

Self-Poisoning in Rural Sri Lanka: Small-Area Variations in Incidence

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Objective: To identify and map areas at high risk of intentional self-poisoning using a geographic information system; and further, to investigate associations of intentional self-poisoning with markers of area socio-economic position and agricultural factors.

Methods: We conducted an ecological analysis of hospital admission data in a rural area of southern Sri Lanka. Details of all patients admitted to hospitals for intentional self-poisoning within the study area in 2002 were collected and mapped according to patients' place of residence. We explored area-level associations of intentional self-poisoning with socioeconomic and agricultural indicators using the smallest administrative division as unit of analysis (N=189, mean population size 1416). To investigate the linearity of the associations, we looked at incidence rate ratios across quartiles of exposure. Analyses were performed for total self-poisoning as well as pesticide and non-pesticide poisoning separately, controlling for age and sex in all models. **Results:** There were 844 admissions for intentional self-poisoning residing in the study area (population 268.000 above ten years of age) in 2002. The overall incidence of intentional self-poisoning in the study area was 315 per 100.000 inhabitants, ranging from 0 to a notable 2168 per 100.000 across administrative divisions. Socioeconomic disadvantage, as indexed by poor housing quality ($p=0.003$) and low levels of education ($p<0.001$) but not unemployment ($p=0.147$), was associated with a low self-poisoning incidence. Areas where a large part of the population worked in agriculture had low overall levels of self-poisoning ($p=0.002$), but a greater share of episodes in these areas involved pesticides ($p=0.01$). An association with the proportion of total land under agricultural cultivation was, interestingly, found only for non-pesticide poisoning ($p=0.01$). **Conclusion:** Considerable small-area variation in incidence rates of intentional self-poisoning was found. The noteworthy concentration of cases in certain areas merits particular attention. Identification of such areas in other settings may serve as the starting point for preventive and/or rehabilitative efforts as well as for clinical studies on the management of poisoned patients. Further, the inverse association of intentional self-poisoning with area socioeconomic deprivation is surprising and should be investigated further using multi-level exposure data.

Figure 1. Intentional self-poisoning incidence per 100 000 inhabitants; 2002

