Urban–rural comparison of weight status among women and children living in socioeconomically disadvantaged neighbourhoods

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To the Editor: We read with interest the article by Cleland and colleagues describing an urban–rural comparison of weight status among women living in socioeconomically disadvantaged neighbourhoods.[1] After adjusting for sociodemographic factors, the authors reported no difference in prevalence of obesity, determined using women's self-reported height and weight, between urban and rural areas. We would like to provide further evidence for the suggestion that obesity might be attributable to sociodemographic composition of areas.

We have previously examined the association between area-based socioeconomic status (SES) and different measures of obesity in a randomly selected, population-based female cohort (aged 20–93 years, 77% participation)[2] and in a similarly recruited male cohort (aged 20–96 years, 67% participation)[3] within the Barwon Statistical Division in Victoria. An inverse association between SES and obesity was observed for both sexes,[2,3] and was evident across three different SES indices developed by the Australian Bureau of Statistics (ABS).[4]

Within our female cohort, we investigated body mass index (BMI) in urban versus rural areas across the SES continuum, for 192 participants aged 20–45 years. We used standard geographical classification[5] of 2006 ABS Census data to define participants' residences as urban or rural (incorporating rural and semi-rural areas). Participants were further grouped according to the 2006 ABS Index of Relative Socio-economic Disadvantage, based on Barwon Statistical Division cutpoints. In our multivariable regression analysis, SES was categorised into the lower 30% (most disadvantaged), mid 40%, and upper 30% (least disadvantaged). Approval for this analysis was obtained from the Barwon Health Human Research Ethics Committee.

No differences in unadjusted BMI were observed between participants residing in urban and rural areas (Box). These results were sustained after adjusting for age (data not shown). No interactions were identified between SES and urban or rural residence. No differences in BMI between urban and rural residence were observed for any SES group. These data suggest the lack of difference in BMI between urban and rural residents may be consistent across the SES spectrum. SES was associated with BMI ($P = 0.001$), while urban–rural residence was not ($P = 0.5$). Given these data, we suggest that SES is a stronger driving force for BMI than urban or rural residence.

In our population, participants in the most disadvantaged group were more likely to be resident in urban areas. This is indicative of Geelong, the main urban centre of the Barwon Statistical Division, being one of the largest public housing areas in Victoria; urban areas provide more low-cost housing options than do rural areas. In contrast, residence in rural areas may be influenced by factors such as the "sea change" movement or prestigious real-estate options, such as the scenic coastal areas located away from the urban centre of Geelong.

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Mean body mass index (95% CI) of 192 women aged 20–45 years in the Barwon Statistical Division, Victoria, by area of residence

Socioeconomic status*	Urban†	Rural†	*P*‡
Lower 30% (most disadvantaged)	29.5 (26.8–32.1)	37.4§	0.3
Mid 40%	27.8 (26.1–29.4)	25.3 (21.8–28.9)	0.2
Upper 30% (least disadvantaged)	25.5 (21.2–29.7)	25.5 (24.1–26.9)	1.0
Total population	*27.3 (26.3–28.4)*	*26.1 (23.4–28.7)*	*0.43*

* Defined by the Australian Bureau of Statistics (ABS) Index of Relative Socio-economic Disadvantage of the Socio-economic Indexes for Areas using 2006 Census data, and cutpoints of Barwon Statistical Division for 2006. † Defined by the 2006 ABS Australian Standard Geographical Classification Urban Centres/Localities. ‡ For pairwise difference. § There was only one participant in this category. ◆

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