely use NCEA exams. Schools with other external qualifications are mostly urban schools with low deprivation. The result of this exclusion may be an under-estimate of the differences between rural and urban schools shown in the study. A fourth weakness is that, while the analysis adjusted for number of students enrolled in NCEA by constraining the coefficient, it did not adjust for any independent effect of school size or community size that may impact on resources available and educational attainment. Finally, the study used a proxy measure of school roll and ethnic proportions for year-level school enrolment, as student-level data was not available. This may also have resulted in an under-estimate of rural education disadvantage, as the dropout rate of Māori students may have been higher.

While this study focused on educational attainment, other important differences may impact medical programme admissions for rural students. One reason is likely to be financial costs; students in rural areas may be unable to live at home to save money or may have longer commuting time (Frenette 2006). Ling et al. (2018) demonstrated

that medical and pharmacy students with an intention to work rurally had higher debt. Another reason for rural–urban differences might be emotional costs due to being further away from family and friends (Frenette 2006). Finally, the neighbourhood effect may be a factor, as there are few universities in rural areas. As such, the professional qualifications offered at universities may not be seen as valuable (Frenette 2006).

Conclusion

This study assessed the educational differences between rural and urban high schools in Aotearoa NZ that offered NCEA as their senior qualification. The study found that urban schools had the highest UE achievement, followed by regional schools and, lastly, rural schools. The difference between rural and urban outcomes was approximately 15%. Multiple differences in the composition of rural and regional schools compared to urban schools appear to influence educational outcomes. Achievement was not equally distributed among ethnic groups; lower attainment was found in schools with higher proportions of Māori students, and rural and regional schools have a higher percentage of Māori students than urban schools. Lower decile schools were also more likely to be in rural areas. Likewise, the proportion of private schools differs between geographic areas, potentially increasing the resources available to urban students as a whole. The lower UE attainment rate for rural schools will likely mean that fewer rural students will attend university than urban students, or that rural students may have greater difficulty entering competitive medical programmes and other professional programmes.

To address regional and rural medical workforce issues, admission pathways need to undergo a fundamental shift–from workforce pathways to workforce *and* equity pathways. This is required in order to account for the educational inequities experienced by rural students and, to a lesser degree, regional students. The University of Auckland's RRAS should prioritise rural students and consider a minimum quota. The University of Otago could consider the educational disadvantage experienced by regional students, in addition to rural students, in its admission pathways.

Māori admission pathways should note the educational disadvantage of rural students and ensure that Māori students from rural schools are targeted, as well as Māori attending urban schools. Finally, Universities should evaluate and implement pre-programme preparatory courses and interventions. While these initiatives may improve, to some degree, the entry of rural students into medical programmes, the underlying reasons for rural education disadvantage should be addressed. This requires policy to increase funding and resources to rural schools and ensure that rural Māori students have equitable access to the same educational opportunities as students attending urban schools.

Disclosure statement

Funding

ORCID

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