

Drugs can be used to treat more than disease

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Sir

Your fine Commentary draws attention to some important questions ([Nature 450, 1157–1159; 2007](#)). I agree with the point made by several commentators, that there is a need for better understanding of the long-term effects of using potential cognitive enhancers in an ecological setting. It is one thing to show a short-term positive effect on some artificial lab task; it is quite another to show that long-term use actually leads to sustainable performance gains on important real-world tasks, such as academic output. The former is easier to demonstrate, but the latter is what ultimately matters.

Unfortunately, progress on developing effective cognitive enhancers, and on understanding their long-term effects, is hampered by a shortage of focused research in this area. In general, the potential of enhancement medicine has yet to be fully appreciated.

Prevailing patterns of medical funding and regulation are organized around the concept of disease. Every pharmaceutical on the market with alleged cognitive-enhancing effects was developed as a treatment for some pathology. Its good effects on healthy adults' brains were discovered as fortuitous side effects. This disease-centred framework impedes the development of safe and effective enhancing medicines and has several consequences.

First, it makes funding hard to come by; it also makes it difficult to obtain regulatory approval for enhancement drugs. The result is that those who wish to research cognitive enhancement must often mask their work under the guise of addressing some 'respectable' disease.

Second, in order to gain access to the benefits of a cognitive enhancer, the user must first be classified as sick. This leads to the expansion of diagnostic categories and the invention of new pathological conditions — sometimes to cover cases that in earlier times would have been regarded as within normal human variation.

Third, it contributes to inequity in access. The main obstacle for someone who might be interested in trying modafinil or a related drug is not cost (which is similar to that of a large cup of coffee) but information: knowing that the drug exists and how to obtain it. This discriminates against people with little access to information.

With the cockcrow of enhancement medicine, we need to retool our regulatory paradigm. It is not only special occupations such as military commandos and air-traffic controllers that would benefit from good enhancement drugs. Other jobs are just as important and intellectually taxing — including the jobs of many scientists and academics. Anything that can help our brains deal better with the complex challenges of the twenty-first century is to be not only welcomed but actively sought. But it will require substantial investment to develop interventions that are both safe and effective in long-term use.