

## Exploring the use of Viagra in place of animal and plant potency products in traditional Chinese medicine

WILLIAM VON HIPPEL<sup>1\*</sup>, FRANK A. VON HIPPEL<sup>2</sup>, NORMAN CHAN<sup>1</sup>  
AND CLARA CHENG<sup>3</sup>

<sup>1</sup>*School of Psychology, University of New South Wales, Sydney 2052, Australia,* <sup>2</sup>*Department of Biological Sciences, University of Alaska Anchorage, 3211 Providence Drive, Anchorage, AK 99508–4614, USA, and* <sup>3</sup>*Department of Psychology, Ohio State University, 1885 Neil Avenue, Columbus, OH 43210, USA*

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### SUMMARY

Recently, conservationists have debated whether consumers of animal and plant potency products used to treat erectile dysfunction (ED) in traditional Chinese medicine (TCM) might be switching to Viagra, consequently consuming fewer of these animals and plants. To address this question, a survey examined the medical decisions of male consumers of TCM in Hong Kong who were over the age of 50. As predicted, these consumers reported selectively switching to Western medicines to treat ED, but not to treat other health ailments. These findings provide support for the possibility that Viagra may have conservation benefits for certain species.

*Keywords:* animal potency products, erectile dysfunction, threatened species, trade, traditional Chinese medicine, Viagra

### INTRODUCTION

Chinese people drive cars, talk on mobile phones and have used computers to transform their way of life. Despite deep-seated mistrust of Western ways, these products have become ubiquitous in China. British people drink tea, eat rice and have used gunpowder to transform their way of life. Despite deep-seated mistrust of Eastern ways, these products have become ubiquitous in the United Kingdom. Why should Viagra be unable to cross cultural boundaries (Hoover 2003) when other useful products are readily assimilated?

Prior to the commercial availability of Viagra in 1998, no product in any medical tradition had been demonstrated in double-blind studies to be an effective and non-intrusive treatment of erectile dysfunction (ED). With the advent of Viagra, the ED treatment landscape in Western medicine changed from procedures that were highly disruptive, painful or involved surgical manipulation to the act of swallowing a pill. With this sudden availability of a simple and effective

treatment for a problem of such personal significance and scope, the possibility emerged that other treatments of unknown efficacy might rapidly disappear.

One such set of treatments happens to be of conservation concern, specifically, the consumption of animal and plant potency products derived from threatened species, prescribed by practitioners of traditional Chinese medicine (TCM). A number of animal and plant products are consumed in this tradition to treat ED (Bensky & Gamble 1993), and some of these animals and plants are threatened with extinction (IUCN [World Conservation Union] 2000), in part because of the collection that takes place to serve the TCM market (for example see Gaski & Johnson 1994; Gaski 1998; von Hippel & von Hippel 2002). For these reasons, when Viagra was introduced to the market, we suggested that it might reduce trade in animal sexual potency products (von Hippel & von Hippel 1998, 2002).

In response to our suggestion that TCM consumers might be switching from animal potency products to Viagra, and that such a switch might be responsible for decreased trade in certain animal parts, Hoover (2003) presented a two-part rebuttal. His first claim was that the preliminary evidence reported in our research regarding reindeer velvet and seal penises was misleading because data from other species in other sites and other years did not support these conclusions. His second claim was that Viagra was not having an impact on trade in animal products because TCM consumers were extremely unlikely to switch to Western medicines and treatments. This conclusion was based on prior research (Lee *et al.* 1998) in which he and his co-authors documented a great deal of suspicion toward Western medicine on the part of TCM consumers. As Hoover and his colleagues have variously noted to the media and in print, the advent of aspirin did not eliminate the demand for rhinoceros horn and thus the advent of Viagra was unlikely to have an impact on the demand for TCM treatments of ED.

We suggest, however, that failure to achieve an erection is not directly comparable to having a headache, a fever, arthritis or the many other ailments for which consumers still prefer TCM treatments. Perhaps the most relevant manner in which treating ED differs from these other ailments lies in the fact that the effect of Viagra is visible and immediate, whereas the effect of most Western medicines is hidden and often delayed.

\* Correspondence: Dr William von Hippel e-mail: w.vonhippel@unsw.edu.au

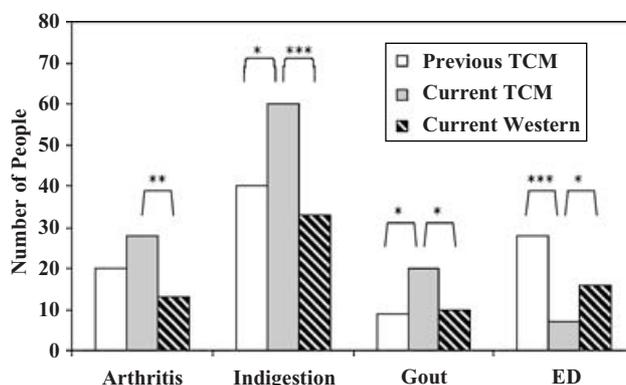
Additionally, ED is a problem of great importance to quality of life (National Institute of Health Consensus Conference 1993). Thus, it is possible that Viagra will make inroads in a market that has previously been resistant to Western treatments (von Hippel & von Hippel 2004). To test this possibility, we conducted a survey of TCM consumers in Hong Kong. The goal of this survey was to assess whether these TCM consumers showed any evidence of selective switching to a Western medicine for the treatment of ED, but not for other ailments.

## METHODS

In January 2004, we surveyed Hong Kong men aged 50 and over who were consumers of TCM. ED is associated with age; approximately 48% of men aged 50 and over experience some degree of ED (Feldman *et al.* 1994). By choosing only men aged 50 and over, we increased the probability that some would be consuming products designed to treat ED. By choosing only consumers of TCM, we were able to provide the clearest test of the hypothesis that consumers of TCM products are selectively switching to Viagra. People of unknown medical habits may be a blend of consumers of TCM and Western medicines, and thus data from such individuals would be ambiguous with regard to whether TCM consumers are switching to Viagra. We conducted the study in Hong Kong because it is a globally-significant TCM marketplace and perhaps the best model for global TCM trends (Lee *et al.* 1998).

Recruitment was achieved by approaching Chinese men who were seeking treatment in a large TCM clinic in Hong Kong and appeared to be over the age of fifty, and asking if they would be willing to participate in our survey on 'Men's health over fifty'. With the consent of the participating clinic, the men were approached by a male native-Cantonese-speaking experimenter, who wore a laboratory coat and a name-tag that accurately identified himself as a psychologist. The experimenter explained in Cantonese that he was conducting a survey of men's health over the age of 50, and asked if they were age 50 or over and willing to answer a few questions about their health behaviour. Two-hundred-and-fifty-six men between the ages of 50 and 76 (mean = 55.5, SD = 6.8) agreed to participate.

The experimenter then asked participants to indicate whether they had previously taken, were currently taking, or had never taken a TCM remedy for four different health problems. Participants responded to this question regarding arthritis, digestion problems, ED and gout. The same question was then asked about these four maladies, but participants were now asked whether they had previously taken, were currently taking, or had never taken a Western remedy for each of these ailments. After answering these questions, participants were paid HK\$ 50 in the form of a traditional New Year's gift and were thanked for their participation.



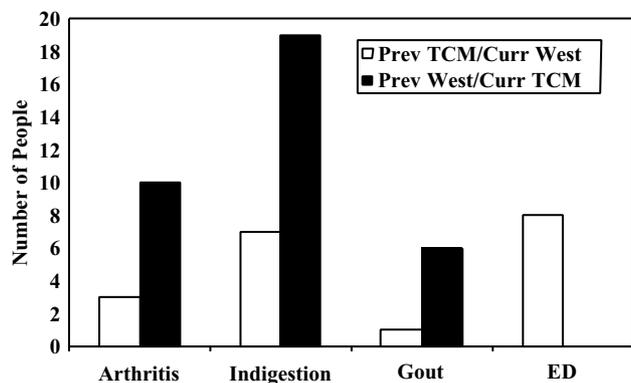
**Figure 1** Frequency counts reflecting usage of TCM and Western medical treatments for four different health problems. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

## RESULTS

If consumers of TCM products are selectively switching to Viagra as a treatment for ED, then they should be less likely to be currently taking a TCM remedy for ED than to have previously taken such a treatment. Similarly, they should be more likely to be currently taking a Western remedy than a TCM remedy for ED. In contrast, consumers of TCM should be equally or more likely to be currently taking a TCM remedy for arthritis, indigestion or gout than to have previously taken such a treatment. Similarly, they should be less likely to be currently taking a Western remedy for arthritis, indigestion or gout than to be currently taking a TCM remedy for these ailments. To test these predictions, frequencies of responses for each health problem were tallied.

Comparisons of previous to current use of TCM treatments were as predicted (Fig. 1). A greater number of participants indicated that they are currently taking a TCM remedy for arthritis, indigestion and gout than indicated that they had previously taken such a remedy. This difference was not significant in the case of arthritis ( $\chi^2(1) = 1.33$ ,  $p > 0.20$ ), but was significant in the case of indigestion ( $\chi^2(1) = 4.00$ ,  $p < 0.05$ ) and gout ( $\chi^2(1) = 4.17$ ,  $p < 0.05$ ). In contrast, in the case of ED, a greater number of participants indicated that they had previously taken a TCM treatment than indicated that they are currently taking such a treatment ( $\chi^2(1) = 12.60$ ,  $p < 0.001$ ).

Perhaps the most important comparison involves current use of TCM versus Western treatments. Here, the results are again consistent with the hypothesis that TCM consumers are selectively switching to Western treatments only for ED and not for the other ailments (Fig. 1). If we eliminate the consumers who report that they are currently using both TCM and Western treatments, analyses indicate that participants were significantly more likely to be currently taking a TCM treatment than a Western treatment for arthritis ( $\chi^2(1) = 8.33$ ,  $p < 0.01$ ), indigestion ( $\chi^2(1) = 14.88$ ,  $p < 0.001$ ) and gout ( $\chi^2(1) = 6.25$ ,  $p < 0.05$ ). In contrast to this general preference



**Figure 2** Frequency counts reflecting people who have previously used a TCM treatment but are currently using a Western treatment, and people who have previously used a Western treatment but are currently using a TCM treatment for four different health problems.

for TCM treatments, these men were more likely to be currently taking a Western treatment than a TCM treatment for ED ( $\chi^2(1) = 5.40$ ,  $p < 0.05$ ). All of these analyses remain significant if the consumers who report that they are currently using both TCM and Western treatments are split evenly between the two categories (four consumers of ED treatments, seven consumers of arthritis treatments, 22 consumers of digestion treatments and seven consumers of gout treatments).

Finally, we examined those consumers who stated that they had previously used either Western or TCM treatments for the different ailments, to assess whether these individuals had then switched to current use of a TCM or Western treatment (Fig. 2). Here again the pattern was consistent with the other findings, such that participants were more likely to switch from Western to TCM treatments than from TCM to Western treatments in all cases except ED, where the pattern was reversed. More specifically, analyses revealed that participants were more likely to have switched from previous use of a Western treatment to current use of a TCM treatment than vice-versa for arthritis, indigestion and gout, although sample sizes were only large enough in the case of indigestion to analyse statistically ( $\chi^2(1) = 5.54$ ,  $p < 0.02$ ). In contrast to these findings, in the case of ED, participants were more likely to have switched from previous use of a TCM treatment to current use of a Western treatment than vice-versa (although sample sizes were again too small for reliable statistical analyses). Indeed, not a single participant who was a previous user of a Western treatment for ED reported being a current user of TCM for ED, suggesting that previous users of Western treatments for ED were simply not taking any treatment for the problem at the current time.

## DISCUSSION

The results of this survey support the hypothesis that TCM consumers are selectively switching to Western medicines to

treat ED. When interviewed in a TCM clinic while waiting to see a TCM practitioner to treat a health problem, our respondents provided three key findings. First, they were more likely to have previously tried a TCM treatment for ED than to be currently using a TCM treatment for ED (Fig. 1). Second, they were more likely to be currently using a Western treatment for ED than a TCM treatment for ED (Fig. 1). Third, for those consumers who reported previously treating their ED, several had switched from a TCM treatment to a Western treatment whereas none had switched from a Western treatment to a TCM treatment (Fig. 2). These findings stand in contrast to their behaviour regarding other health maladies, for which they were more likely to be currently using a TCM treatment than to have previously used such a treatment, more likely to be currently using a TCM treatment than a Western treatment (Fig. 1), and more likely to have switched from a Western treatment to a TCM treatment than vice-versa (Fig. 2).

Perhaps because achieving an erection is so important to life satisfaction (National Institute of Health Consensus Conference 1993), or perhaps because the effects of Viagra are apparent to the naked eye, TCM consumers seem willing to switch from their traditional medical practices to embrace a treatment that does not address underlying imbalances as the cause of physical maladies. It should be noted, however, that a few of our TCM consumers spontaneously mentioned that although they thought Viagra was better than TCM products at enabling them to achieve an erection on demand, they nevertheless felt that the underlying cause of ED was not treated by Viagra and was more effectively addressed by TCM approaches (reflected in the fact that four participants were currently relying on both TCM and Western treatments of ED). This sentiment is consistent with the findings of Lee *et al.* (1998) and it demonstrates that, even in a case as clear-cut as having an erection or not, some consumers may adopt a blend of approaches that represents what they regard as the best practices of various traditions.

The current results are consistent with the possibility that Viagra is reducing trade in threatened species used to treat ED. Although Hoover (2003) provides trade data for a variety of species, such as seahorses, that are inconsistent with this possibility, our survey results are consistent with the failure of the seal penis market to show a rebound in price or volume (Department of Fisheries and Oceans 2003). Thus, at this point, findings with the international trade data must be regarded as mixed with regard to our hypothesis.

In the case of the Canadian seal trade, despite the 2001 and 2002 resurgence in the harvest of harp seals (*Phoca groenlandica*) as a result of improved markets for pelts and oil (Panel on Seal Management 2001; Department of Fisheries and Oceans 2003), there has been no commensurate surge in the sale of these animals' genitalia (Department of Fisheries and Oceans 2003). It is our prediction that the price of seal penises will remain low and the market for them will remain limited, reflecting a permanent decline in demand. Seal penises currently have little use outside of the animal

potency trade, and thus their trade provides a relatively clear picture of the impact of Viagra and other new ED drugs on the consumption of TCM animal sexual potency products. This depressed trade in seal penises, in combination with our survey of TCM consumers, indicates that Viagra and other new ED drugs may be having a conservation benefit, at least with regard to certain animal species.

The TCM pharmacopeia includes many species of threatened plants and animals that are not used primarily to treat ED (Bensky & Gamble 1993). The species used primarily to treat ED represent only a small fraction of threatened-species use, and all of these species are also used to treat at least some other ailments. It is not clear whether other Western medicines will eventually make inroads in the treatment of these ailments among TCM consumers, but our data on selective switching for ED suggests that they have not done so yet. Therefore, comprehensive conservation strategies are necessary to reduce harvests of all threatened species used in TCM. Already, conservation groups such as the World Wide Fund for Nature (WWF), TRAFFIC and Project Seahorse have engaged TCM groups to conserve the very species upon which TCM depends. But the shift in TCM practices toward a conservation ethic will need to be accelerated if it is to reverse wildlife declines.

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