“Tall, active, and well made”?

Māori and Pākehā health inequalities in New Zealand in long-term perspective

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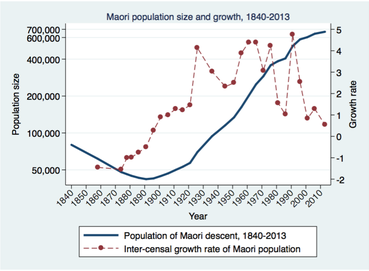
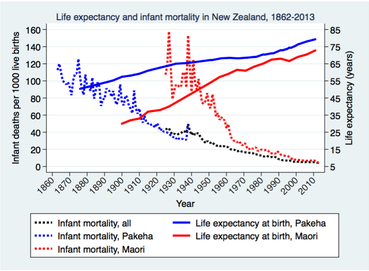
Background

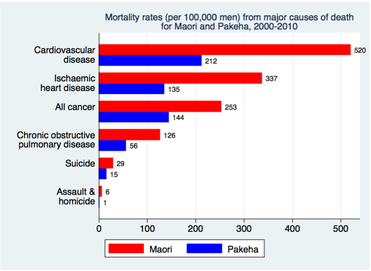


Captain James Cook who was the first European to land in New Zealand in 1769 reported that

“The Natives of this Country are a strong raw boned well made Active people rather above than under the common size especialy the men …. They seem to injoy a good state of hilth and many of them live to a good old age.”

(*Captain Cook’s Journal during the First Voyage Around the World*, 31 March 1770)





Māori health and mortality after 1840

The Māori population of New Zealand halved after British colonization in 1840. Despite rapid population recovery in the twentieth century, health disparities remain significant.

The health of living Māori is poorly documented before the mid-twentieth century.

Stature as a long-term measure of living standards

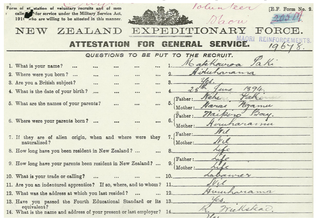
Stature can provide evidence on long-term trends in health

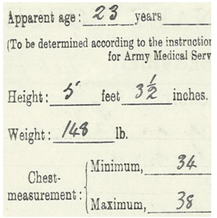
- Changes in average stature of a population reflects net nutrition during growth period (0-20 yrs, especially 0-5 years)
- Changes in net nutrition can come from
  - Food consumption, e.g. price of food/protein changes
  - Physical exertion e.g. children working during adolescence
  - Disease exposure (particularly infectious, dysentry)

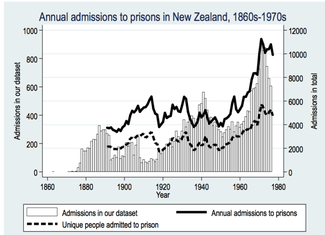
Sources for studying stature in New Zealand, c. 1500-1990

Birth cohort	Source
c. 1500 – 1800	Modern anthropological studies of skeletons
c. 1810 – 1830	147 men described in *Journal of the Royal Statistical Society* article by A.S. Thomson in 1851.
c. 1830 – 1890	Armed Constabulary 1860s-1880s, Militia 1882-1909, South African War 1899-1902
c. 1830 – 1950	Prisons
c. 1870 – 1900	World War I enlistment
c. 1890 – 1925	World War II enlistment
c. 1955 – 1990	Health and nutrition surveys (1977, 1989, 2006, 2008, 2012)

Example of principal data sources



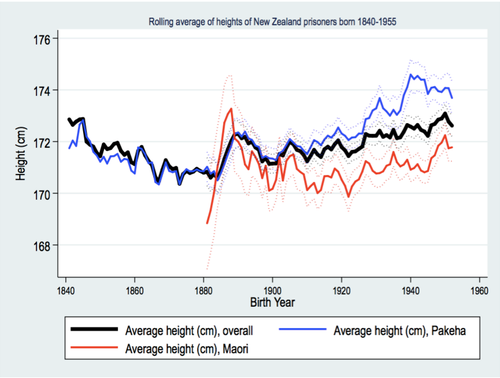


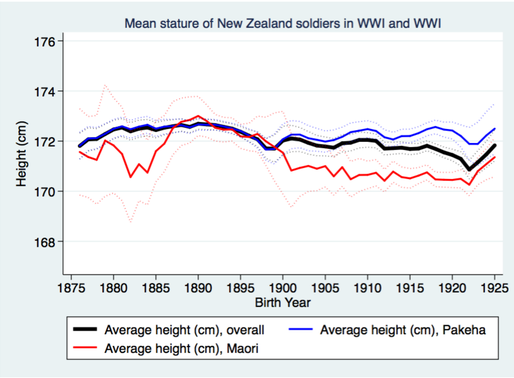


Military enlistment forms recorded socio-economic, demographic, and anthropometric information. Similar information was recorded in prison registers. We collected

- all extant prison registers
- 20% sample of WWI
- 8% sample of WWII

Māori and Pākehā stature in prison and military records



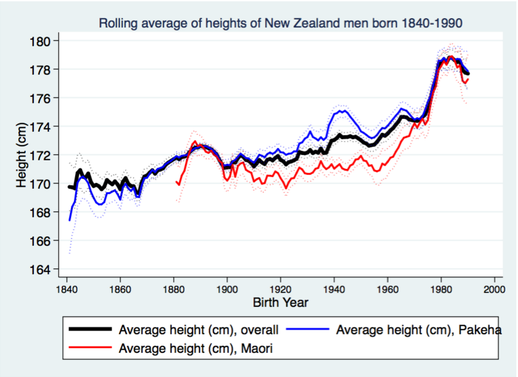


Military and prison records have offsetting biases for studying stature.

Yet both sources show similar trends in New Zealand.

Māori and Pākehā stature was similar until divergence around 1890 after which mean Pākehā stature grew and Māori stature fell.

150 years of Māori and Pākehā stature



Conclusions

- Nineteenth century Māori and Pākehā were relatively tall compared to Europeans and Americans.
- No evidence Māori are genetically predisposed to shortness.
- Some evidence of modest Maori stature decline during the 19th century, of surprisingly low magnitude given significant population decline. In the nineteenth century Māori stature decline was coincident with Pākehā stature decline.
- In the first half of the twentieth century Māori male stature declined both absolutely, and compared to Pākehā. Stature decline is consistent with morbidity and mortality evidence from the inter-war period, but occurred at a time of rapid Māori population growth.
- Early twentieth century divergence persisted until the generation born in the 1970s. The gap in stature between Māori and Pākehā began to close after World War II, coincident with rapid urban migration of the Māori population and fertility decline.
- Our research shows that the demographic consequences of colonization occurred over multiple generations, and took several generations to close.
- Cardiovascular and ischaemic heart disease mortality (correlated with short stature) is elevated in older Māori men. Stature convergence for recent generations suggests the cardiovascular mortality gap could narrow for Māori men born since the 1970s.