

Improving the transparency of health information found on the Internet through the HONcode

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Abstract: This study aims to show that the HONcode developed by the Health on the Net Foundation improves the transparency of the health information found on the Internet. We wanted to demonstrate that most of non-certified websites do not respect health quality criteria. In a longitudinal study, the compliance by health websites applying for certification to the eight HONcode principles and respect to principles 1, 4, 5 and 8 was evaluated during the certification application (T0) and 6-8 months after obtaining certification (CW). This analysis shows that these health websites do not respect spontaneously the HONcode principles. The certification process led them to respect them which lasted at least until 6-8 months after obtaining the certification.

Introduction

In the USA, studies show that the proportion of people who search for health information varies from 31% to 68% [1-2] and from 8% to 29% in Europe [3-4]. In a survey made online [5], 93% of the web users declared that they had looked for health information on the Internet during the last year. What about the quality and information given to the public by the websites? Wrong or incomplete or deceptive health information on health websites has been described [6]. The study mentioned here was conducted within the HAS-HON partnership. We wanted to demonstrate that most of websites not certified do not respect health quality criteria. For this reason we have focused on health websites which have never asked for the HONcode certification, thus not certified. We also wanted to demonstrate that the certification of a website will ensure respect for the criteria during the life of the site. Finally, we wanted to show that the certification contributes to improve the transparency and good practices of providing online health information. This study has been conducted in France. In France, a bill encourages websites to be certified but not all health websites request the certification. The certification model chosen is the HONcode carried out by the HON Foundation.

Method and Material

Longitudinal study

The longitudinal study was conducted from May 1st to November 1st 2008. Were included 165 health websites whose publisher was located in France and applying for certification for the first time or certified for less than three months within the period of May 1 to August 1, 2008.

The study compared the compliance to the eight HONcode principles of health websites before (T0) and 6-8 months after the certification (CW). A second analysis was made to observe the website conformity to HONcode Principles 1, 4, 5 and 8 (Table 1).

Statistical analysis

The observed percentages of the websites consistent with the 8 HONcode Principles, and of those consistent with Principles 1, 4, 5 and 8, were calculated and compared by a Mac Nemar χ^2 test at a 5% threshold. The exact confidence intervals (CI) were calculated.

Health websites evaluation

All the websites included in the study were evaluated by two evaluators from HON. For the evaluation, principles 2 and 4 are divided in 3 and 2 sub-parts respectively, leading to a total of 11 observations.

For each website, the respect or non-respect of each HONcode Principle was scored 0 (in conformity) or 1 (in nonconformity).

To summarize, a website applying to the certification is evaluated on the conformity to the 8 HONcode principles by a HONcode Committee, via the internet www.hon.ch/HONcode/HONcode_membership_f.html. The certification is issued for one year, with a systematic annual re-evaluation at the due date of the certificate as well as regular automatic surveillance by a HONcode robot.

Results

165 websites were included in the study. The percentage of T0 and CW compliant with the HONcode were respectively 44% (CI at 95%: 36 - 52) versus 89% (CI at 95%: 83 - 93), $p < 10^{-4}$.

At T0, principles less respected were principle 2 (21% of websites), principle 3 (38% of websites), principle 4 (21% of websites), principle 7 (22%) and principle 8 (21% of websites). For CW, 18 websites were non compliance to: 1 principle for 13 websites, 2 principles for 2 websites, 3 principles for 2 websites and 4 principles for 1 website. The percentages of non-compliant websites, classified according to the HONcode principles observed for T0 and CW are 44% and 89% respectively. In total, throughout the 165 websites evaluated, 281 non-compliances were recorded for T0 websites against 27 to CW.

Table 1 Presentation of the HONcode Principle (summarized)

- 1. Authoritative:** indicate the qualifications of the authors
- 2. Complementarity:** information should support, not replace, the doctor-patient relationship, the mission and the audience are explicated.
- 3. Privacy:** Respect the privacy and confidentiality of personal data submitted to the site by the visitor
- 4. Attribution:** Cite the source(s) of published information, date and medical and health pages
- 5. Justifiability:** Site must back up claims relating to benefits and performance
- 6. Transparency:** Accessible presentation, accurate email contact
- 7. Financial disclosure:** Identify funding sources
- 8. Advertising policy:** Clearly distinguish advertising from editorial content

HONcode conformity before (T0) and after certification (CW)

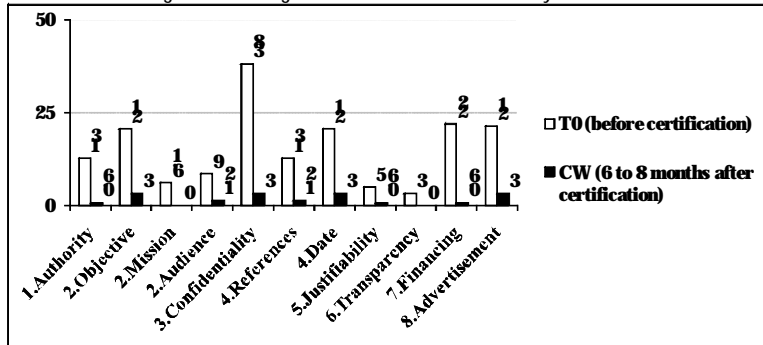
The percentage of T0 and CW compliant with the principles 1, 4, 5 and 8 of the HONcode were respectively 64% (CI at 95%: 56 – 72) versus 92% (CI at 95%: 87 – 96) ($p < 10^{-4}$) (Fig 1). At T0, 59 websites did not meet at least one of these 4 principles, including 38 websites that did not meet 2 or more of these 4 principles. After 6 to 8 months of certification, 13 websites were not compliant with the 4 principles, 12 websites due to non-compliance with 1 of these 4 principles and 1 website to 2 of these 4 principles.

Discussion

Outside the certification process, the respect of the HONcode principles by health websites appears to be low. In our study, only 44% of T0 websites respect all the HONcode principles against 89% for certified websites, with a p-value highly significant ($p < 10^{-4}$). This finding is reinforced by the results of previous studies: [8-9] who assessed respectively 33 and 19 websites found no websites that respect spontaneously all HONcode principles. In another study [10], covering 90 websites only 15% of the websites were in compliance with all the HONcode principles. Certification appears to be an effective means of enforcing the HONcode principles of sustainable way since 89% websites were always compliant 6 to 8 months after obtaining the certification. The study of principles 1, 4, 5 and 8 leads to similar conclusions. These four principles relate to the quality of information disseminated. In this study, the percentage of websites compliant with the principles 1, 4, 5 and 8 was greatly improved after the certification, growing from 64% to 92% for the CW websites ($p < 10^{-4}$). This study shows that health websites do not respect the quality criteria such as those proposed by the eEurope 2002 [11]. It shows that certification leads

websites to respect the HONcode criteria, thus improving the quality of websites and the information they propose.

Fig. 1. Percentage of HONcode non-conformity for T0 and CW



This study cannot conclude that the information disseminated by the certified websites are more accurate than those issued by non-certified websites, however, the respect of the HONcode principles 1, 4, 5 and 8 by the certified websites helps to improve the transparency of information disseminated and the respect of good editorial practice.

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