



Identifying the barriers and facilitators to fruit and vegetable consumption in rural Australian adults

B.T. Carroll¹, S.A. McNaughton¹, L.E. Marchese¹ and K.M. Livingstone¹

¹*Institute for Physical Activity and Nutrition, School of Exercise and Nutrition Sciences, Deakin University, Geelong, Victoria, 3220, Australia*

Within rural Australia, only 47% and 9% of adults meet recommendations for fruit and vegetable intake, respectively, which is a leading contributor to the increased risk of non-communicable disease. Previous literature has identified barriers and facilitators to increasing fruit and vegetable intake in rural Australian settings, such as having greater access to fresh produce⁽¹⁾. However, this literature is limited by observing fruit and vegetables as a single food group and small sample sizes. This study aimed to determine the barriers and facilitators to meeting fruit and vegetable recommendations (as separate food groups) in rural Australian adults. It was hypothesised that barriers and facilitators to consumption of fruits and vegetables would be identified at the individual, social-environmental and physical-environmental levels of a socio-ecological framework and these would differ between fruit and vegetables⁽²⁾. Data from the 2019 Active Living Census were used, completed in the Loddon Campaspe region of north-west Victoria, Australia. Data were available at the level of the individual (socio-demographic characteristics, health behaviours, education level, financial stability), social-environment (household size), and physical-environment (use of community gardens). Information on fruit and vegetable consumption was collected using two open-ended questions asking how many serves were consumed each day. Survey weighting was used to account for the survey design. Descriptive statistics were reported for continuous (mean and standard errors [SE]) and categorical (frequencies) data. Multivariate logistic regression analyses were used to determine odds ratios (OR) and 95% confidence intervals (CI) for meeting fruit and vegetables recommendations according to barriers and facilitators at the individual, social-environmental and physical-environmental level. A total of 13,464 adults with complete data were included in the analysis (51% female; mean age 48 (0.17) years). Mean fruit intake was 2.85 (0.02) serves per day and mean vegetable intake was 1.56 (0.01) serves per day. A total of 48% of participants consumed the recommended two serves of fruit daily, while 19% consumed the recommended five serves for vegetables. Multivariate analyses determined distinct barriers and facilitators to consumption between fruit and vegetables. For example, a larger household size facilitated meeting vegetable recommendations (OR: 1.41; 95% CI: 1.22, 1.63), but not fruit, and greater alcohol consumption was a barrier to meeting fruit recommendations (OR: 1.47; 95% CI: 1.31, 1.64), but not vegetables. Common facilitators across both fruit and vegetables included higher age, lower BMI, being a non-smoker, and engaging in more vigorous activity. The results of this research will help inform future policies to increase both fruit and vegetable intake in rural communities, therefore contributing to efforts to improve the health of rural Australians.

Keywords: fruits; vegetables; rural Australia

Ethics Declaration

Yes

Financial Support

This work is supported by a Deakin University Scholarship for Excellence (Honours) (B.T.C); a Deakin University Postgraduate Research Scholarship (L.E.M.); a CSIRO R+ top-up scholarship (L.E.M); and a National Health and Medical Research Council Emerging Leadership Investigator Grant (K.M.L., grant number APP1173803).

References

1. Livingstone KM, Burton M, Brown AK *et al.* (2020) *Appetite* **153**, 104750.
2. Story M, Kaphingst KM, Robinson-O'Brien R *et al.* (2008) *Annu. Rev. Public Health* **29**, 253–272.