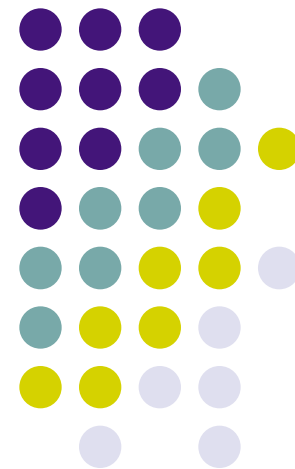


Social Deprivation, Air pollution and Mortality in Hong Kong



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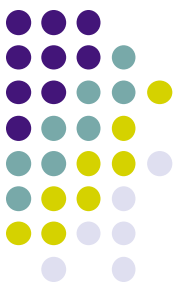


Background



- Worldwide, approximately 1.2 billion people in poverty and those living in middle-income countries disproportionately experience the burden of urban outdoor air pollution (WHO).
- Hong Kong's per capita GNP is around US\$ 36,000. However, apparent economic success externalizes the severe costs of degraded environments.
- All of us are susceptible to the hazards of air pollution.
- All people in Hong Kong are living and working in a highly polluted urban area, but socially deprived people are particularly disadvantaged.

Socially deprived people are more likely to smoke, consume less healthy food, and have less time for leisure activities



They are more likely to die prematurely.



but have less access to hospitalization¹.



1. Wong CM, Hedley AJ, Lam TH, Bacon-Shone J, Ma S, Fung H, Shung E. Estimation and variations in health care needs between small areas in Hong Kong using routine statistics on morbidity, mortality and socioeconomic and demographic characteristics of the population. HSRC Report #621009, Hong Kong: December 1999.

Social Deprivation Index



Based on Census report (2001), we computed a social deprivation index (**SDI**) by taking the **average of proportions with the following features in each local urban area:**

- 1) unemployment
- 2) households earning low income
- 3) people with no schooling
- 4) one-person households
- 5) people never married
- 6) households living in sub-tenant quarters

Statistical methods



- We grouped areas of Hong Kong into low, middle and high SDI.
- We assessed the excess risk (ER) of mortality from exposure to air pollution

Research

The Effects of Air Pollution on Mortality in Socially Deprived Urban Areas in Hong Kong, China

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Figure 1

We found areas with high social deprivation index (SDI) were in the North West borders and in the inner city.

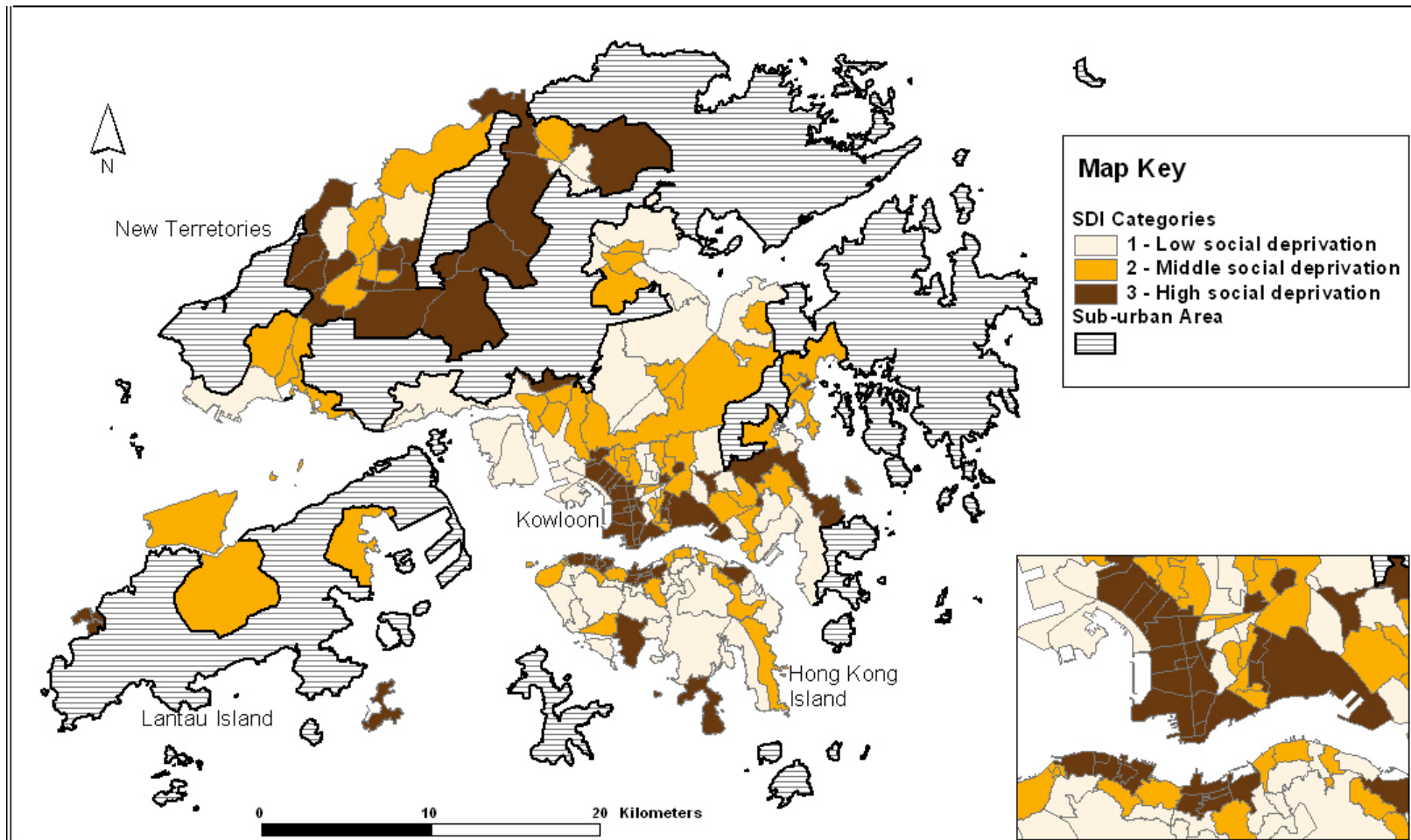
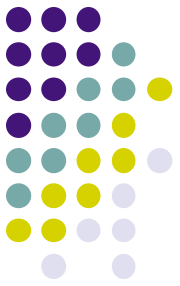
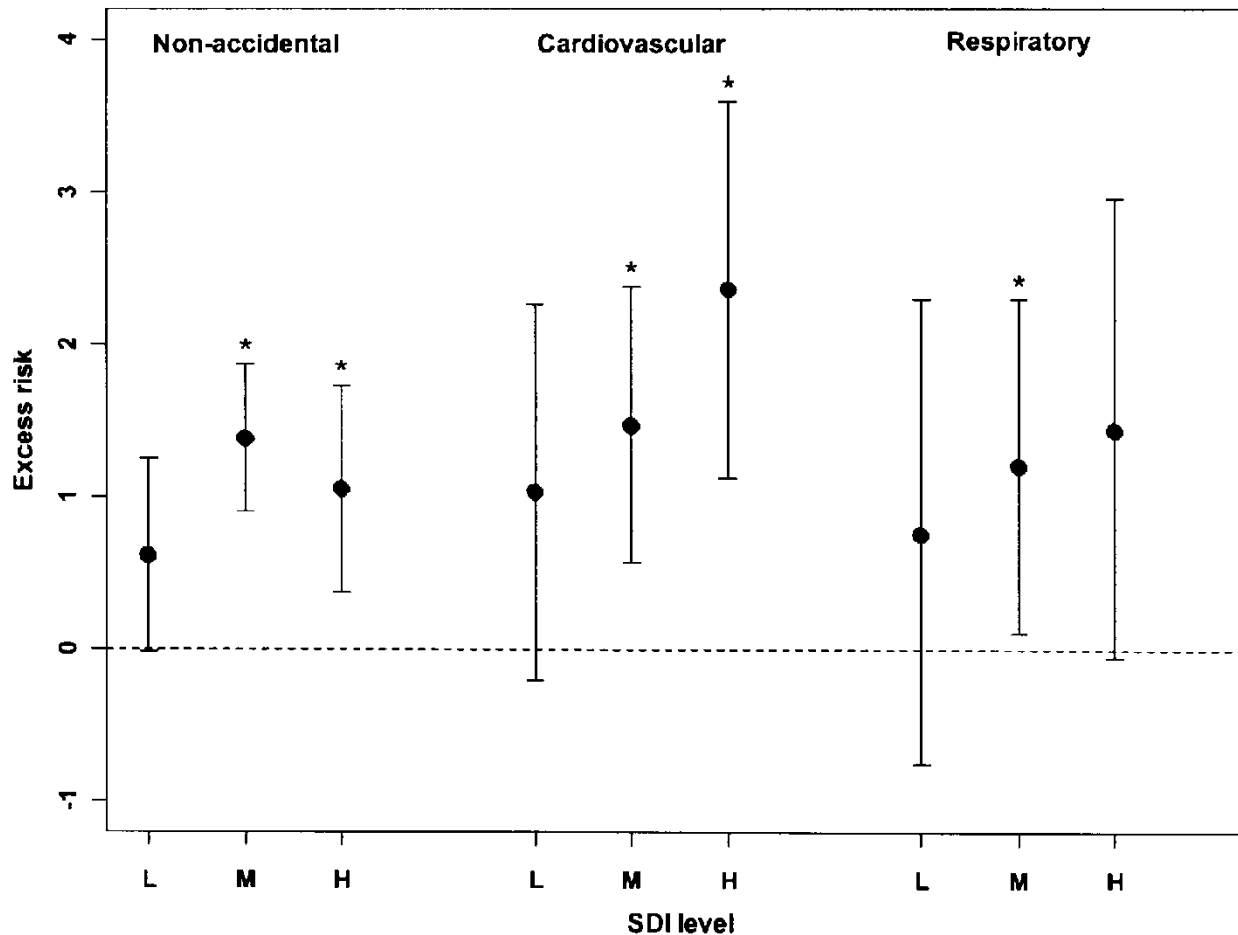
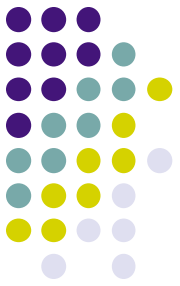


Figure 2

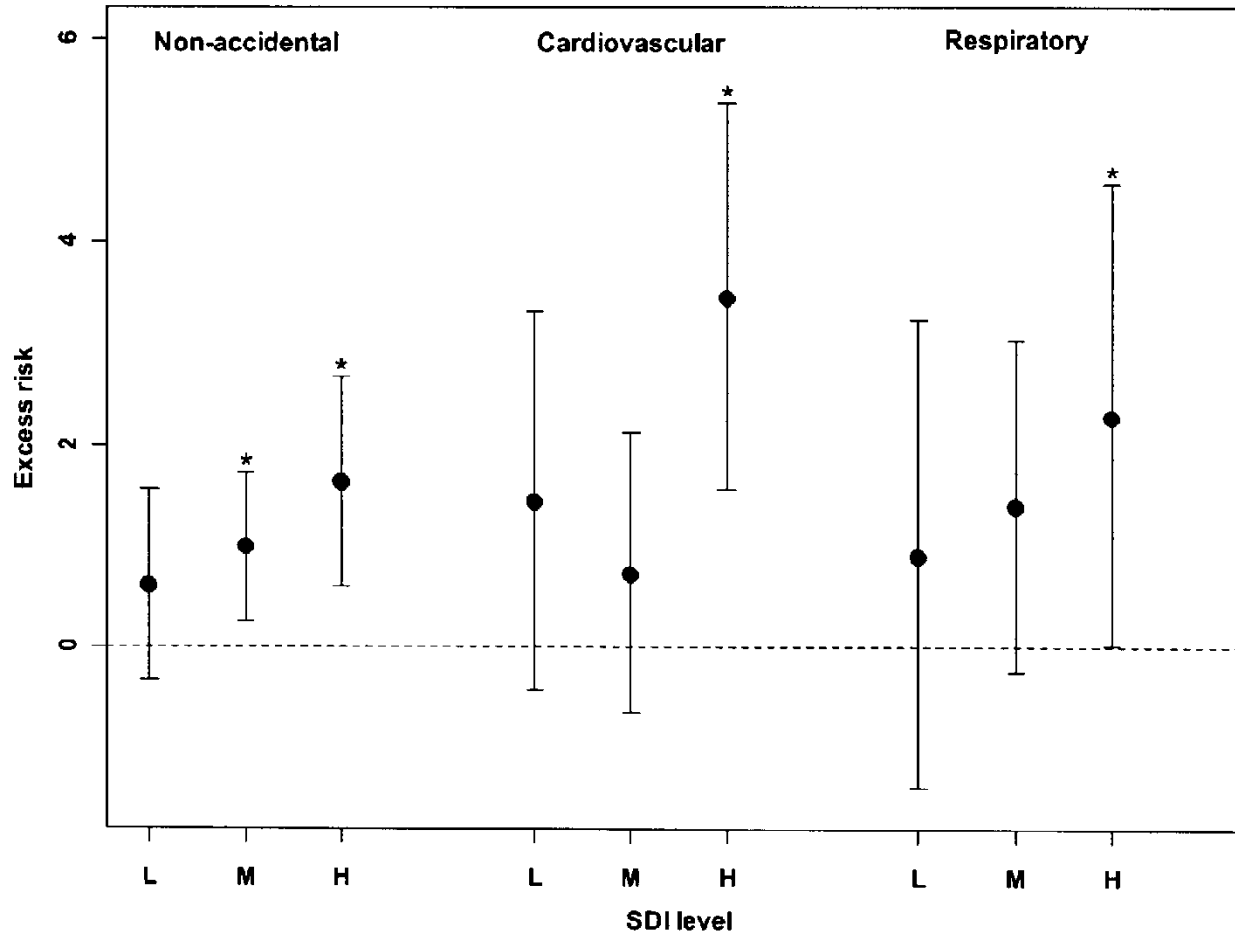
Excess risk of mortality per 10- $\mu\text{g}/\text{m}^3$ increase in NO_2 by low (L), middle (M), and high (H) social deprivation at average 0–1 lag day.



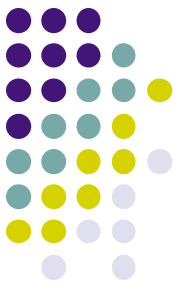
Residence in areas of higher deprivation is associated with a higher risk of death from air pollution.

Figure 3

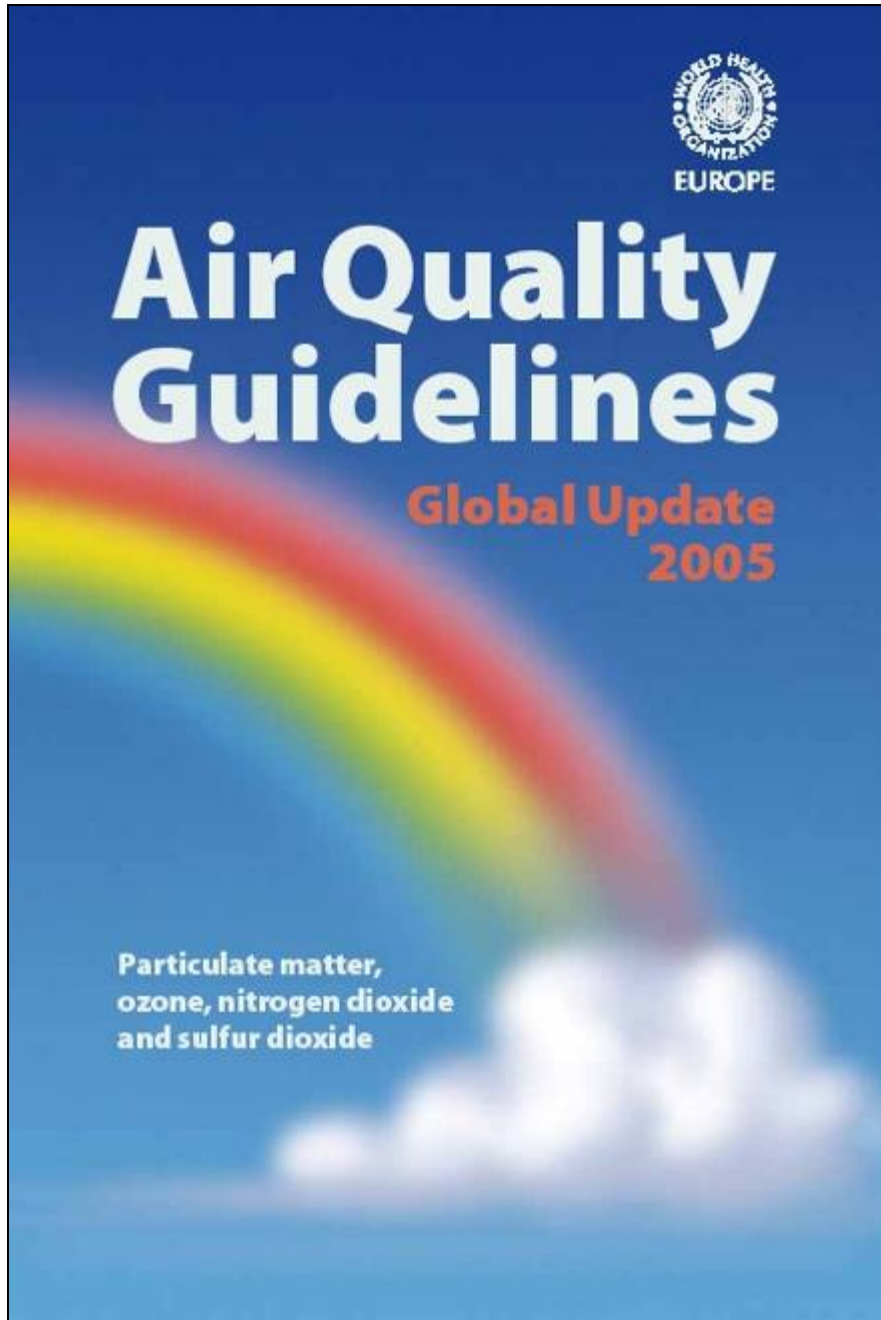
Excess risk of mortality per 10- $\mu\text{g}/\text{m}^3$ increase in SO_2 by low (L), middle (M), and high (H) of social deprivation at average 0–1 lag day.



Discussion



- People living in **high social deprivation** areas are likely in the lowest social-economic groups and are victims of having more **unhealthy lifestyles**.
- They are also exposed to **higher-than-average air pollution** levels, and are **susceptible** to higher risk of harms from air pollution.
- **Social inequities** in health should be taken into consideration in managing environmental protection in the context of **economic, urban, and infrastructural development**.



We recommend:

- Eliminate inequity and heavier burden of disadvantaged groups
- Encourage healthy workplace and lifestyle to reduce exposure and risk of air pollution
- Design transportation system with urban planning to lower and to remove sources of air pollution





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