Fish consumption and major depression

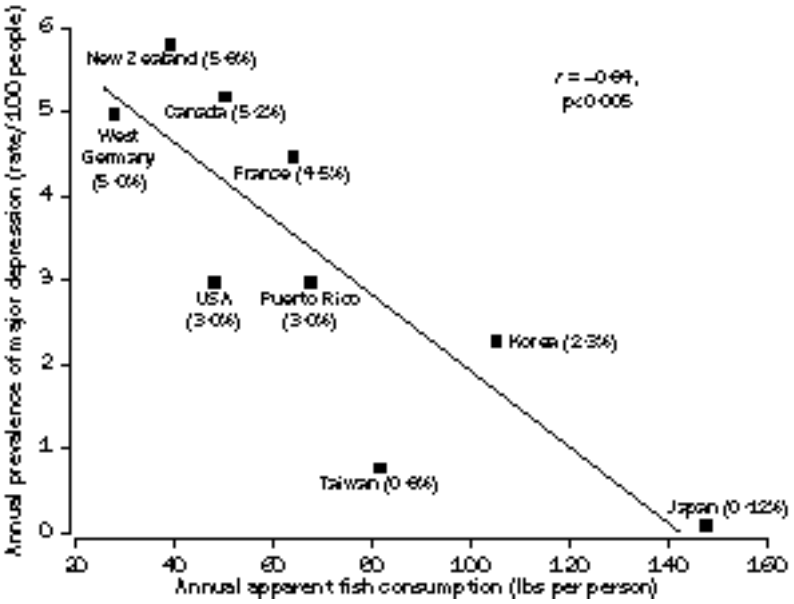
Sir—WHO estimates that major depression is the greatest single cause of disability worldwide.[1] The annual prevalence of major depression shows nearly a 60-fold variation across countries,[2] in a pattern similar to cross-national differences in mortality from coronary artery disease, which suggest that similar dietary risk factors could be important.

Among healthy volunteers, low plasma concentrations of an essential fatty acid found in fish, docosahexaenoic acid, predict low concentrations of a marker of brain serotonin turnover, cerebrospinal fluid 5-hydroxyindolacetic acid (CSF 5-HIAA).[3] The finding that low concentrations of CSF 5-HIAA are strongly associated with depression and suicide have been widely replicated. Since docosahexaenoic acid is selectively concentrated in neural tissues and important for nervous-system function, we tested the hypothesis that a high consumption of fish could be correlated with a lower annual prevalence of major depression (figure).

The cross-national comparisons of the prevalence of major depression reported by Weissman and colleagues[2] are among the most reliable cross-national data available. The rigorous methodologies used in these studies—large sample size (35 000), random prospective design, repeat sampling techniques, multiple community sampling, and use of a structured clinical interview with uniform internationally accepted diagnostic criteria—create confidence in the validity and comparability of these data. The structured interviews were independently verified as culturally appropriate for each community. The core biological symptoms that define major depression were the main factors used to determine the differences in prevalence of major depression across countries, rather than mood ratings which are prone to cultural bias. The economic data on apparent fish consumption was calculated by fish catch plus imports minus exports and are not as reliable as data from direct dietary surveys or tissue analyses, but do provide a comparable estimate across countries. The data on the annual prevalence of major depression reported by the Ministry of Welfare in Japan included 130 000 individuals, but did not use structured instruments for diagnosis or randomised population-sampling methods. However, exclusion of these Japanese data did not significantly affect the correlation analysis (r=0·77, p<0·03).

The direction and power of the correlation between apparent fish consumption and major depression accords with recent clinical reports of individuals that higher concentrations of docosahexaenoic acid in red-blood-cell membranes (r=−0·80, p<0·01),[4] as well as higher ratios of eicosapentaenoic acid to arachidonic acid in plasma (r=−0·73, p<0·01),[5] predict less severe symptoms of depression.

This correlation between apparent fish consumption and lower annual prevalence of major depression does not show that fish consumption can cause differences in the prevalence of major depression or that eating fish or fish oils are useful in treatment. Various cultural, economic, social, and other factors can confound this simple correlational relation.



Fish consumption and prevalence of major depression

Simple correlational model with Pearson product moment analysis indicates a potentially substantial interaction between the nearly 60-fold range in annual prevalence rates of major depression and the over 100-fold range of apparent fish consumption, in a multinational comparison.

1 lb=0·4536 kg.

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Food rations for refugees

Sir—Barbara Reed and Jean-Pierre Habicht (Jan 10, p 129)[1] highlight the gap between policy and practice in the distribution of food aid. Refugees generally receive a cereal, an erratic supply of pulses or beans, vegetable oil, and sometimes salt. Most rations are deficient in overall calorie content and inadequate in micronutrient content.

In September, 1990, in the forest region of Guinea, a beriberi epidemic occurred in the Thuo refugee camp among Liberian adults who claimed to have consumed exclusively white rice and vegetable oil, the only rations received for months. Similarly, in 1989 and 1990, pellagra epidemics occurred among Mozambican refugees in Malawi. The attack rate was 0·5% among self-settled refugees and 13·2% in Nyamithutu camp. A case-control study showed that refugees dependent on relief rations were most at risk of the disease.[2]

In November, 1997, the caloric content of refugee rations was increased by the World Food

Programme (WFP) and the UN High Commissioner for Refugees to 2100 kcal per person daily to be in line with recommendations by WHO. However, consideration of energy, protein, and micronutrient content alone are not sufficient. Preparation and cultural acceptability should be taken into account if high rates of malnutrition and regular outbreaks of micronutrient deficiency diseases are to be avoided.

In the Dadaab camps of Kenya, the health of the refugees deteriorated when the ration was decreased from 2100 to 1800 kcal per person daily and the cereal changed to maize. Maize was new to the refugees and they found it unpalatable. Focus groups revealed that the maize was perceived as the main cause of ill-health: "diseases are brought by the bitter maize which UN gives us".[3] Selling of maize to buy rice resulted in net calorie loss of 25% per kg sold. A similar situation occurred in Guinea in 1995, when WFP switched from distributing rice to maize, under pressure from donors to reduce programme cost and fraud. Consequently, many refugees sold maize to buy rice at a loss. On average 5 kg of maize flour was traded for 1–2 kg of rice.

Although, in 1988, a conference held in Geneva[4] conceded that refugees frequently sell rations to improve their diet or to meet non-food needs, this has not changed the attitudes of donors, as Reed and Habicht point out. Donors should tolerate sales, and not interpret them as an indicator of excess. Refugee's own coping strategies should be encouraged and not condemned, and other more rational strategies should be explored, such as cash distributions,[5] which would facilitate farming or other forms of employment, whenever possible.

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HIV-1 infection and prostitutes

Sir—In his Feb 21 news item, Bruno Simini (p 581),[1] states that prostitution is illegal in Italy and that about half the prostitutes are HIV-1 positive. Prostitution is not illegal in Italy, but only its exploitation. In Europe, prostitution is illegal only in Ireland, Iceland, and Malta. As far as the rated HIV-1 seroprevalence among prostitutes in Italy, only 131 (16%) of 802 female prostitutes working in Italy and tested within a cooperative study were HIV-1 positive.[2] However, 95 (39%) of 244 prostitutes who were also intravenous-drug users and 18 (37%) of 48 African prostitutes tested were HIV-1 positive.

We believe that health-information campaigns that suggest the use of condoms to prevent the spread of HIV-1 infection among prostitutes and their clients is inadequate. In fact, prostitutes conscious of their HIV-1 seropositive status are unlikely to use the condom and their clients frequently offer more money to have unprotected sex despite the risk of HIV-1 infection.

We propose that the HIV-1 test should be mandatory for prostitutes and that only those who are HIV-1 negative and do not have other sexually transmitted diseases should be allowed to practise prostitution. This approach could convince prostitutes to always use a condom to continue to practise, whereas HIV-1 positive prostitutes would not be allowed to continue to practise prostitution.

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Need for holistic view of illness

Sir—I wonder why in the UK we are so fixed in our belief that there is a rigid separation between mind and body, between organic and psychological causes of disease. Two conditions in your Feb 14 issue fall into this trap.

In her Feb 14 commentary, Sarah Berga[1] elegantly describes recent advances in the neurochemistry that underlies the premenstrual syndrome, but concludes that these findings "validate [a woman's] sense of having an organic disturbance". Why on earth should it be necessary to validate someone's sense of having an organic rather than a psychological disturbance?

The clue to answering this question comes in Janet Fricker's news item (p 503)[2] in the same issue on repetitive strain injury (RSI). The insulting headline to this item—Repetitive strain injury is real, it's official—clearly implies that if the basis of RSI were found to be psychological rather than in the peripheral nerves, the disorder would not be "real". I suppose this means that obsessive-compulsive disorder and phobic anxiety are not real. Incidentally, the findings on RSI do not prove that abnormalities in peripheral-nerve function cause RSI. According to the report, patients with RSI and office-keyboard workers without RSI both had similar kinds of abnormalities in peripheral-nerve function, which suggests that repetitive use causes neurophysiological abnormalities but does not tell us whether such work causes RSI.

Many patients, especially those with RSI, chronic fatigue syndrome, and other recently described disorders seem preoccupied with the idea that they must find a physical basis for their disorder so as to, in Berga's terms, validate their illness. Such an approach seems also to have infected doctors. This view is based on a grossly naive view of the relation between mind and body, is a hindrance to the proper understanding of disease processes, and should be abandoned.

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Futility and surgeons

Sir—In reply to Kenneth Rockwood's question (Jan 3, p 70)[1] the number of surgeons required to operate the audiovisual equipment can be predicted by the formula $n=c+r$, where c is the consultant and r is the registrar to whom the task is delegated.

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