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COMMENT

Is Viagra a viable conservation tool? Response to Hoover, 2003

In 1998, we (von Hippel & von Hippel 1998) suggested that the advent of Viagra might take some of the market pressure off a variety of threatened species used to treat erectile dysfunction (ED) in traditional Chinese medicine (TCM). In 2002, we (von Hippel & von Hippel 2002) followed up this initial suggestion by providing a more complete analysis of the species that might benefit if TCM consumers switched to Viagra, and we also provided preliminary evidence that the harvest of a few species used in TCM may have already declined due to the availability of Viagra.

In response to this second publication, Hoover (2003) suggested that trade data do not support a reduction in demand for TCM animal products used to treat ED. Hoover cited a TRAFFIC publication (Lee *et al*. 1998) in which he and his co-authors argued that Asian consumers of TCM products are disinclined to switch to Western medicines. Because of this, TRAFFIC has taken the position that rather than attempting to persuade consumers of TCM products to switch to Western medicines, efforts should instead be expended at persuading TCM consumers to switch from the consumption of threatened species to those of no conservation concern (Lee *et al*. 1998). This is a laudable goal, but pursuit of this goal should not blind conservationists to the possibility that consumers might indeed switch from TCM products to Western medicines, at least for specific maladies.

Of all medical problems for which Western treatments are currently available, ED may be the most likely to motivate a switch to a Western medicine. ED is widespread; an estimated 152 million men worldwide suffered from ED in 1995, and this number is projected to grow to 322 million men by 2025 due to ageing populations (Aytac *et al*. 1999). Additionally, it is a problem of great importance to quality of life (NIH Consensus Conference 1993). Unlike many other Western medicines that are not clearly better than traditional Chinese medicines at treating various maladies, Viagra has an immediate and obvious effect on the consumer and, in the course of a few minutes, can solve the problem in a non-painful manner. Thus, it is possible that Viagra may make inroads with TCM consumers where other Western drugs and procedures have not. This possibility leads to the question: what can we infer from the available data?

Hoover (2003) presented evidence that our optimistic conclusion that Viagra has led to decreased demand for animals used in TCM to treat ED (such as seahorses and seals) might be premature. Hoover (2003) demonstrated an apparent rebound in sales of various animal products used in TCM to treat ED after the period covered by our analysis. However, the data presented by Hoover (2003) do not provide evidence that Asian consumers are not switching from TCM products to Viagra. As Hoover notes, many factors determine demand for animals and, therefore, national data reflecting the harvesting of various animals do not provide clear evidence about the role of Viagra. Thus, it could be the case that demand for TCM animal products for treating ED (such as seal genitalia) has diminished considerably, and yet demand for the same animal for other uses (such as pelts and oil) may have increased, leading to a resurgence in harvesting the animals despite their declining demand in TCM treatments for ED.

Consistent with this possibility, Hoover (2003) acknowledged that prices seem to remain low for seal genitalia, a product that has no apparent uses outside of TCM. In 1996, Canadian sealers processed 30 000–50 000 seal penises (Southey 1997). In 1998, coincident with Viagra's entry to the marketplace, prices fell from the previous range of C$ 70–100 per unit to C$ 15–20, and only about 20 000 seal penises were sold to processors (Department of Fisheries and Oceans 2001). This market virtually disappeared in 1999, and has remained absent (Department of Fisheries and Oceans 2002). However, the overall seal harvest increased from 2000–2001 because of an improved market for seal pelts and oil (Panel on Seal Management 2001). Because seals are harvested for many uses outside of TCM, the most revealing data from the trade statistics are the reduced prices of genitalia in 1998 followed by the collapse of the genitalia market altogether in 1999, not the

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number of seals harvested. Similarly, sales of antler velvet may rebound because of increased TCM uses for other ailments, even if the proportion of demand for ED treatment falls.

Such a possibility might lead us to question whether it matters if demand for an animal part has declined if the animals themselves are still being harvested for other parts or other uses. We would argue, however, that although the rebound in legal seal harvests for pelts and oil (for example) may be disappointing, the possibility that TCM consumers no longer rely on pinniped genitalia to treat ED is still important. First, it is likely to reduce illegal poaching of seals and sea lions for their genitalia, as has often happened in the past (Malik *et al.* 1997), because a major source of demand would have been reduced. Second, when fluctuating demand for seal pelts and oil again subsides, the lack of a market for seal genitalia will allow that reduction in demand for pelts and oil to be translated into a reduction in seal harvesting. Although eliminating causes for animal harvests one by one can be a slow process, often with no apparent yield, this practice has the potential to lead to a non-linear reduction in animal consumption that may be dramatic when the point is reached at which the last major source of demand disappears. Such may be the case with Viagra and TCM treatments for ED.

As should now be obvious, a great deal of the underlying disagreement between Hoover (2003) and us is conjectural, as both papers base their arguments about individual action on national data concerning animal harvests, which have multiple causes. These national data can never provide convincing evidence that TCM consumers have (or haven't) switched to Viagra, regardless of whether harvests increased dramatically or decreased to zero, as other issues aside from TCM consumption could always be the root cause for such increases or decreases. Thus, the sort of debate that we are engaged in could continue in the absence of data that directly address the question of whether TCM consumers are indeed switching to Viagra.

Fortunately, Pfizer recently agreed to fund us to conduct a series of surveys in Hong Kong and India that will directly address the question of whether consumers of indigenous medical products have switched to Viagra in order to treat ED. We know that sales of Viagra are robust in these and other countries where TCM or other traditional medicines form the basis of the healthcare system. In its first three years on the market, Viagra was prescribed to more than ten million men worldwide with 30 million prescriptions issued, and it has been approved in over 110 countries (Sadovsky *et al.* 2001), including most countries with major TCM markets such as China (including Hong Kong), Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan and Thailand. What we do not know is whether this consumption of Viagra is in addition to or in replacement of the traditional products. Only with individual-level data will we be able to answer what is fundamentally a psychological question concerning people's willingness to abandon a cultural tradition in favour of a foreign but efficacious remedy.

A large body of psychological research indicates that people are loath to change their beliefs, and, if necessary, will engage in mental gymnastics in order to maintain their preferred understanding of the world (see Lord *et al.* 1979; Ditto & Lopez 1993). But beliefs eventually accommodate reality, among scientists and lay citizens alike. For the time being, our hypothesis continues to be that TCM consumers have been convinced by the efficacy of Viagra to switch from their traditional practices for this specific ailment.

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