



FIG 1. Incidence of all suicides in Sri Lanka, 1880–2015. The arrows indicate the timing of pesticide bans (1984: parathion, methyl parathion; 1995: all remaining WHO Class I toxicity pesticides, including methamidophos and monocrotophos; 1998: endosulfan; 2008: dimethoate, fenthion and paraquat). Data obtained from police records.⁶

38.8% (72 500) of 187 000 Indian suicides in 2010 resulted from ingestion of pesticides.³

Restricting supply of pesticides is an effective approach to suicide prevention.⁴ Implementation of legislation to limit the use of HHPs has been highly successful in reducing overall suicide numbers in countries such as Sri Lanka, South Korea and Bangladesh, where small-scale farming is common.⁵

The best evidence comes from Sri Lanka. After the introduction of HHPs into small-scale rural agricultural practice in the 1960s, the suicide rate among those above 8 years of age increased from 5/100 000 in the 1960s to 57/100 000 population in 1995.⁶ The pesticide registrar started banning HHPs (parathion and methyl parathion) in 1984 and in 1995 all WHO Class I toxicity pesticides were banned.⁷ There was a sudden, rapid fall in numbers of total suicides (Fig. 1). Subsequent ban in 1998 of the WHO Toxicity Class II pesticides such as endosulfan, dimethoate, fenthion and paraquat (in 2008–2011) led to major reductions in case fatality for pesticide poisoning and suicides.^{8–10} The present overall suicide rate is 17/100 000—a 70% reduction over 20 years—and continues to fall.

Pesticide self-poisoning has become safer in Sri Lanka by allowing people to survive impulsive episodes of self-poisoning and offering psychosocial, economic or medical support they need. A few have switched to other lethal means, such as hanging, but the increase has been small and has not compensated for the major fall in the number of suicides due to pesticides.⁸ This reduction has been obtained without any apparent effect on agricultural output¹¹ and at modest direct cost to the government (about US\$ 50 per life saved).⁶

India has instituted extensive measures such as regulation of pesticides and banning multiple HHPs; but their effect is not yet visible. It is essential to urgently identify the pesticides that are causing most deaths across India as well as their effect on agricultural output. This will help in reviewing the effectiveness of the regulation.

As described by Dr Jacob, effective suicide prevention requires a comprehensive strategy that works at the patient, community and national levels. Pesticide regulations and improved health and mental healthcare need to be accompanied by measures such as protection from discrimination, efforts aimed at greater gender and social justice and ethical news reporting. The government needs to recognize the issue of suicides to protect the right to life and right to health of its population. This will help India achieve its Sustainable Development Goals.

Conflicts of interest. None declared

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Removing highly hazardous pesticides from Indian agriculture will reduce suicides

We read with interest Dr Jacob's article on suicide in India.¹ We agree with his holistic public health and socioeconomic view of the reasons for suicide. However, we believe that there is one key approach that will rapidly reduce the number of suicides occurring in India, i.e. to regulate sale and distribution of pesticides by removing highly hazardous pesticides (HHPs) from Indian agriculture.

Pesticide self-poisoning is a major issue in India. According to official statistics, 10.9% (14 352) of 131 666 suicides in 2014 were due to insecticide poisoning.² This is likely to be an underestimate of poisoning with any pesticide—a national survey estimated that

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