

Addendum

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Kirkbride JB, Morgan C, Fearon P, Dazzan P, Murray RM, Jones PB (2007). Neighbourhood-level effects on psychoses: re-examining the role of context. *Psychological Medicine* 37, 1413–1425.

Using multilevel Poisson modelling, we previously estimated the proportion of variance in the incidence of non-affective psychoses in Southeast London due to neighbourhood-level effects to be 23% (95% CI 9.9–42.2) (Kirkbride *et al.* 2007). This estimate was calculated by taking the raw parameter estimate from the multilevel Poisson model and applying the formula for the standard calculation of the interclass correlation coefficient (ICC) used for probit models. This formula had been previously used in a similar way for Poisson models (van Os *et al.* 2000), but a recent advance in statistical modelling suggests that this method of calculating the ICC leads to an overestimate of the proportion of variance attributable to neighbourhood-level factors in the Poisson case (Zammit *et al.* 2010). Modelling of ICC in hierarchical Poisson models is not straightforward and unlike the probit or logistic case, it is not possible to compute a single summary ICC. Rather, the ICC will vary according to the underlying stratification of data by population subgroup. To provide interpretable estimates from our findings, and consistent with the methods described in another recent publication (Zammit *et al.* 2010), we therefore refitted our previously reported models using logistic regression, which produces comparable measures of relative risk to the Poisson distribution provided the disease, like schizophrenia, is rare (Greenland & Thomas, 1982). From these, we were able to re-estimate the ICC at the neighbourhood level in Southeast London, using the latent variable approach recommended by Browne *et al.* (2005):

$$\text{ICC} = \frac{V_n}{V_n + \pi^2/3}$$

where V_n is the variance between neighbourhoods and $\pi^2/3$ is the variance between individuals.

In a logistic model of schizophrenia incidence adjusted for age, sex and ethnicity (corresponding to the Poisson model from which we originally reported

variance at the neighbourhood level (see Table 3 in Kirkbride *et al.* 2007), we re-estimated the ICC (variance attributable to the neighbourhood level) to be 10.7% (95% CI 4.4–23.5). Although lower than previously reported, this figure is consistent with other estimates (Zammit *et al.* 2010) and remained highly statistically significant [$\chi^2(1) = 14.93$, $p < 0.001$]. It also does not affect the interpretation of previously published rate ratios or their effect sizes, which show that in Southeast London there is strong evidence that aspects of the neighbourhood social environment are associated with the incidence of schizophrenia, after adjustment for individual level risk.

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Declaration of Interest

Professor Robin Murray is joint editor of *Psychological Medicine*.

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