

**You Might as Well Smoke;
the misleading and harmful public message about smokeless tobacco**

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Competing Interests

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ABSTRACT

Western smokeless tobacco (ST) products are substantially less harmful than smoking cigarettes. This creates the potential for smokers to eliminate almost all risk from nicotine use by switching to ST, an obvious substitute. But consumers and policy makers have little chance of learning that ST is much less dangerous than smoking because popular information, provided by experts and advocates appears to intentionally overstate the health risks from ST as compared to cigarettes. To examine the extent of this overstatement, we conducted a systematic review of websites containing information about ST and health risks. We examined the content of 316 relevant websites returned by a Google search. We found that the risk from ST is almost universally conflated with the risk from cigarettes. Accurate comparative risk information was quite rare, provided by only a handful of websites, all appearing low in our list (i.e., of low popularity and unlikely to be found by someone doing a search for information). About 1/3 of the websites, including various authoritative entities, explicitly claimed that ST is as bad or worse than cigarettes. Most of the rest made statements that imply the risks are comparable. Through these websites (and presumably other information provided by the same government, advocacy, and educational organizations) ST users are told, in effect, that they might as well switch to smoking if they like it a bit more. Smokers and policy makers are told there is no potential for harm reduction, an unethical message that is both false and harmful to people's health.

Introduction

The negative health consequences of smoking cigarettes are well known. What is less well known is that not all tobacco products create similar levels of risk. In particular, use of Western smokeless tobacco (ST) is substantially less harmful than smoking cigarettes. This should not be surprising, given that ST use does not expose the body to smoking's harmful combustion products and assault on the lungs. But even many health experts do not realize there is a major difference, perhaps because of repeated messages about "tobacco", as if all products made from that plant have the same health implications.

ST is usually only linked to one life-threatening disease, oral cancer (OC), and even that association may apply to the types of products that increasingly dominate ST use in the West.[1] Claims of OC risk are largely based on a single study[2] and is contradicted by a substantial portion of the evidence about modern moist snuff.[3-6] The lack of evidence of association with other diseases is not a result of a lack of research; there have been extensive attempts to find health risks from ST, including in Swedish populations where prevalence of use is high.

Even if accepting the common claims of OC risk from ST use, that risk is substantially less than the risk from cigarettes for OC alone, let alone total risk from more common diseases. The most frequently repeated estimate conservatively puts the risk of premature mortality from ST use at 2% of that from cigarettes.[7,8] The Royal College of Physicians recently stated that the risk from ST might be as low as 1/1000 that from cigarettes.[9] The Royal College and another recent high-profile report suggest an upper bound estimate of 1/10 the risk,[10] but the available epidemiology suggests that this is very conservative. Whatever the exact magnitude, the conclusion is that cigarettes are considerably more harmful than ST.

This comparison is more than a matter of curiosity or perspective; the products are obvious substitutes. Among the several things a smoker can do to eliminate most of the risk of nicotine use (e.g., quitting nicotine entirely or using pharmaceutical nicotine products), switching to ST is unique in allowing continued consumption of nicotine using a product for which there is a history of consumer demand. For some smokers, this switch – a "harm reduction" strategy – offers the best chance of changing their behavior to eliminate the huge risk from smoking. Calls for such a strategy are increasing in popularity among advocates and in the media.

But most people have little chance of learning that ST is much less dangerous than smoking. Popular information, provided by experts and advocates, appears to intentionally overstate the health risks from ST as compared to cigarettes. Consumers are thus unaware that switching from cigarettes to ST provides huge health benefits, and government officials in the many countries where ST is much more restricted than cigarettes are given no reason to change policies. Moreover, current ST users have little way of learning that switching to cigarettes would be a terrible mistake.

Unethical messages

A preeminent tenet of modern health and medical ethics is the right of individuals to make fully-informed autonomous decisions, and the obligation of health experts, clinicians, and policy

makers to provide the information and permit the autonomy. This obligation is clearly not being met in this case.

Kozlowski and O'Conner recently challenged the U.S. Centers for Disease Control and Prevention (CDC) and the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) over the content of their websites, which included clearly false claims that ST poses a similar health risk to cigarettes.[11] Kozlowski and O'Conner reported that following their protests, CDC changed their website (SAMHSA did not), though the change was merely from out-and-out falsehood ("Is smokeless tobacco safer than cigarettes? NO WAY!") to a literally true statement that still misleads readers, as discussed below.

That was just the tip of the iceberg. Providers of popular information about the risks from ST appear to systematically and almost always obscure the huge contrast with smoking.

Methods

To examine the extent of systematic overstatement of the risks from ST, we conducted a systematic review of popular sources of information, looking at websites that implicitly purport to deliver a public service message about ST and health risks. (We have previously presented some results of this research.[12,13])

With an increasing portion of those seeking health information turning to the web[14,15] information found there provides a good measure of what people might learn. While websites do not contain all popularly available information, many people searching for information on this topic would start with a web search and most organizations who have a stated position on the topic, particularly those actively trying to influence popular opinion, have a web page that reflects their claims.

We performed a Google search for [tobacco AND cancer AND (smokeless OR snuff OR dip OR spit OR chew OR chewing)], the latter disjunction covering most of the synonyms for "smokeless". We conducted the search on 3 May 2003 and stored the results offline so they would not change when re-accessed. The search reported 124,000 page hits. Google's filter (which eliminates poor matches, similar pages, including most (but not all) similar multiple page hits at a single domain, as well as many less popular pages that are not good matches to the search terms) narrowed this to 763 displayed matches. We restricted our analysis to these 763 as a way of narrowing the analysis to a manageable scope that focuses on sites that are more popular.

We were interested in public service sites (as implicitly self-defined, without an attempt on our part to judge what is a genuine public service) or health advice/information sites which state an entity's own opinion about the health risks from ST, so our protocol eliminated: sites that were selling tobacco products or methods for quitting tobacco (with one exception discussed below); news of the day; search engine, web maps, and other sites that just provide links; sites from South Asia (because the products dipped there contain other major ingredients have a very different epidemiology from Western moist snuff); and scientific literature (scholarly papers, journals, and conference abstracts). Eliminating these and the double counting from organizations that were duplicated resulted in 316 web presences in our population.

The search terms limited the results to English language sites. The vast majority were U.S. entities, with a handful from the U.K., Canada, and other countries.

For each included website, we searched the entire website (not just the page hits from the Google search) for statements about the health effects of ST and collected the results. We ignored information that was clearly not the position of the sponsoring organizations (e.g., quotations of material they were disagreeing with; postings on message boards). We initially reviewed the websites between 4 May 2003 and 11 June 2003 and printed out relevant pages. We audited our results and expanded the collected data during the period 25 September 2003 through 8 December 2003. To maximize consistency, multiple researchers viewed each website, and ambiguous codings were discussed by the group.

The ordering of the websites in our list is important because those that are earlier are more popular (i.e., more likely to be linked to from other sites, accessed more often) and are much more likely to be found and accessed by someone doing a search. In the results presented below, the hit number is a website's the ranking within in our list of 763, with lower numbers being higher ranked (earlier in the list). For websites that generated multiple hits, we present the highest ranked hit unless otherwise noted.

Results

The risk from ST is widely conflated with the risk from cigarettes on websites that provide health advice and information. Almost every website had statements that played up the health risks from ST without caveat, making it difficult for consumers to recognize the huge contrast with cigarettes. The quantitative claims of health risks from ST were very often beyond a worst-case-scenario interpretation of the scientific literature. A large portion of websites directly stated or implied that the risks from ST and cigarettes are similar.

As noted above, the most salient feature of the comparative risks of smoking and ST is how different they are, a message that is buried deeply in the results of our search.

Very Little Accurate Comparative Risk Information

Very few websites provided accurate information. Two organizations, ASH (Action on Smoking and Health) in the U.K. and the American Council on Science and Health in the U.S. (ACSH) were the most prominent sources of accurate comparative risk information. Their highest appearances in our search were hits 96 and 93, respectively, meaning they would likely not be found by someone seeking information on ST who was not specifically looking for them since most people seldom read beyond the first few tens of hits.[16,17] Moreover, it was not until hit 491 that ASH's major harm reduction statement,[10] probably the most prominent current call to consider harm reduction for cigarettes, appears. ACSH's harm reduction message appears at hit 120.[16] The earlier hits were actually anti-harm-reduction statements, apparently presented by those organizations to acknowledge other positions, which probably ranked higher because more other websites linked to them.

Brad Rodu, a professor of pathology and dentistry at the University of Alabama at Birmingham (UAB), is the longtime leading advocate of the use of ST as a harm reduction strategy for

smoking. His pages at UAB provide comprehensive information on the topic, but was only hit 625 on our list.[18] A commercial site (included because of its extensive health message) for a quit-smoking product, hit 408, is a mirror of an old version of Rodu's UAB pages, posted under Rodu's name with his permission.[19] Despite his numerous publications on the topic, the only earlier entries on our list that would lead to Rodu's work was hit 276, one of his op-eds in the news archives from an anti-tobacco organization, and the aforementioned ACSH hit 120.[16]

Only three other sites mentioned that ST use is not as bad as cigarettes, and they offered little more than mentions.[20-22] Astonishingly, we were unable to find any other statements about the much lower risk of ST compared to smoking. No high-ranking sites provided the information tobacco users would need to make choices based on which product is safer. Notably, no site from the most prolific source of information, the U.S. government, provided such information (excluding a few scholarly or technical papers that can be downloaded from the sites but are not presented as the government's message to consumers). Indeed, they consistently provided misleading information, as did popular medical advice sites and the best-known advocacy groups.

Misleading Comparative Risk Information

The most prevalent messages were those that would tend to convince readers that the health risk from ST is comparable to that from smoking.

We identified 237 of the remaining 309 websites in our population as discussing the risks of smoking and ST in proximity to each other. Any juxtaposition of health claims about the two products that does not make clear the very different absolute risk, even if it makes no explicit comparison, implies to readers that the risks are comparable. Most websites did more than juxtapose, making specific statements that reinforced this implication.

Explicit Claims of Equal Risk

We identified 108 websites that claimed that the risks from ST are as bad as or worse than those from smoking. Most often this took the form of an explicit statement that ST is not safer than smoking. It is worth noting that this is equivalent to saying that you are better off, or at least no worse off, deciding to smoke rather than use ST.

Examples include various authoritative entities:

- American Cancer Society: "Some people believe that using smokeless tobacco is safer than smoking. This is not true." [23]
- World Health Organization: "There is also a prevalent myth that it is less dangerous than smoking. The reality is that smokeless tobacco is just as addictive and fatal as cigarettes." [24]
- U.S. Department of Health and Human Services (the statement noted by Kozlowski and O'Conner): "Q. Isn't smokeless tobacco safer to use than cigarettes? A. No." [25]

The recent statements of the U.S. Surgeon General (including "There is no significant scientific evidence that suggests that smokeless tobacco is a safer alternative to cigarettes"[26]) came subsequent to our data gathering, and would thus not appear in our results.

Implicit Claims that ST is Worse than Cigarettes

Of the 108 websites making claims that ST is as bad or worse than cigarettes, 26 suggested that ST is worse than smoking by likening the risks and then identifying differences that exclusively favor smoking.

A typical example appears in the second highest-ranking website from our search, the Academy of General Dentistry: "Isn't it safer than smoking? Absolutely not. Some wrongly believe that spit tobacco is safer than smoking cigarettes. But spit tobacco is more addictive because it contains higher levels of addictive nicotine than cigarettes and can be harder to quit than cigarettes. One can of snuff delivers as much nicotine as 60 cigarettes." Though there is no explicit claim that ST is worse – the explicit claim is simply that it is no better – the comparisons that follow imply that it is better to smoke than to use ST.

Implicit Claims of Equal Risk

Of the websites not making explicit claims that ST is as bad as or worse than cigarettes, 141 made statements that directly imply that risks from ST are comparable to those of smoking, while another 29 simply juxtaposed the two risks without suggesting there are differences.

There are various literally true statements that are apparently intended to dissuade readers from the (accurate) belief that ST is safer than smoking. Some might argue that such statements do not violate ethical rules that prohibit lying. On the other hand (as has been widely discussed regarding recent U.S. government policy in other arenas), clearly misleading statements that are carefully crafted to be literally true are arguably worse than literally false statements. They suggest that the authors know the truth and believe it is sufficiently clear that they should maintain a plausible claim they are not contradicting it, but are still trying to get people to believe the falsehood.

The most popular type of literally true misleading information are comparisons with smoking where ST is characterized as "not a safe substitute to smoking cigarettes" or "not harmless," or by saying "there is no safe tobacco." (The former of these is quoted from the 1986 U.S. Surgeon General's report[27] or the similar warning on 1/3 of the units of ST products sold in the U.S.) We identified 62 websites making such claims. Since basically nothing is perfectly safe, these statements are literally true, but the comparison implies more than the literal interpretation, "it would not eliminate every last bit of risk to switch from cigarettes to ST." Saying "ST is not a safe alternative" without any hint of the fact that it is *immensely safer* implies that there is no benefit from switching from smoking to ST or, equivalently, no loss in switching from ST to smoking.

We identified 55 websites where ST and smoking risks were combined in lists of health effects or attributable risk, either by conjunction or by using the word "tobacco" in contexts where it refers to both products. A popular U.S. health advice site, Virtual Hospital, states, "Both cigarettes and smokeless tobacco are harmful to your child's health," followed immediately by detailing the

known health effects of smoking.[28] The U.S. National Library of Medicine's consumer advice site, MedlinePlus, under the heading "Tobacco use, smoking and smokeless tobacco," states, "Tobacco and its various components increase the risk of cancer (especially in the lung, mouth, larynx, esophagus, bladder, kidney, pancreas, and cervix), heart attacks and strokes, and chronic lung disease." [29] Absent a statement of relative effects, this tends to imply that the components of the conjunction contribute similarly to the claimed outcomes. These conjunctions are particularly common in the later Google hits which only briefly mention ST, often in a broad discussion of risk factors, suggesting that most brief presentations of the health effects of ST conflate the exposure with smoking.

The U.S. National Cancer Institute (NCI) had the largest number of search hits (all of the first 4 and 16 others). We found no literally false claims. However, they did include many literally true misleading claims, including "not a safe alternative," [30-32] and lumping together attributable risk from ST for oral cancer with the (many times greater) risk from cigarettes. [32,33] A particularly misleading conjunction is, "Smoking tobacco, using smokeless tobacco, and being regularly exposed to environmental tobacco smoke are responsible for one-third of all cancer deaths in the United States each year." [34] Even the worst-case scenario for claims about the risk from ST would make it responsible for about 1/1000 of this attributable risk.

Relative popularity

The imbalance of good and bad information is worse if we focus on the hits from earlier in the list (i.e., the ones more likely to be found and accessed). Looking at the first 90 hits, those that appear before a searcher would see ASH, ACSH, or any accurate comparative risk information yields 44 websites in our population. Those include 13 that claim ST is as bad or worse than cigarettes and 19 others that use one of the rhetorical devices to imply the risks are similar.

Conclusions

Even knowing that the available popular information was skewed, we were astonished to find the ubiquity of misinformation and the rarity of accurate information. We expect that the mix of information we found is similar to that provided in pamphlets, public service messages, and other popular media, particularly since the organizations represented in our websites are the same ones that provide that information. A recent study reporting some information about pamphlets tends to confirm this. [35]

The negative health implications of preventing people from realizing that ST is relatively safe should not be underestimated. ST users are told, in effect, that they might as well switch to smoking if they find they like it a bit more. The much larger population of smokers is told that they cannot switch to safer tobacco use, a message that is often characterized as "quit or die." It is extremely difficult for anyone to deliver a harm reduction message in the face of the widespread misperception that is fueled by the misinformation. At this point, we can only speculate about how many smokers would take advantage of this opportunity to reduce their risk by two orders of magnitude or more.

Health advocates, particularly those in public service, have an affirmative ethical duty to tell the truth. It is difficult to justify keeping the truth from people, even when it might be harmful; it is clearly unjustified when it would be beneficial.

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