Ethnic differences in mortality and hospital admission in a New Zealand population with type 2 diabetes.

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See Articles page e209

Approximately 71% of all global deaths are attributable to non-communicable diseases.[1] Type 2 diabetes represents one of the largest and fastest-growing non-communicable diseases in Aotearoa New Zealand (New Zealand).[2] In *The Lancet Global Health,* Dahai Yu and colleagues[3] investigate ethnic differences in mortality and hospital admission rates in a New Zealand population with type 2 diabetes between 1994 and 2018, outlining long-term temporal trends in clinical outcomes between Māori, Pacific, and European ethnic groups. The study used a retrospective cohort of patients from the Diabetes Care Support Service (DCSS), the data from which were linked with national death registration, hospital admission, pharmaceutical claim, and socioeconomic status databases to estimate cause-specific mortality and hospital admission rates.[3] Overall, the results indicate that poorer health outcomes have persisted among Māori and Pacific people with type 2 diabetes over time compared with European patients.

There are notable strengths to this study;[3] the novel period and cohort effect modelling add to the analytical robustness of the reported estimates. However, the suggestion that, "the extent of the disparities in mortality and hospital admission rates between Māori, Pacific, and European New Zealanders with type 2 diabetes in the 21st century is unknown", is perhaps overstated. For instance, death registrations and hospital admissions attributable to type 2 diabetes are published annually and confirm ethnicity-related disparities.[2] It is also well established that both Māori and Pacific peoples are significantly more likely to suffer diabetes-related morbidities, complications, and death than European New Zealanders.[4-6] Nevertheless, there are limitations to such national datasets that the DCSS data promises to address.[3] For example, the Virtual Diabetes Register relies on health service utilisation data that is "consistent with diabetes care", rather than formal clinical diagnosis or laboratory results. Moreover, indicators reported in the Virtual Diabetes Register combine cases of type 1 and type 2 diabetes, and owing to limitations with data availability, particular outcome indicators cannot be investigated, such as the proportion of patients who develop retinopathy.[2]

A key consideration when interpreting the findings presented by Yu and colleagues,[3] is the use of a so-called prioritised ethnicity. Prioritised ethnicity involves classifying people with two or more ethnic identifications into a single group, with the following order of priority: Māori, Pacific, Asian, and European or other.[7] Therefore, a person identifying as both Pacific and Māori would be classified as Māori. Prioritised ethnicity is not recommended by Statistics New Zealand, as it hides non-Māori minority groups.[7] In a national study of primary school children, 33 012 (12·9%) of 255 093 identified as Pacific, but only 22 914 (9·0%) would be classified as such using a prioritised system, with the remaining children classified as Māori.[8] The capture of ethnic identity also depends on the data source. For instance, fewer people have multiple ethnic identifications recorded in mortality records than in census data, or in death registrations than in birth registrations. This prioritised ethnicity classification system again results in smaller counts of non-Māori minority ethnic groups compared with the groups with higher priority.[7] The definition and robustness of ethnicity is particularly pertinent if ethnic comparisons are made. This classification could explain the unexpected finding that most cause-specific mortality rates did not differ significantly between Pacific and European patients with type 2 diabetes.[3] Indeed, according to national datasets, the prevalence of diabetes is highest among Pacific people, and the associated health outcomes are similarly poor in (if not poorer than) Māori people.[2]

A further consideration is that, in accordance with REporting of studies Conducted using Observational Routinely-collected Data reporting guidelines,[9] the source data for each variable of interest should be described, including sociodemographic characteristics. The methods of linkage and linkage quality evaluation should also be provided, as there could be differential levels of engagement with and inclusion in the DCSS for different ethnic groups. The importance and effect of these non-sampling biases are difficult to ascertain. On another technical note, Yu and colleagues[3] used Poisson regression, which is theoretically constrained by having a dispersion index equal to one. However,

For more on the **Virtual Diabetes Register** see https://www.health.govt.nz/our-work/diseases-andconditions/diabetes/about-diabetes/virtual-diabetesregister-vdr

this assumption is often unrealistic. We would welcome further analyses that include relevant model diagnostics (especially given that a novel analytic approach was used) alongside a report of the implications of using prioritised ethnicity.

We applaud the sophisticated empirical attention to type 2 diabetes. The use of appropriately analysed, routinely collected datasets is to be encouraged. However, the scale and erudition of such an approach can be seductive; hiding or diminishing data blind spots or nuances. The results of the study by Yu and colleagues[3] are in direct contrast to extant evidence of diabetes outcomes and risk factors. In addition to the finding regarding outcomes in Pacific patients noted above, and contrary to current New Zealand guidelines for diabetes management,[5] which identify smoking as a moderate-to-high risk for diabetes-related complications, and obesity as a risk factor for diabetes screening,[6] the authors found that the worse outcomes in Māori patients compared with European patients were independent of both risk factors. The results also question the significance of socioeconomic deprivation and reduced access to care in this particular cohort. When research differs substantially from current knowledge, the study design should bear additional scrutiny, and caution should be exercised in the interpretation of results. The findings led the authors to suggest that, "underlying biological mechanisms and the role of current or historical inequities", warrant further research.[3] While the contribution of biological mechanisms to the development of diabetes in Māori and Pacific peoples is not disputed,[4] this factor is not a primary focus of current equity initiatives, in which patient empowerment, improved health service access, and systemic transformation are sought.[10] There are good reasons for a structural rather than a biological orientation, including concern about the potential for ethnic health disparities to be misinterpreted as natural or inherent to ethnicity rather than socially produced,[6] and not least the desire to create the non-discriminatory conditions in which broader population health might flourish.[10]

We declare no competing interests.

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