

Introduction

In 2019 Stitely et al¹ reviewed a cohort of women scheduled for gynaecological surgery where cytotoxicity was a planned component of the procedure, at Dunedin Public Hospital, Southern DHB (SDHB), Aotearoa/New Zealand. The majority of surgery was performed for management of Pelvic Organ Prolapse (POP) and Urinary incontinence (UI). Ethnicity of the participating women was collected. Only 3% of women in the cohort identified their ethnicity as "Māori", compared to 92.4% identifying as "European".

It is recognized that increasing parity, smoking and elevated BMI are risk factors for POP and UI². Māori women have higher fertility rates than total NZ women (Māori total female fertility rate was 2.34 in 2014, compared with 1.92 for New Zealand women overall).³ In addition it is recognized that Māori women have higher rates of cigarette smoking and are more likely to be overweight/obese compared to non-Māori women.⁴

Given the apparent under-representation of Māori women in Stitely's cohort and the recognition that risk factors for POP and UI (such as obesity, cigarette smoking and higher parity) are more common in Māori, there was concern that Māori women did not have access to appropriate surgical intervention for POP and UI.

Aims

The aim of this study is to examine whether disparities in access exist between Māori and non-Māori women for treatment for POP and UI in the catchment area served by the Southern District Health Board in Aotearoa/New Zealand between 2015-2019.

Methods

A retrospective descriptive study was undertaken which included women undergoing surgical management for POP and/or UI at Southern District Health Board (SDHB) facilities between 2015-2019. Line by line data for women (including ethnicity) were obtained from the Hospital Surgical Activity Database for SDHB using the Australian Classification of Health Interventions (ACHI) coding system. Statistics New Zealand population projections for the SDHB population derived from NZ census data were used as the denominator to calculate ethnicity-specific rates for the procedures. On every admission for surgery women were asked to self-identify their ethnicity, with the capacity to record up to 3 ethnicities per woman.

Women can identify with more than one ethnic group, hence a prioritisation process related to ethnicity is used by SDHB which was developed by Statistics New Zealand for situations where people need to be counted only once. Ethnicity is prioritised in the following order, New Zealand Māori > Pacific > Asian > Middle Eastern, Latin American, African (MELAA) > Other > European > Residual Categories. Because we were interested in understanding inequities for Māori our study divided ethnicity into two subgroups: women identifying as New Zealand Māori, and women identifying as non-Māori (including women identifying as Pacifica, Asian, MELAA, Other, and European).

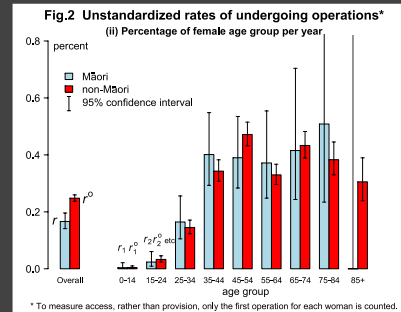
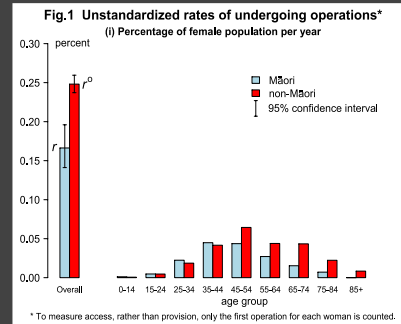
This study aimed to assess access for gynaecological POP and UI procedures for women domiciled in SDHB, rather than provision of the given procedures. Therefore, in instances where more than one date of surgery occurred for a given patient (determined by the SDHB patient identification number) on the Ministry of Health National Minimum Data Set (NMDS), only the procedure performed on the earliest date was included (ie in instances where a given woman underwent multiple surgeries on different dates, only her first date of surgery was counted). Raw data were obtained from the NMDS for Māori and non-Māori women in the SDHB area, and raw overall rates and age-specific rates were calculated. Subsequently, direct standardisation to the combined population of Māori and non-Māori women was used to obtain adjusted, i.e. standardized, overall rates. This accounts for the difference in the age distributions of the two populations.

Results

The unstandardized overall rate of receiving operations for Māori, r , is lower than for non-Māori, r^o , (Fig. 1 and Fig. 2). The contributions from the upper age groups are much smaller for Māori (Fig. 1 right). The overall rates, r and r^o , can be found by combining the rates for women in the individual age groups, r_i and r_i^o (Fig. 2 right), with the sizes of the age groups, n_i and n_i^o (Fig. 3). They are

$$r = \frac{\sum n_i r_i}{\sum n_i} = 0.17\% \quad r^o = \frac{\sum n_i^o r_i^o}{\sum n_i^o} = 0.25\%$$

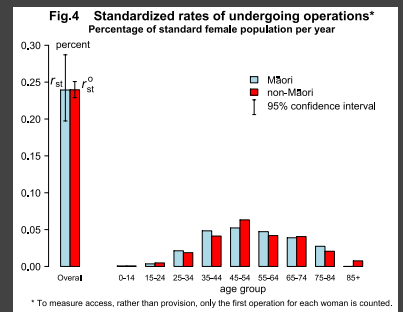
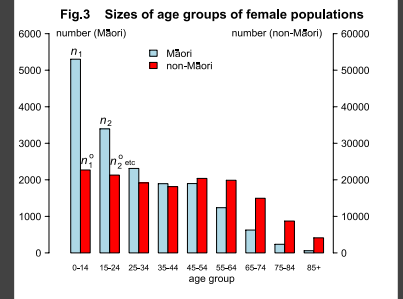
per year.



Although the rates for Māori and non-Māori in the individual age groups are similar (Fig.2 right), the overall rate is lower for Māori. At first sight, this would suggest there is a difference in the accessibility of operations for Māori and non-Māori. However, the age structures of the populations of Māori and non-Māori women differ considerably (Fig. 3). Standardising the rates to the age structure of the combined population gives standardized rates for Māori and non-Māori (Fig. 4)

$$r_{st} = \frac{\sum (n_i + n_i^o) r_i}{\sum (n_i + n_i^o)} = 0.24\% \quad r_{st}^o = \frac{\sum (n_i + n_i^o) r_i^o}{\sum (n_i + n_i^o)} = 0.24\%$$

per year, which means that the standardized rate ratio is very close to 1. This means Māori and non-Māori access gynaecological surgery for POP and UI at similar rates. This analysis was unable to account for any difference in underlying prevalence of these conditions.



Conclusions

This study aimed to investigate whether Māori women access gynaecological procedures for POP and/or UI in the numbers expected, based on the population demography of the region serviced by the Southern DHB. Unadjusted/unstandardized analysis showed the number of Māori women undergoing these procedures is low compared to the estimated resident population during this time period. However, after standardization of the data to allow for differences in the age structures of the index Māori and non-Māori female populations, using the combined population as the standard, this difference disappears. The adjusted analysis show overall rates of gynaecological procedures for Māori and non-Māori women in the SDHB population both sit at approximately 0.25% of the given population per year.

Unfortunately, there is very little known about the prevalence of POP and/or UI in New Zealand women. There is only one study in New Zealand that assessed the prevalence of UI in European, Māori and Pacific Island women aged 18 years and over.⁵ That study found the prevalence of UI to be significantly greater for Māori women (46.8%), than either Pacifica (29.2%) or European women (31.2%).

While the adjusted analysis is suggestive of, in effect, equal access for Māori and non-Māori to surgical intervention based on the percentage of the population accessing surgery, it seems likely that there is unmet need in Māori women given the increased prevalence of risk factors for POP and/or UI in this group. As the distribution of risk factors and limited evidence elsewhere suggests, Māori women are more likely to experience POP and UI. Therefore, having equal standardized rates of surgical intervention is likely to represent an inequity for non-Māori women based on their risk factors.

Further research is needed to understand the burden of POP and/or UI by ethnicity and review access to care based on the prevalence of the conditions by ethnicity ideally in DHBs with a higher percentage of Māori. Given the sensitive nature of these conditions, a prevalence study would need to be well designed with a kaupapa Māori framework, to ensure accurate information is collected.

This study also highlights the relatively smaller populations of Māori women beyond the age of 54 years compared to non-Māori domiciled to SDHB. It is not clear whether this is due to Māori women moving out of SDHB as they age or whether it reflects a lower life expectancy for Māori women. Other studies have looked at life expectancy in Aotearoa/NZ and have found higher mortality rates for Māori women compared to non-Māori women, and relatively shorter life expectancy.^{6,7}

References

1. Stitely ML, Harlow K, MacKenzie E. Oral Riboflavin to Assess Ureteral Patency During Cystoscopy: A Randomized Clinical Trial. *Obstet Gynecol.* 2019 Feb;133(2):301-307. doi: 10.1097/AOG.0000000000003063. PMID: 30633139
2. Hendrix SL, Clark A, Nygaard I, Aragaki A, Barnabei V, McTiernan A. Pelvic Organ Prolapse in the Women's Health Initiative: gravity and gravidity. *AJOG* 2002;186(6): 1160-1166
3. <https://www.health.govt.nz/our-work/populations/maori-health/tataua-kahukura-maori-health-statistics/tatauranga-taupou-demographics/population-projections>. Accessed 11/1/2020.
4. https://minhealthnz.shinyapps.io/nz-health-survey-2018-19-annual-data-explorer/_w_1901ca56/#!/explore-indicators
5. Holst K, Wilson PD. The prevalence of urinary incontinence and reasons for not seeking treatment. *NZ Med J* 1988;101:756-8
6. <https://www.health.govt.nz/our-work/populations/maori-health/tataua-kahukura-maori-health-statistics/nga-manahauora-tuhoi-health-status-indicators/life-expectancy#:~:text=In%202018%2C%20life%20expectancy%20at%20years%20for%20non-M%26%24%81%20for%20females.&text=The%20gap%20between%20M%26%24%81%20for%20ma%20and%207.1%20years%20by%202021.%2F%26%24%93%20>
7. Blakely T, Tobias M, Atkinson J, Yeh L-C, Huang K. 2007. Tracking Disparity: Trends in ethnic and socioeconomic inequalities in mortality, 1981-2004. Wellington: Ministry of Health.

