

# Place in Health

**Neil Terence Coffee**

BA University of Wollongong  
BA (Hons) University of Tasmania  
MA University of Adelaide

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## Conference Presentations

- Coffee N and Lockwood T, **The Property Wealth Metric As A Measure Of Socio-Economic Status**, 18th Annual Pacific Rim Real Estate Society Conference Adelaide, Australia, January 15-18, 2012.
- Coffee N and Lockwood T, **Using Housing Values as a Socio-Economic Status Metric**, 6th Australasian Housing Researchers' Conference, Adelaide 8-10 February 2012.
- Coffee N, Howard N, Paquet C, Hugo G, Taylor A, Adams R and Daniel M, **Is Walkability Associated with Clinical Markers of Cardio Metabolic Risk Scores?** Annual Meeting of the International Society for Behavioural Nutrition and Physical Activity (ISBNPA), Austin, Texas, USA May 23-26 2012.
- Coffee N T, Lockwood T, Hugo G, Paquet C, Howard N, and Daniel M, **Property Value Wealth as a Socio-Economic Status Measure: An Opportunity for Health Research?** Population Health Congress 2012, Population Health in a Changing World, Adelaide, Australia, 10-12 September 2012.
- Coffee N T, Lockwood T, Paquet C, Howard N, and Daniel M, **Relative Property Value as a Socio-Economic Status Indicator**. International Medical Geography Symposium 2013, Michigan State University, East Lansing, United State of America, 7-12 July 2013.

## Abstract

This research contributes to expanding the awareness and importance of *place* in health research. As a thesis by publication it features three peer reviewed published papers which provide methodological developments for the application of spatial techniques to health research. These papers constitute a response to the critique by a number of researchers on how spatial techniques are applied in some health research.

*Place* has been implicated in health research for centuries. Among the *place*-health literature there are two research streams that are the focus of this thesis; 1) the relationship between *place* and socioeconomic status (SES); and 2) the impact of the built environment on physical activity and chronic disease.

*Place* has an association with SES and SES has an accepted relationship with health, and therefore *place* may impact on health through its relationship with SES. An emerging research area used property values to represent wealth as an alternative or complementary SES measure. Two recent studies have used property value as an SES measure and reported a strong association with obesity and reported that property value was more predictive of fair/poor health status than area-level SES measures. This emerging research area is the focus of the first two papers which developed a property value SES measure that reflected *place* and wealth. The first paper provided the methodology to develop a residential property value measure (RLF) and the second paper tested the association between RLF and six chronic health outcomes, central obesity, hypertriglyceridemia, reduced high density lipoprotein (HDL), hypertension, impaired fasting glucose, and high low density lipoprotein (LDL) plus cumulative score of these chronic health outcomes. A statistically significant

association with the cumulative CMR score and all but one of the risk factors (high LDL) was found, and in all cases except high LDL, participants in the most advantaged and intermediate group had a lower relative risk (RR) for cardio-metabolic diseases.

The third paper focused upon the built environment and walkability and the methodology used to spatially represent walkability. Whilst this paper used the Australian adaptation of the walkability index used for the IPEN project ([www.ipenproject.org](http://www.ipenproject.org)), the outcome was not walking behaviour but the cumulative cardiometabolic risk score used in paper two. The third paper used predetermined administrative spatial units and road network buffers. This approach was chosen to provide further evidence that the choice of spatial unit matters in health research and that selecting an inappropriate spatial unit could mask or hide an association. There was no statistically significant association between walkability and the predetermined spatial units, but there was a modest statistically significant association between the road network buffers and lower RR of cardiometabolic risk.

Taken individually, the first two papers provide a spatially based measure for SES-health research which was statistically associated with chronic health outcomes and the third added to the literature on health associations with walkability and highlighted the need for appropriate spatial unit selection. Cumulatively, these papers add to the growing literature and demonstrated a more informed application of spatial methods to health research.

## Disclosure

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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## List of Abbreviations

ASD	Adelaide Statistical Division
ABS	Australian Bureau of Statistics
ASGC	Australian Standard Geographic Classification
CD	census collection district
CMR	cardiometabolic risk
CTVB	Council Tax Valuation Bands
DCDB	digital cadastre database
GEE	Generalised Estimating Equations
GDP	gross domestic product
GIS	geographic information system
HDL	high density lipoprotein
IPEN	the International Physical Activity and Environment Network
IDW	inverse distance weighted
LGA	local government areas
LOTS	land ownership and tenure system
LDL	low density lipoprotein
MAUP	modifiable area unit problem
NHMRC	National Health and Medical Research Council
NDVI	normalised difference vegetation index
NQLS	Neighbourhood Quality of Life Study
NWAHS	North West Adelaide Health Study
PC	personal computer
PLACE	Physical activity in localities and community environments



RLF	Relative Location Factor
RR	relative risk
RDB	Retail Database
SEIFA	Socio-Economic Index for Areas
SLA	statistical local areas
SA	South Australia
SSC	state derived suburb
SD	statistical divisions
SSD	statistical sub-division
SES	socio-economic status
UK	United Kingdom
USA	United States of America
WI	walkability index
W1	wave one NWAHS data
WHO	World Health Organisation