An instrument for consumers to discriminate inaccurate information on the Internet

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Abstract

People retrieve health information from the Internet that is unfiltered and not always accurate. To assist health care consumers, we tried to develop a simple instrument to discriminate inaccurate information. We hypothesized that accurate statements were likely to be repeated and inaccurate statements were likely to be refuted when multiple results from the same search were reviewed. We investigated information on irritable bowel syndrome (IBS), which is common around the world. We identified inaccurate statements on websites displaying information about IBS. The numbers of websites supportive for and opposed to each inaccurate statement were counted. The former was smaller than the latter in each inaccurate statement in both English and Japanese websites. This indicates that health care consumers can confirm online information by comparing multiple sites found on the same search.

Introduction (1)

Health information on the Internet is important

- ✧ Accounted 2% of all websites (http://www.nua/surveys/how_many_online/index.html 2002)
- ✧ Retrieved by 32% of patients in US and 22% of patients in Japan (J Med Internet Res 2001)
- ✧ Affected the decision making of 70% of patients in the US (Pew Charitable Trusts 2000)

The Internet contains inaccurate information

- ✧ 32% of bladder cancer sites (J Urol 2003)
- ✧ 6% of sarcoma sites (Cancer 1999)
- ✧ 14% of melanoma sites (J Clin Oncol 2002)

Introduction (2)

1. Existing quality assessment tools can not help consumers determine whether a specific statement is true or false.

2. To support consumers, we tried to develop a simple instrument to discriminate inaccurate information.

Methods

1. **Keywords related to IBS**

   selected by Overture keyword tools (English and Japanese)

2. **Websites**

   collected each top 10 sites retrieved by Google and selected

3. **Inaccurate statements**

   extracted from the websites above using published literature[1-5] as a standard

4. **Numbers of websites that support and refute each inaccurate statement**

   counted in the websites above as well as in the same search results

Table 1

Websites selection

	English sites	Japanese sites
Retrieved by Google	**120**	**120**
– **selected**	**48**	**31**
– **excluded**	**72**	**89**
• duplicated	45	55
• inaccessible	7	11
• irrelevant	11	15
• anecdotal information / testimonial advertising	5	3
• link page	2	1
• foreign language	2	4

Table 2

IBS information covered by websites and inaccurate statements

(# websites with inaccurate statements; # inaccurate statements)

	English 48 sites	Japanese 31 sites
Epidemiology	31 (0; 0)	11 (1; 1)
Pathophysiology	31 (0; 0)	28 (5; 6)
Diagnosis	20 (5; 7)	11 (2; 2)
Signs/symptoms	32 (3; 3)	30 (1; 1)
Prognosis	26 (0; 0)	8 (1; 1)
Treatment	41 (2; 3)	21 (1; 1)

Table 3

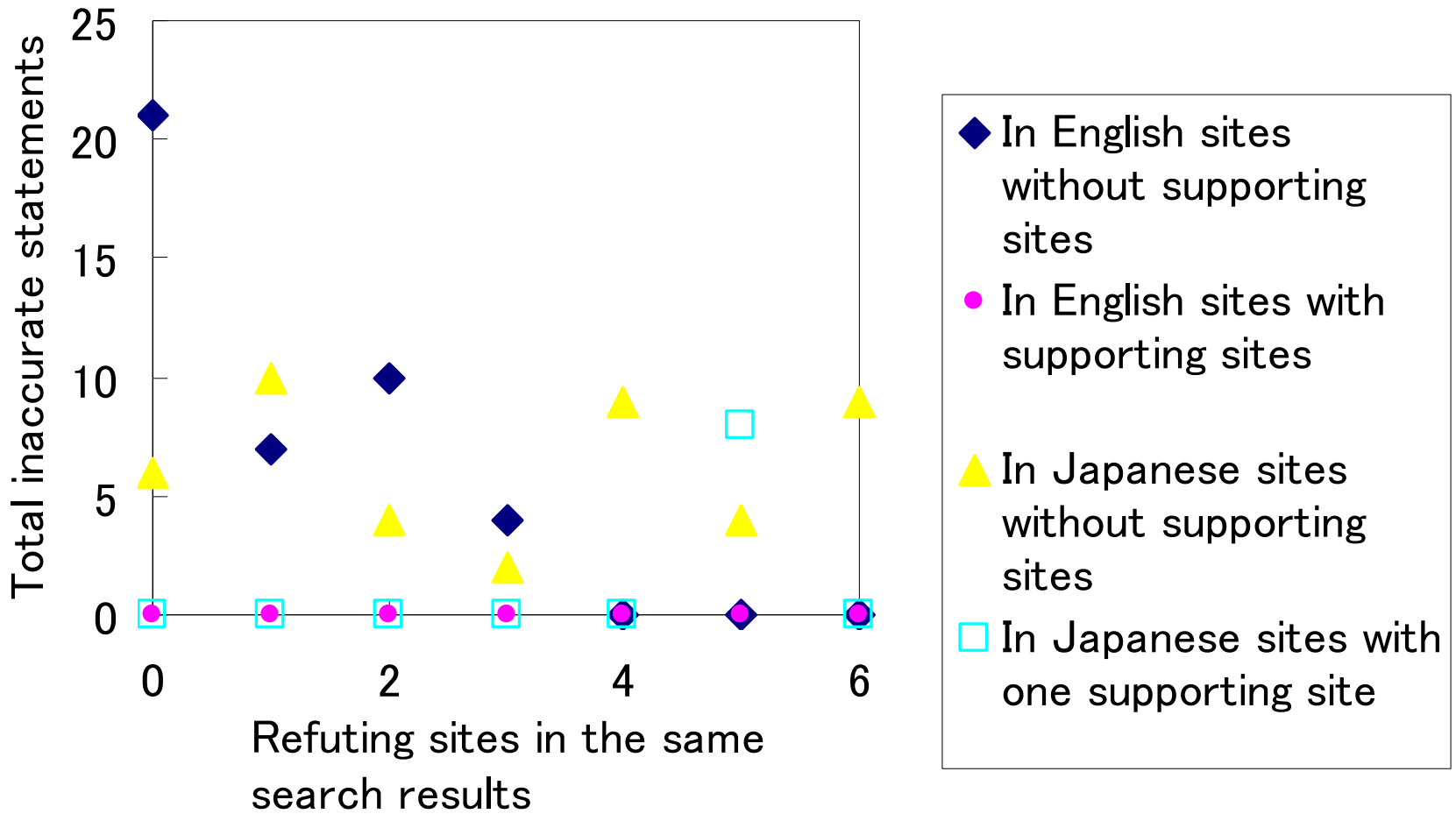
Number of sites supporting and refuting each inaccurate statement (mean ± SD)

	Supporting sites	Refuting sites
In the selected sites:		
English 48 sites*	0.77 ± 0.73	5.07 ± 1.85
Japanese 31 sites*	1.00 ± 1.48	11.75 ± 8.75
In the same search results:		
English sites*	0.00 ± 0.00	0.93 ± 0.16
Japanese sites*	0.15 ± 0.05	3.35 ± 2.12

* $P < 0.01$, difference between numbers of supporting and refuting sites (two-sided Wilcoxon`s rank test)

Figure 1

Inaccurate statements and refuting sites in the same search results



Results

1. From 120 sites each, 48 English and 31 Japanese sites were extracted for evaluation.
2. A total of 13 and 12 inaccurate statements were respectively contained in English and Japanese sites. At least one inaccurate statement was found at 20.8% of English and 35.5% of Japanese sites evaluated.
3. For each inaccurate statement, there were more refuting sites than supporting sites retrieved by the same search: 0.93 vs. 0.0 in English sites and 0.15 vs. 3.35 in Japanese sites.

Conclusion

Consumers may be able to validate statements by looking at websites retrieved by the same search. Statements with more refuting sites than supporting sites will be inaccurate.

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