

THE QUALITY OF INFORMATION ABOUT INFLUENZA ON THE ROMANIAN INTERNET

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Abstract: Inaccurate information on the Internet can adversely influence the effectiveness of public health efforts for controlling the influenza epidemic. The purpose of the present study was to assess the quality of information about seasonal influenza on the Romanian websites as far as completeness, accuracy and potential risks for the general Internet users. We evaluated a sample of 20 relevant sites selected from the Google's search results pages. The average relative completeness score was 5.75 (of the possible 10), the average relative accuracy score was 7.55 (also of the possible 10) and the average risk score was 7.60 (ranging from 0 for the best sites up to 13 for the poorest quality site). Based on our results, we concluded that the overall quality of the information about flu on the Romanian websites is modest and the users have to search methodically the topic to obtain full and accurate information.

Cuvinte cheie: gripa, informații, Internet, calitate

Rezumat: Informațiile incorecte de pe Internet pot afecta eficiența măsurilor de sănătate publică de control al epidemiilor de gripă. Scopul studiului de față a fost evaluarea calității informațiilor despre gripa sezonieră pe site-urile românești, în ce privește exhaustivitatea, acuratețea și riscul potențial pentru utilizatori. Am evaluat un eșantion de 20 de site-uri relevante selectate din paginile de rezultate Google. Media scorului relativ de exhaustivitate a fost 5,75 (din 10 puncte posibile), media scorului relativ de acuratețe a fost 7,55 (din 10 puncte posibile) iar media scorului de risc a fost 7,60 (pe o scală de la 0 - pentru cele mai bune site-uri până la 13 - pentru cel mai slab site). Pe baza rezultatelor noastre am concluzionat că în general, calitatea informațiilor despre gripă pe site-urile românești este modestă și utilizatorii trebuie să cerceteze metodic subiectul pentru a obține informații complete și corecte.

INTRODUCTION

Seasonal influenza affects annually an important proportion of the population. Inaccurate or misleading information disseminated by the new technologies can shape people's risk perception and impact in a negative way compliance to public health efforts for controlling the epidemic (vaccine refusal). (1) While deficiencies of information related to health and various diseases on the English world wide web has been repeatedly pointed out, (2) little is known about the quality of health information in the Romanian medical cyberspace.

THE PURPOSE OF THE STUDY

The purpose of the present study was to assess the quality of information about seasonal influenza on the Romanian websites as far as completeness, accuracy and potential risks for the general Internet users.

MATERIAL AND METHOD

Our study sample included 20 websites selected from Google's first five results pages using the most plausible keyword "gripa" (Romanian word for „flu”) at the URL: www.google.ro. (3-5) The search was done in June 2011. We included only those sites that covered the topic in at least 250 words in Romanian language intended for the general population. We excluded all sponsored links, discussion forums, infected and unavailable sites and also sites that required registration. If several pages or subdomains belonging to the

same top level domain were listed as separate links on the search engine's results page, we counted them as one webpage.

The assessment form was developed from evidence based guideline documents and it included a list of expected items along with detailed instructions for the evaluators. (The form is available upon request from the corresponding author). Every item on the standard list was checked on the website and for each item addressed the website was awarded one point. The total number of items addressed on the site resulted in the absolute completeness score (aCS) of the site. The items addressed on the site were then rated for accuracy, on a three level scale: totally correct (2 points), mostly correct (1 point), and mostly incorrect (0 points). The added points awarded to a site resulted in the absolute accuracy score (aAS).(6-10) In order to enable consistent comparison of the results with those of other studies on health topics having a different number of items on the content items list we transformed absolute scores to relative scores using the formulae shown below:

- $rCS = \frac{10 \cdot aCS}{mCS}$ (where "rCS" stands for relative completeness score and "mCS" for maximum completeness score which is identical to the total number of items on the standard list).
- $rAS = \frac{10 \cdot aAS}{mAS}$ (where "rAS" stands for relative accuracy score and "mAS" for site specific maximum accuracy score which is the maximum number of points that a site could be awarded supposing all the items addressed were totally accurate).

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The risk score (RS) was measured by recording the total number of information pieces that could pose a health risk for the users, either by omission or by commission. (11, 12)

All websites were rated by two independent evaluators using the instructions provided in the assessment form. The centralized data were compared for discrepancies and all disagreements were settled by consensus.

We checked for statistical differences between scores using the Mann-Whitney test (level of significance .05). (13) The statistical analyses was carried out with Graphpad InStat Demo 3.06.

RESULTS

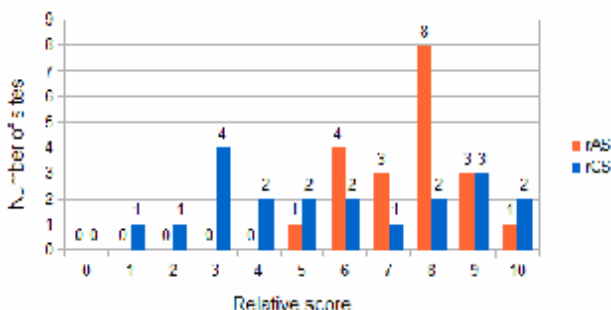
Approximately half of the websites (11 out of 20) were owned by commercial companies, two by private citizens, and one by a nonprofit organization. We were unable to determine the ownership of six sites. Most of websites (15 out of 20) had educational purpose while the remainder were commercial. We identified 14 conventional medicine websites and six complementary and alternative medicine websites.

The average relative completeness score was 5.75 (median 5.50; SD 2.84) while the average accuracy score was 7.55 (median 8.00; SD 1.28). The distribution of these two scores across the 20 sites included in the study sample is represented in figure 1.

The average risk score was 7.60 (median 8.00; SD 3.47). The risk score ranged from 2 points to 13 points and showed an almost even distribution across the range of values.

After checking for statistical differences between the quality scores of the sites classified by ownership, purpose and medical paradigm, we found that all P values were in the nonsignificant range.

Figure no. 1. Distribution of the relative quality scores



DISCUSSIONS

To the best of our knowledge this is the only study assessing the quality of information about influenza on the Romanian websites intended for the general population.

The average relative completeness score (5.75) shows that there are substantial informational gaps in the coverage of the influenza epidemic on the Romanian websites. In fact, as much as 50% of the sites addressed less than half of the items on the standard list. For instance, 60% of the sites failed to warn the users that antibiotics are not necessary in the treatment of common flu and 70.00% of the sites neglected clarify that adverse reactions to the vaccine are extremely rare. Our conclusions are convergent with those drawn by several authors about the quality of information regarding a diversity of health topics presented on the English cyberspace.(6-8, 14-16)

The average relative accuracy score (7.55) suggests that the websites presenting seasonal influenza in Romanian were doing better as far as accuracy is concerned but this should be interpreted keeping in mind that it refers strictly to the information covered on the sites. Most of the published

literature about the quality of information about various diseases in English language shows a low level of accuracy. (6-7, 10, 14-16)

It is important to note that the completeness and the accuracy scores should not be interpreted independently of each other unless the quality of the site would be overestimated. For instance, sites with extremely low coverage of the topic can get high or even very high accuracy scores if the little information they present is correct.

Sites with high completeness and accuracy scores (rCS and rAS >8) were rare (only three in our sample of 20) and had surprisingly low Google ranks (17th, 34th and 43rd). Therefore, the Romanian users' chance of getting exhaustive and correct information about seasonal influenza is small unless they routinely look for the topic on more than one site and check the links way beyond the first page of the search engines results.

The average risk score was alarmingly high (7.60) and ranged from 2 to 13 points. The fact that a website with a risk score as high as 13 was ranked in the top five links on the search engines' first results page, suggests that users can easily be exposed to inaccurate information.

The main limitations of the study are those inherent to Internet research and the subjectivity of the evaluators. The repeatability of the results is unavoidably influenced by the extreme dynamics of the cyberspace (websites appearing and disappearing or moving up and down on the search engines results pages). The selection of other search terms could also change the structure of the sample and thus the quality scores as well. As far as subjectivity is concerned, we tried to minimize it by providing to the evaluators all the elements that could possibly be anticipated, and also by carrying out double assessment procedures.

The apparently small number of sites included in our study should not be necessarily regarded as a limitation, because more than one study has revealed that most typical Internet users don't check beyond the links on the first results page of the search engine anyway.[8]

CONCLUSIONS

The overall quality of the information about seasonal influenza on the Romanian websites was modest. The coverage of the topic was especially deficient. Omissions of important information are frequent and can lead users to take wrong treatment decisions. In order to get a thorough and accurate knowledge about the essential aspects of seasonal influenza, users have to transcend the common health information seeking behavior by making a methodical search of the topic and also by getting confirmation from knowledgeable medical personal.

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