

LETTERS TO THE EDITOR

LOCAL GOVERNMENT AREAS AND RATE OF SERIOUS IMMERSIONS OF TODDLERS

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We noted with interest the comment by Sayer and Lonie¹ that the differences among local government areas (LGAs) in NSW in the rate of serious immersions of toddlers (0-4 years) in swimming pools may, in part, be attributable to the number of pools in each LGA and hence the degree of exposure. Here, we thought, might be an example of a difference in mortality rate or health status going against the dominant trend of greater affluence being associated with better health. Perhaps, we reasoned, the more affluent LGAs would have more private swimming pools, resulting in a greater exposure of the children of wealthy parents to the risk of a serious immersion.

To test this hypothesis, we regressed Sayer and Lonie's standardised serious immersion ratios (SSIR) for LGAs in NSW for 1986 and 1989-92 combined against the respective Jarman 8 Index for 1986². The results (see Table 5) are equivocal but still interesting. For all 166 LGAs in NSW there is no statistically significant relationship between SSIR and affluence, but for the 37 LGAs in metropolitan Sydney there is a statistically significant relationship whereby the variation in affluence explains approximately 12 per cent of the variation in SSIR. Removing those LGAs where the SSIR is zero produces results which are of borderline statistical significance: in the 29 Sydney LGAs the explained variation is still approximately 12 per cent, whereas in the 90 NSW LGAs the explained variation is approximately 4 per cent.

These results suggest that, at the LGA level, affluence may predict toddlers' serious immersion incidents in private swimming pools. The relationship appears stronger in metropolitan Sydney and possible explanations for this include: a closer relationship between affluence and private swimming pool ownership in urban areas; and less adult supervision of toddlers around private swimming pools in urban areas. We must, however, note that we do not know the actual relationship between private swimming pool ownership and affluence in LGAs.

Whether the serious immersion of toddlers in swimming pools is an example of greater affluence being associated

with worse health remains to be proven. A larger sample size or more years' data would assist the analyses at LGA level but definitive proof requires the collection of family-specific data.

1. Sayer G, Lonie C. Motivating local action on pool drownings: a black spot approach for NSW. *NSW Public Health Bulletin* 1995; 6,12:139-144.
2. McCracken K, Forrest J. Health inequalities and social circumstances in New South Wales. A comparison of alternative indexes linking deprivation and health. Northern Sydney Area Health Service. Sydney, September 1995.

HEALTH, GEOGRAPHY AND MAPPING

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Recent articles by Stewart et al^{1,2} have described interesting and important results relating to the geographic variation in suicide mortality in NSW. It is disappointing, however, that they have not used one of the geographer's most useful tools – the **map**. Much of the information shown in Figures 1 and 1 to 6 in the first¹ and fourth² of their series on the epidemiology of suicide, respectively, could have been presented on a map. Such a presentation would have complemented the existing presentation of results and aided and enhanced their interpretation. For example, the reader would have instantly seen where a particular location is, and similar areas would have been easily identified.

Two recent Australian examples of the use of maps to illustrate health information are A Social Health Atlas of Australia³ and An Atlas of Premature Mortality in New South Wales 1981-1988⁴. Incidentally, the latter contains a section on suicide mortality and although results are only presented for males and females separately, the list of local government areas with unusually high and low standardised mortality ratios is quite similar to that in Stewart et al².

While there has been considerable discussion and comment on the statistical aspects of the work of Stewart et al^{1,2,5,6}, a brief discussion of possible causes of the spatial variation in suicide mortality would have been interesting (factors such as socioeconomic stresses, disabling mental illness and isolation are very briefly mentioned¹), or to have been directed to recent research that has examined such causes. If such research does not exist, it would seem to be a vital gap in our understanding of this tragic phenomenon.

The results presented by Stewart et al^{1,2} are a good example of what geographers have termed the Modifiable Areal Unit Problem^{7,8} where 'results will differ not only as the number of observations is changed to a different scale but, at each scale, one can get incredibly varied results according to how the observations have been aggregated into groups⁷. Echoing the wisdom expressed by Vimpani in his recent article in the *Bulletin*⁹, 'a deeper, more holistic, understanding of the contemporary human dilemma' will require an integrative approach where 'people will need to

TABLE 5

LINEAR REGRESSION OF STANDARDISED SERIOUS IMMERSION RATIO (SSIR) (1986 AND 1989-92 COMBINED) AGAINST JARMAN 8 INDEX (1986) FOR LOCAL GOVERNMENT AREAS (LGAs) IN NSW

	n	Beta coefficient	p value	R squared
All LGAs	166	-0.003	0.684	0.001
NSW	37	-0.041	0.035	0.121
LGAs with SSIR>0				
NSW	90	-0.017	0.053	0.042
Sydney	29	-0.044	0.056	0.128

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