General Characteristics of the Romanian Medical Webscape

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Background: Although the percentage of Romanians who use the Internet to find health information is 16% and the proportion of Romanians looking for health information on the web has tripled from 2006 to 2009, no atempt has been made so far to assess the quality of information in the Romanian medical webscape.

Aim: The present study aimed to evaluate some general characteristics of the Romanian health related web sites.

Methods: We investigated a sample of 317 medical sites randomly selected from the largest Romanian web directory. Two of the authors collected independently data about the number of unique visitors/month, medical specialty, site ownership, main purpose of the site and target audience. Disagreements were identified and a final common decision was taken by the evaluators through consensus.

Results: Our results sugest that the Romanian medical webscape represents a relatively small portion of the Romanian webscape. In terms of number of sites we found that the most prominent categories were the complementary and alternative medicine sites and multispecialty sites ranking first and second respectively. With more then 80% of the total traffic recorded by the medical websites, multi-specialty sites clearly dominate the virtual health space. A very small number of medical websites have a real potential to influence health information seeking Internet users, since almost 90% of the medical web sites draw an insignificant number of visitors.

Conclusions: The results of our study might be representative beyond its statistical population to the general Romanian webscape but this has yet to be verified.

Keywords: e-medicine, e-health, Internet, health related web sites

Introduction

The latest Eurostat data show that the percentage of Romanians who use the Internet to find health information is 16% and was surpassed only by the interest in online newspapers (21%). The proportion of Romanians looking for health information on the web has tripled from 2006 to 2009. Although currently Romania has the second lowest reported number of Internet users to total population among the 27 EU Member States, the level of Internet penetration is estimated to show an accelerated growth tending to catch up with the more developed Member States [1]. Other sources show an even more impressive user growth rate of 828.8 % between 2000 and 2009 [2].

Up to date, no attempt has been made to assess the Romanian medical webscape. The present study aimed to investigate some general characteristics of the Romanian health related web sites and tried to answer the following questions: What is the proportion of health related web sites in the Romanian cyberspace? What is the number of sites by specialty, type of ownership, main goal of the site and target audience? What is the number of unique visitors by specialty, type of ownership, main goal of the site and target audience? What website characteristics attract the highest number of visitors?

Material and method

Our study was designed as a descriptive cross-sectional study. The statistical population (N=1787) included all the web sites listed as of February 2010 in the "Health" ("Sănătate") section of www.trafic.ro, the largest Romanian traffic monitoring web service at the moment [3]. The sample size (n=317) was calculated using a confidence level (α) of 5% (0.05). Assuming a maximum variance of the main variable (target audience) in our population, the resulting confidence interval was ±4.99%. The sites were selected by simple randomization. We included only sites with information about human health, with content fully published in Romanian language. Veterinary medicine sites, virus infected sites as detected by Kaspersky Internet Security 8.0.0.506 and sites that were unavailable after five attempts during the evaluation period, were excluded from the study sample.

Background information about the number of medical web sites and total number of.ro domain names were obtained from several Romanian web directories and statistical reports.

The assessment was based on one quantitative and four qualitative variables: number of unique visitors/month, medical specialty best describing the content of the site, site ownership, main purpose of the site and target audience. Two authors performed independent assessment following a common set of instructions. All disagreements were discussed one by one between the evaluators and a final common decision was taken by consensus.

The sampling size and confidence interval were calculated online at URL www.surveysystem.com/sscalc.htm.
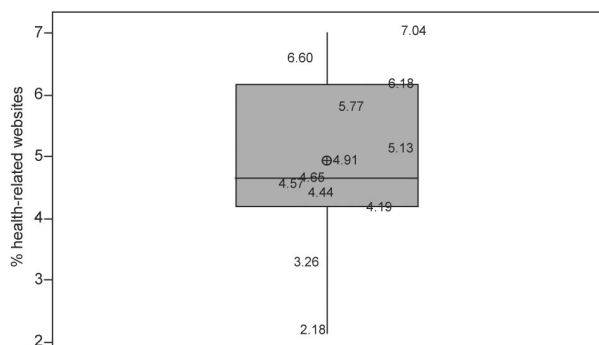
Fig. 1.   Boxplot showing the proportion of health related web sites in other 11 Romanian web directories. Box endpoints cover the interquartile range, the whiskers the minimum and maximum value, and the small circle corresponds to the mean value.

Fig. 2.   Proportion of medical sites by type of ownership

Proportions were calculated using OpenOffice Calc software. Chi-square test and boxplot graphics were performed with Minitab Release 14.1 software. An alpha = 0.05 was chosen as a level of significance.

Results

The total number of web sites registered in Trafic.ro web directory at the end of February 2010 was 47,024 and the number of sites listed in the Health section was 1787. The proportion of Romanian health related sites represented 3.75% of all sites listed in Trafic.ro. The proportion of health related web sites in other 11 Romanian web directories varied from 2.18 to 7.04% with an average of 4.91% (SD 1.45; 95% CI, 0.97) as shown in Figure 1.

In the general hierarchy based on the number of unique visitors during the month of February 2010, the first two medical web sites (2.00%) ranked in the top 100 sites (rank 33 and 34) and 39 of them in the top 1000 sites (3.90%).

The sites were classified according to their content in 37 specialties. The number and proportion of sites falling in these categories are shown in Table I.

According to the type of ownership the sites fit into 9 diferent categories as represented in Figure 2. As far as their main goal, the sites were grouped in 5 categories as shown in Figure 3. The sites were divided by their target population in 2 categories. The graphic representation of their number and proportion can be seen in Figure 4.

The number of unique visitors per month corresponding to each specialty is shown in Table II along with the number of unique visitors per day.
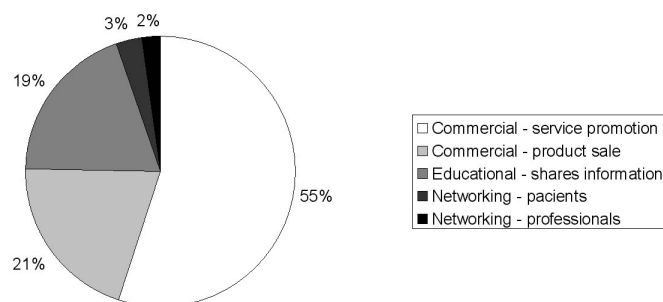
The number of unique visitors per month by type of ownership is shown in Figure 5. The number of unique visitors per month by main goal is represented in Figure 6. The number of unique visitors per month and day by target audience is shown in Figure 7.

Discussions

To our knowledge, this is the first study exploring the basic characteristics of the Romanian-language health related web sites in a systematic way.

The proportion of health related web sites in www.trafic.ro web directory (3.75%) is close to the average proportion of health web sites as found in other Romanian web-directories (4.91%). In other Romanian web directories, the proportion of health-related web sites varied between 2.18% and 7.04 (with an average of 4.91%). Although within all these web directories the proportion of health-related web sites was relatively small, the proportions differed statistically significantly between various web directories (chi square 493.362, p = 0.000). However, these figures should not be interpreted as reflecting necessarily the users' interest but rather the medical site owners' interest of being present in the cyberspace.

The rank of complementary and alternative medicine (CAM) sites is high in both hierarchies, by number of sites (rank 1) and by number of unique visitors (rank 2). The high number of CAM sites in the Romanian webscape (25.24% of all medical sites) might simply indicate that setting up a web page is an affordable way to become visible on the market. In a study of 599 web pages about three medical conditions located with the help of 4 search engines the authors found only 9.6% (58) CAM related
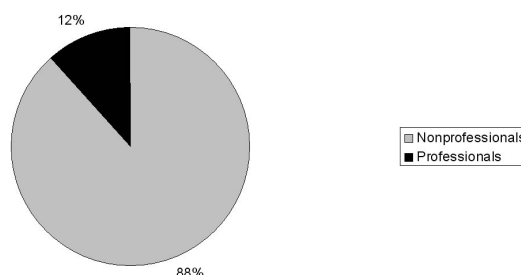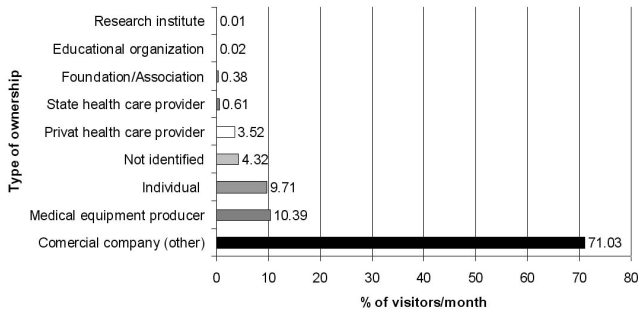

Fig. 3.   Proportion of medical sites by main goal

Fig. 4.   Proportion of medical sites by target audience

Fig. 5.   Proportion of unique visitors per month by type of ownership

Fig. 6.   Proportion of unique visitors per month by main goal

web pages and 6.7% (40) Integrative sites, in this second category being included web sites that covered both conventional and nonconventional medicine [4]. However, there are significant differences between the study referred to and this one, regarding time of investigation (year 2002 versus 2010), language (English versus Romanian) and methodology. We could not find any other studies to properly compare our results with.

Although not directly comparable with the results of other studies due to methodological differences, the number of visitors drawn by CAM sites in our study (7.03% of all visitors), generally confirms in a different way the remarkable interest toward non-conventional therapies reported worldwide by several authors [5, 6].

The multispecialty sites come second as far as the number of sites (18.61%) and rank first in the traffic hierarchy drawing an overwhelming 82.07% of all visitors. This situation might have several explanations. From the users' perspective, multispecialty sites might be attractive because of the wide range of topics covered and the convenience of finding the needed answers in a single place. From the site owners perspective, offering a diversity of medical topics seems to be an efficient way to assure high webtraffic and thus, revenue from advertisements. Another important factor might be that these sites are well promoted and technically optimised to be search engine friendly. All these hypotheses need confirmation in future studies.

Dental health is positioned on the third place as far as the number of sites and on the forth as far as the number of visitors. Except for a few of them which are educational in their goal, most of the dental health web sites are promotional and the relative high number of sites in this specialty probably indicates that being on the web is the equivalent of an electronic bussiness card for the private dental clinics.
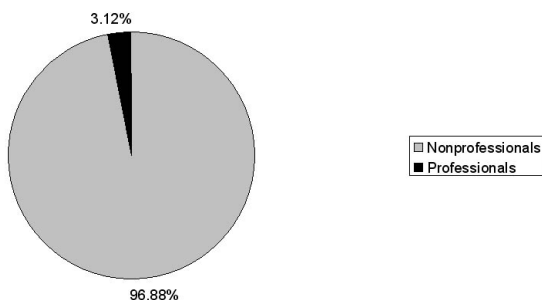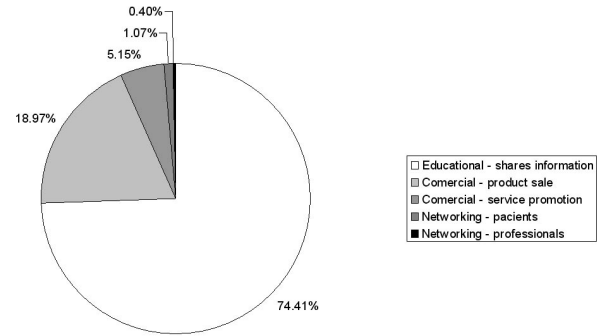
While the number of web sites on obesity and weight loss is not exactly documented in the English literature, some authors are reffering to a growing number of web sites and discussion groups on this topics [7] and there are scores of studies atempting to investigate the efficiency of weight loss programs delivered through the internet. A possible reason for our apparently low figures related to obesity and weight loss web sites (< 3% of the medical sites and traffic) resides in the fact that many obesity web sites were classified under the CAM category on the basis of their approach.

It is accepted among experts that search engines are moderately efficient even in locating information on a particular health topic [8]. In order to reach the whole spectrum of medical topics with a reasonable time investment we decided to pick as our study population the largest web directory of Romanian web sites. While its representativity for the entire Romanian webspace could not be assessed, www.trafic.ro is the most important such directory, monitoring well over 15% of the.ro domain names [9]; therefore, the results of our study might be representative beyond its statistical population to the general Romanian webscape (but this has yet to be verified).

Although it was not in the scope of the present study, our data on web site traffic could provide an indirect way of assessing the impact of the medical information on the users. The great majority of the medical websites (98.10%) recorded less then 1000 unique visitors /day and 87.69% less than 100 unique visitors/day. A more precise assessment of the medical information's impact on Internet users should consider real searching conditions, knowing that the number of unique visitors is just one of the many factor influencing page ranking in search engines.

Conclusions
1. The Romanian medical webscape represents a relatively small portion of the webscape.
2. As far as the number of sites is concerned, the most prominent categories of the Romanian medical webscape are the CAM sites and multispecialty sites ranking first and second respectively.
3. With more than 80% of the total traffic recorded by the medical websites, multispecialty sites clearly dominate the virtual health space.

Fig. 7.   Number of unique visitors per month by target audience

4. Other notable specialties, though with sensibly less share in the webscape are dental health and obesity/weight loss.

5. A very small number of medical websites seem to demonstrate a real potential to influence Internet users seeking health information, since almost 90% of the medical web sites draw an insignificant number of visitors.

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