# Multimorbidity according to Immigrant Origin, Reason for Migration and Length of Stay. A Nationwide Register-based Study in Norway.

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# **Background**

Immigrants' heterogeneity is apparent with respect to prevalence of chronic physical and mental disease. Multimorbidity provides a new framework in understanding chronic diseases holistically as the consequence of environmental, social, and personal risks that contribute to a wide variety of illnesses.

## **Objective**

Our objectives were i) to study the associations between multimorbidity and immigrant status measured as both immigrant geographical origin and reason for migration, and ii) to determine the impact of the length of stay in Norway on the prevalence of multimorbidity across immigrants groups.

#### Methods

Nationwide multi-register study in Norway. The National Population Register and the Norwegian Health Economics Administration database were linked at the individual level. Several binary logistic regression models were conducted.

### Results

Multimorbidity rates were lower for immigrants compared to Norwegian-born, with unadjusted odds ratios (OR) and 95% confidence intervals of 0.38 (0.37-0.39) for Eastern Europe, 0.58 (0.57-0.59) for Asia, Africa and Latin America, and 0.67 (0.66-0.68) for Western Europe and North America. For immigrants, multimorbidity was lower among labour (OR (95%CI) 0.23 (0.21-0.26) and 0.45 (0.40-0.50) for men and women respectively) and education (0.40 (0.32-0.50) and 0.38 (0.33-0.43)) and higher among refugees (1.67 (1.57-1.78) and 1.83 (1.75-1.92)), compared to family reunification. For all groups, multimorbidity doubled after a five-year stay in Norway, with OR ranging from 1.7 (1.6-1.8) for refugees to 3.0 (2.6-3.4) for labour immigrants.

## Conclusion

Norwegian-born presented higher multimorbidity levels compared to immigrants. Multimorbidity was highest among refugees at arrival but increased quicker among labour immigrants, especially females. Using a holistic health status measure, our results accord to the known "healthy immigrant effect" at arrival but also suggest quick health deterioration among some immigrant groups.