

Behaviour change can reduce drug use

An interesting editorial in the 25 February issue of the *BMJ* deals with the concept of behavioural medicine. The behaviour of humans is acknowledged to be a major factor determining health, and should be taken into account whenever a programme is devised that seeks to improve health and reduce the effect of lesser illnesses. The UK Society of Behavioural Medicine was set up in 2004 to promote research into sound behavioural interventions and their clinical applications.

It is acknowledged that, for example, the psychological preparation of a patient for whom surgery is indicated is able to reduce the use of analgesia and length of hospital

stay. Psychological treatments based on the concepts of cognitive behavioural therapy, in comparison with active pharmacological treatments, reduce the experience of chronic pain. Behavioural interventions can, in place of active treatments, sometimes prevent disease. Such interventions can also improve health care delivery if applied to the pattern of clinical care.

Physicians are seen as the most powerful voice in medicine, but are predominantly trained to rely upon drugs. Moreover, the pharmaceutical industry puts intense and continuous pressure on doctors to persuade them to prescribe their products. The way in which this pressure is applied may result in a

bias towards employing drugs before other possible measures have been considered.

Better quality research into behavioural techniques is required, based on valid observations of the psychological factors involved in such treatment. The concept must be greatly widened to take into account public health, geography, sociology, health economics, architecture, sports medicine and other sciences in addition to clinical medicine.

The influence on health of biological, social and cultural factors needs to be closely evaluated as a basis for any interventions. Inducing changes in behaviour could help to reduce our reliance on pharmacological solutions to our health problems.

New appreciation for the role of winged seeds in woodland dispersal

Human activities over the centuries have divided our native British woodland into isolated fragments. Tree populations have become highly susceptible to the deleterious effects of reduced gene flow.

In fragmented landscapes it is recognised that the dispersal of pollen is wider than might be anticipated, and that this effect potentially offsets the disadvantages of human incursion.

The assumption has been that pollen dispersal is the most important mode by which woodland is dispersed over wide regions. However, there is much to be said for colonisation by seeds. A study by workers in Edinburgh and Brisbane, reported in *Science* for 3 February, looked at the ash tree (*Fraxinus excelsior*), a wind-pollinated and wind-dispersed temperate species. They found that seeding dispersion plays a greater role than does pollen distribution in main-



taining genetic continuity. In a chronically deforested landscape the efficacy of seeding is up to six times greater.

Parentage was assigned to 60 seedlings that had become established in three forest remnants within a 900 hectare deforested

valley in the southern uplands of Scotland. Although only 25 to 35 per cent were found to have been pollinated from local trees, 50 to 75 per cent had become established after long distance dispersal of foreign seeds.

It appears that the opening up of the landscape facilitates the airborne movement of both pollen and seeds. In barren landscapes the winged seeds, known as ash keys, are more likely to be uplifted and carried for long distances than are seeds that fall from forest trees. Their long-distance dispersal across deforested landscapes ensures that genetic diversity is maintained and that new alleles are established into remnant gene pools in the vegetation. The response to climate change may in turn be affected by the phenomenon, with the improved gene pool facilitating adaptation and shift of species range.

How meloxicam offers hope for saving Indian vultures from extinction

As I reported some 18 months ago (*PJ*, 11 September 2004, p360), observers of Asian wildlife have been alarmed to note that in the past decade tens of millions of vultures have disappeared from the Indian subcontinent. The white-backed, long-billed and slender-billed vulture populations have fallen by more than 95 per cent.

In Europe, human persecution has eliminated bearded and griffon vultures in a number of countries and populations are being restored by reintroduction and protection measures. India's problem is different. The killing of wildlife there is illegal and the vultures are valued for the ecological role they play in controlling brucellosis, anthrax and

other livestock diseases by their consumption of infected carcasses. Their decline has resulted in an expansion of feral dog populations, which in turn threatens to increase the incidence of rabies attacks on humans. In the absence of vultures, rats also could add to the sources of dangerous infections.

The main cause of decline in India's vulture population has been the wide use of the anti-inflammatory drug diclofenac in veterinary practice as an analgesic for cattle. Traces of the drug survive in the tissues of dead animals and are consumed by vultures, in which even a small dose causes kidney failure.

Because diclofenac is cheap and widely used, efforts to restrict its use have met with

opposition. But more recently it has been demonstrated that an alternative analgesic, meloxicam, is equally effective in cattle but can safely be ingested by vultures. Moreover, it is manufactured locally in India. At the moment it costs twice as much as diclofenac but improvements in manufacturing methods could overcome this snag.

In the UK, the Royal Society for the Protection of Birds, London Zoo and the Government's Darwin Initiative are undertaking a programme of captive breeding of the threatened Indian vultures. They hope that they will be able to reintroduce the birds to India once conditions are again favourable.