

Does the medical information currently available on the Internet affect the physician-patient relationship?

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Abstract

This article evaluates the impact of information available on the internet over the physician-patient relationship. The questionnaires were applied to 221 patients and 84 physicians followed by a descriptive data analysis. Patients with easy access to the internet and doctors who consult these people were included in the study. The research when done by the patient often resulted in better informed patients. A significant number of patients said they felt worried about having a false impression of having diseases described on the internet. Some have resorted to self-medication, modification of the prescription or even the exchange of the attending professional. Not infrequently there is damage to treatment and doctor-patient relationship due to information obtained by the patient and their understanding of them. At conclusion the “iatrogenic” potential of the internet is opposed to its ability to disseminate important information to the people. Certification of sites by regulatory authorities, improving information quality and reducing “iatrogenic”, associated with the guidance of doctors, could be useful to improve the doctor-patient relationship.

Key words: Internet. Bioethics. Health. Information. Ethics. Physician-patient relationship.

Resumo

As informações médicas disponíveis na Internet podem afetar a relação médico-paciente?

Este artigo pretende avaliar o impacto, sobre a relação médico-paciente, das informações disponíveis na internet. Foram aplicados questionários para 221 pacientes e 84 médicos, seguidos de análise descritiva dos dados, bem como incluídos pacientes com fácil acesso à internet e médicos que os atendem. A pesquisa, feita pelo paciente, muitas vezes resultou em pacientes melhor informados. Relevante número de pacientes se sentiu preocupado pela falsa impressão de portar males descritos na internet. Alguns recorreram à automedicação, modificação da prescrição médica ou, mesmo, à troca de profissional. Não é infrequente ocorrer prejuízo ao tratamento e à relação médico-paciente relacionado às informações obtidas e seu entendimento pelo paciente. Conclui-se que ao potencial “iatrogênico” da internet se contrapõe sua capacidade de difundir importantes informações à população. A certificação de sites por entidade reguladora, gerando qualidade de informação e menor “iatrogenia”, associada à orientação, poderia ser útil para aperfeiçoar a relação médico-paciente.

Palavras-chave: Internet. Bioética. Saúde. Informação. Ética. Relação médico-paciente.

Resumen

¿Las informaciones médicas disponibles en la Internet pueden afectar la relación médico-paciente?

Este artículo pretende evaluar el impacto de la información disponible en la Internet acerca de la relación médico-paciente. Cuestionarios fueron administrados a 221 pacientes y a 84 médicos, seguidos de análisis descriptivo de los datos. Los pacientes con fácil acceso a internet y los médicos que los atienden fueron incluidos en el estudio. La búsqueda realizada por el paciente, a menudo resultó pacientes mejor informados. Un relevante número de los pacientes se sintió preocupado por la falsa impresión de tener las enfermedades descritas en la Internet. Algunos recurrieron a la automedicación, la modificación de la prescripción médica o aun el cambio de los profesionales. No es infrecuente existir perjuicio al tratamiento y a la relación médico-paciente gracias a la información obtenida por el paciente y su comprensión de ella. A la conclusión se verifica que el potencial “iatrogénico” de la Internet se opone a su capacidad de difundir informaciones importantes a la población. La certificación de sitios web por institución reguladora, proporcionando mejor calidad de la información y reducción de “iatrogenia”, asociada a la orientación, podría ser útil para perfeccionar la relación médico-paciente.

Palabras-clave: Internet. Bioética. Salud. Información. Ética. Comunicación médico-paciente.

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The Internet has been increasingly used as a research resource and a means of communication when it comes to health¹, mainly due to being an instrument of easy access, convenient and anonymous^{2,3}. The democratization enabled by internet to gain access to information is fundamental to society and can become a powerful instrument for disease prevention and health promotion^{4,5}. However, for this to occur, it is necessary to consider three issues: the quality of information, the way they are presented to the general public and the seriousness of the authors of the site or the conditioning of the information available to economic and personal interests of the author.

Study carried out by Health On the Net Foundation (HON) in July and August 2010¹, in order to check the trend of laying of the general public and health professionals regarding the use of the internet for health purposes since 1996, found that, for the population under study (524 people), the quality of information remains the main barrier to research. Among the factors considered to increase the quality of online health information, the most prized one were reliability / credibility, accuracy, availability of information and ease of navigation and information search.

This same study¹ shows that both the public in general and health professionals who discuss with their patients the searches made by them on the internet report that the effect is positive: it improves communication and encourages the patient to fight their disease. However, in general, physicians believe that this can also increase the risk of self-medication more than the patients themselves refer to think about it¹.

The most controversial issues in the study carried out by the foundation HON¹ were: 1) whether the discussion about health information read on the internet fosters distrust of the patient, 2) whether it encourages patients to challenge the authority of a physician. However, other studies suggest that the doctor is still the most important source of health information and that patients see the internet as an additional resource to support the physician-patient relationship, which would act as an attempt by the patient to work together with the doctor^{2,3}.

Studies have shown that the amount of dubious health information found on various websites is huge and that some of them even contain potentially misleading information^{1,6,9}. Given the ability of the internet's quickly dissemination of any content, these works also warn about the spread of false or biased information by the health network, which could be dangerous or even harmful to the general

public^{7,8}. This finding has raised concern because there are solid foundations to measure the power of online communication.

Several studies with the purpose of evaluating the websites available on the internet about specific health issues noted the difficulty faced by the patient in finding high-quality pages to meet their information needs^{7,9,10-14}. The research results of the HON Foundation¹ demonstrate that the general public is becoming more critical and less satisfied with the quality of health information obtained through the Internet. Most respondents acknowledged the lack of credibility of many sources of information and believe it can critically evaluate what they read¹. Nevertheless, these issues are nonetheless worrisome, especially because they contain the potential to negatively affect the physician-patient relationship.

If literature discusses how to control or assess the quality of information on the net, there is still no agreement about it^{7,12,15}. The idea of implementing a program for approval of sites is considered unfeasible, considering the large number of sites for each subject⁹. According to some authors, the general public would better understand a "seal of approval" given by an individual or group commonly known as reliable^{7,9,12}. Other proposed solutions include the use of information brochures¹², recommendation of suitable sites by health professionals^{11,12,15}, filtering tools sites¹² and governmental regulation⁷.

According to the survey of HON¹, 80% of the study's population believes that a health professional should suggest reliable sources of information for the patient to search the internet. About 72% of the professionals agree that it would be useful to provide such information to their patients. Most physicians reported they would use a reliable online service that allows them to suggest websites to their patients, especially if free. However, so far, 78% of patients reported that health professionals never gave them that information.

Objective

This study aims to evaluate the impact that health information available on the internet have on the physician-patient relationship as well as on the effectiveness of therapeutic measures proposed and use of health resources, regarding the absence of specific legislation to the provision of health content on the Internet and electronic commerce in Brazil.

Material and method

The research aimed at developing a descriptive, observational, cross-sectional quantitative analysis of frequencies. Two types of instruments were applied - for patients and physicians - and both questionnaires, as well as the terms of informed consent (IC), were approved by the Ethics Committee on Research involving Human Subjects of the University Center Lusíada (CEPSH / UNILUS) on 11.24.2010.

Questionnaire for patients

The instrument used for the collection of patient data was a questionnaire with 29 multiple choice questions and some open complementary, dealing with the relationship between patients and the Internet - prepared based on the ninth and tenth editions of the HON survey on health and medical Internet use^{16,17} and properly adequate by the authors.

The first questions stick to the analysis of the profile of the patient: sex, age, education and how to search the information on general topics. Then, how they use the internet: if they seek information about medicine, frequency of access, method of choice of the sites surveyed, what information is searching, if shares the information gathered, if it is difficult to identify trusted sites, reliability of the information contained and difficulty degree in understanding the content of the sites surveyed.

Finally, the questionnaire addressed the possible changes of conduct after searching the internet: if they self-medicated, if they have changed their attitude towards the physician, if they realized a change of attitude by the doctor after being informed of the medical research on the Internet; if they started to talk to the physician in the event of a discrepancy between what was read on the network and what was explained by him, and if they have been worried about the thought of carrying a disease which description was found on the internet. From there, the questions investigated how this concern was (whether pledged their daily activities, whether generated anxiety and / or depression) and if sought clarification with a health professional (if so, two more questions: how many professionals were consulted to ensure that they were sick or not and if it was necessary to perform additional tests to rule out this concern).

Application of instrument

After an explanation of the purpose of the study, the questionnaire was answered by the pa-

tient to the researcher while waiting for laboratory examination, followed by presentation of the term of consent. The selection of patients was random, according to their presentation at the reception of the private sector (separately for the service agreements) of the establishment Institute of Clinical Analyses of Santos, in Santos / SP. For four weeks, 221 questionnaires were applied in the morning, from December 2010 to January 2011.

Questionnaire for physicians

The questionnaire for physicians contained 19 multiple choice questions and some open complementary, dealing with the relationship between physicians and the internet, and also between physicians and patients who use the network. This questionnaire was also designed based on the ninth and tenth editions of the HON Survey on Health and Medical Internet Use,^{16,17} although really modified by the authors' initiative, seeking to better adapt it to the scope of the study.

The first questions focused on the analysis of the profile of the physician: sex, age, time of practice of the profession and specialty. To these, others asked about Internet use: if they seek information about medicine on the network, how often they access and participate in the development of health-related websites. Some questions were directed to the physician about the patients' use of the Internet: if doctors usually verify the information to which the public has access, what is the frequency with which their patients come to consult informed on their condition and / or treatment having as source internet searches, if there is concern about the source of this information and if it is believed that patients have difficulty in finding information to clarify their doubts.

Other questions addressed the possible changes in therapy after the patient had carried out a search on the internet: if it is often necessary to guide him due to misunderstanding, if aware that the patient self-medicated after consulting the information, if any patient changed any prescription or guidance based on this information, if the patient changed his attitude to the physician, after searching the internet, and if the physician himself modified his attitude before such a situation. Finally, the questionnaire investigated the interference in the physician-patient relationship of the use of the Internet by patients: the physician's level of discomfort when confronted with data that patients surveyed before or after the consultation, if as a result of information obtained from the Internet there was

Does the medical information currently available on the Internet affect the physician-patient relationship?

loss to the proposed treatment and if there was difficulty in the relationship with the patient due to differences caused by the research on the network.

Instrument application

The application of the instrument for physicians was done, primarily, through visits in private practices. A letter was left to each professional, collected after one week. The choice of offices was random: eight commercial buildings in the city of Santos / SP. In these, all floors were covered and letters were delivered to offices where there were physicians of any specialty. 87 questionnaires were distributed from December 2010 to January 2011 - three of which were excluded for incorrect reporting, totaling 84 instruments effectively applied.

Results

The sample of patients, containing 221 people, was mostly composed of women (63.35%), of which 91.4% had graduated from high school, 50.23% with a university degree and 5.43% with post-graduation. Most were young, between 20 and 29 years old (25.34%). The female population sample was divided in a similar way in the interval from the 30s to 60s, with an average of 15.5% per decade. On the other hand, the profile of physicians showed a majority of men (60.71%), with 29.76% in the range of 50 to 59 years old, 19.05% from 40 to 49 years old, 17.86% from 30 to 39 years old and 19.05% from 60 to 69 years old. Out of the 84 physicians effectively participating, 28.58% had 0-10 years of practice and 40.48% from 25 to 35.

Out of the 221 patients, 163 (73.75%) seek medicine information on the internet and of these, 56.11% access the network daily; 80.98% seek a description of the disease; 50.31% the treatment and to a lesser scale, also for similar cases (30.06%). Still, 26.99% consult medical articles, prevention information, news and leaflets. As a method of choice for sites, 95.71% use search sites or random sites; 32.52% receive indication from health professionals; 30.67% receive friend recommendation and 19.63% seek pharmaceutical industries sites.

Focusing the analysis on the 163 patients who research medical information on the Internet, it was

found that 58.28% usually share the information read with their physicians; 87.7%, with relatives and friends and 6.13% do not disclose it to anyone. As for trust, in the contents surveyed, 17.79% always believe the information found; 54.6% report having difficulty finding trustworthy sites and 32.52% reported always being careful to choose sites linked to institutions registered with the Regional Council of Medicine of the State of São Paulo (Cremesp).

Out of the 163 patients interviewed, 56 (34.36%) reported never having talked with the physician about the search made or changed the attitude even after searching the internet. However, 20.24% noticed that the physician changed the attitude after the research (Figure 1), 12.27% reported that the physician explained more and / or guided better, 1.23% said that physicians changed their behavior and 4.29% noticed that the physician "did not like it". Additionally, 28.83% said they had changed the attitude towards the physician or the treatment after the study (Figure 2), of which 17.79% reported that they felt more able to question and understand, and 1.84% changed the physician.

Still with relevance to these patients, 72 (44.17%) have felt worried about the impression of having diseases which description was found on the internet. On a scale from 0 to 10, considering 0 as "no concern" and 10 as "extreme concern", 38.9% classify their concern with marks from 8 to 10 and 45.8%, with marks from 5 to 7. On balance, 52.78% reported experiencing anxiety or depression due to this concern, 20.8% reported that this affected their daily activities and 81.94% sought clarification with a health professional and 26.39% more than a physician.

Considering 0 as no difficulty and 10 as extreme difficulty, patients surveyed were asked "if they have ever felt difficulty in understanding the content displayed by the site search." This difficulty was rated by 26.99% from 7 to 9; 29.45%, 4 to 6 and 30.06%, from 1 to 3, and the others reported not having any difficulty. Among the repercussions of the search made by the patients, we questioned the self-medication (Figure 3) and the initiative to modify guidelines or prescriptions, admitted by 21.47% and 9.2%, respectively, and 3.68% reported to frequently self-medicate.

Patients were also asked "if they had ever searched the internet in order to confirm whether the treatment or diagnosis of the physician who

Does the medical information currently available on the Internet affect the physician-patient relationship?

checked them was correct," to which 75 of them responded affirmatively, representing 46.01%. Of these, 54 (72%) reported a discrepancy between the information read and the explanations from the physician, and 46.29% returned to discuss the information with the professional. Through the questionnaire applied to the 84 physicians in the study, the following results were obtained for the question about access to the Internet regarding clinical information: 75% reported that they access the Internet daily; 88.1% seek medical information on the network, 21.43% are managers or participate in health-related site; 41.67% often check the contents directed to lay population, 26.19% experienced difficulties in relationships with patients because of differences caused by internet research; 33.33% believe that their patients have difficulty in finding information to clarify their doubts; 27.38% narrated the case of loss to the proposed treatment due to information obtained by the patient on the internet and 22.62% reported that it happened due to misunderstood information.

In response to the questionnaire, 67.85% of physicians reported being frequent or very often that their patients have already begun their consultation informed about the disease they have (or they think they have) or about the proposed treatment, and research on the internet as a source. Of these, 19.05% consider this situation very often, 65.48% revealed worrying almost always about the source of the information brought by patients and 21.43% reported worrying, but not always. As to the patient's little understanding about the content researched, which implies the need for orientation, the participants consider it very frequent, being reported by 91.67% physicians.

In the 84 questionnaires for physicians it was possible to observe when the physician-patient relationship may be affected by internet search by the patient. It was found that 60.71% of physicians are aware that their patients self-medicate from information from the internet (Chart 3) and 28.57% consider this fact very often. 42.85% have faced histories of patients who took the initiative to modify any prescription or guidance based on information obtained from the Internet.

In 57.14% of the answers, the physician felt that the patient changed their posture towards their attitudes or treatment after searching the internet,

paying more attention or more doubtful about their orientation (Figure 2), and 10.71% admitted at some point changing their attitude towards the patient after being informed about the research on the Internet (Figure 1). It was also asked how the physician felt, in general, when confronted with data that patients surveyed before or after the appointment, considering 0 as no discomfort and 10 as extreme discomfort, yielding the following results: 4.76% feel it is extremely uncomfortable; 10.71% classify their discomfort with score between 7-9; 35.71% evaluated it in 4 to 6; 26.19% in 1 to 3 and 22.62% denied any discomfort in this situation.

We used the chi-square test to examine associations between gender, age and education level, in the case of patients, with other questions in the questionnaire and age, gender and length of employment, in the case of physicians. The test shows a statistical difference between groups for some variables. However, it is not always possible to infer whether this difference is progressively, greater or smaller, in relation to the data studied, given the complexity of the questionnaire. In the question directed to patients, "if they have ever searched the internet in order to confirm whether the treatment or diagnosis of the physician who consulted him was correct", statistical differences were noted in the questionnaires associated with age ($p = 0.019$) and degree of education ($p = 0.023$).

For the patients, it was numerically demonstrated an association of difference between searching for information about medicine on the internet with the variables age, education and gender, showing that women ($p = 0.02$), younger people ($p = 0.003$) and highly educated ($p = 0$) are the groups that seek to clarify their doubts more about health through the internet. Regarding the difficulty in finding reliable sites, it was found to be related to younger patients ($p = 0.017$). It was noticed also that men are less affected by the impression of having diseases which description was found on the internet ($p = 0.046$). There was an association of significant differences in the physicians' questionnaire on the issue "felt that the patient changed their posture towards their attitudes or treatment after searching the internet (e.g. stayed closer to their guidelines or more doubtful regarding them)?", more often for less experienced ($p = 0.02$) and younger physicians ($p = 0.002$).

Does the medical information currently available on the Internet affect the physician-patient relationship?

CHART 1. Response of physicians and patients to the questions: "Have you ever changed your attitude towards the patient after being informed about research on the Internet?"; "Has the doctor changed the attitude towards you after your search on the internet?"

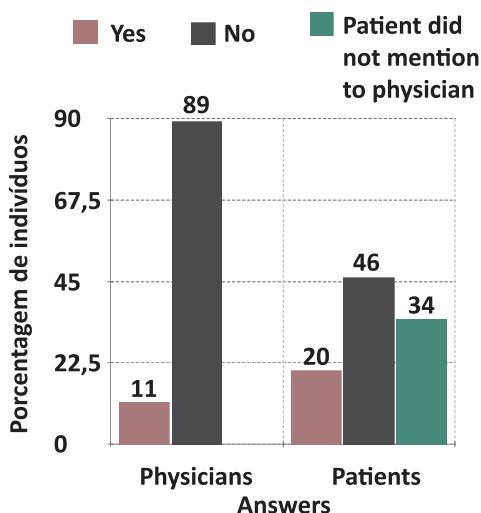
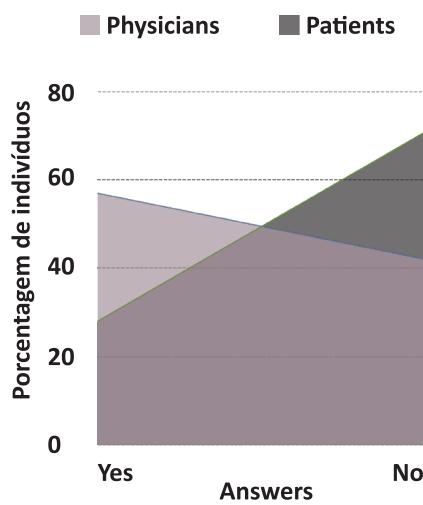
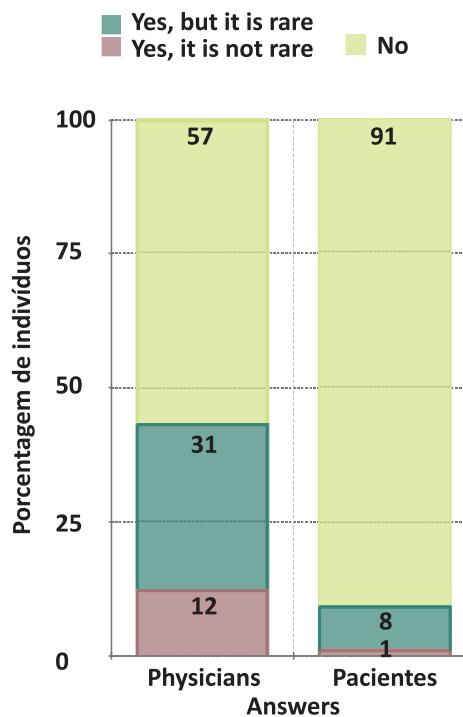


CHART 2. Response of doctors and patients to the questions "Did you feel that the patient changed the attitude towards your attitudes or treatment after searching the internet (e.g. stayed more aware to their guidelines or more doubtful about them)?"; "Did you changed your attitude towards the physician or treatment after searching the internet?"



Graph 3. Response of physicians and patients to the questions: "Has it ever occurred that a patient took the initiative to change their orientation, or any prescription based on information obtained on the Internet?"; "Have you ever taken the initiative to modify any prescription or medical advice after you searched the subject on the internet? "



Discussion

The data obtained seem to show that the studied population, despite the high level of education, does not always properly select the sites used in their research, they consider it is difficult to find reliable sites or even to understand the content of the research. However, an important contingent, they always believe what they read and often do not discuss with the physician the data found on the Internet.

Often the patient presents to the consultation having already researched the disease. Both the physician and the patient seem to change their posture on the relationship when there is research done by the patient. In large number of cases this seems to

result in better informed patients and better able to discuss with the doctor, which can eventually reflect in better treatment results. 95 (58.28%) patients said they usually share the information read on the internet about health with their physician. Significant group (44.17%), however, experienced negative effects due to their research on the internet.

Almost half of respondents has been worried about the false impression of being the bearer of diseases described on the internet, so that many feel anxious or depressed and / or have their daily routine compromised. This concern led to the false medical consultations, sometimes multiple, and exams - at first unnecessary.

After the diagnosis, the subjects interviewed research to learn about their disease and to evaluate the conduct adopted by the professional. There was even a case of the patient searching the internet to confirm that the treatment and / or diagnosis of the physician who consulted him was correct. Not inconsiderable number of patients surveyed has already resorted to self-medication, modification of the prescription, or even to exchange professionals because of information obtained from the Internet.

From the reports of physicians who were being studied, it is noticed that it is not unusual the occurrence of injury to treatment and physician-patient relationship related to information obtained from the Internet and its understanding by the patient. Many professionals reported feeling uncomfortable before the confrontation of his conduct with information obtained on the internet - or even worried about its origin. Apparently, patients have difficulty in identifying sites that are reliable and clarify their doubts. Both questions to physicians as patients point this out.

Final Considerations

The impact health information available on the internet on the physician-patient relationship, regarding both the effectiveness of therapeutic measures and the use of the available health resources, requires that the discussion about this issue receives more attention. The prospective "iatrogenic" from the internet is opposed to its ability to disseminate information which facilitates the prevention and treatment of diseases, thus contributing to population health. To minimize the first aspect and maximize the latter, it is necessary to pay more attention to the content of the sites with health information.

It is not right to imagine restrictive measures or Internet censorship, but seek the democratization of information that makes the physician-patient relationship more transparent and productive. However, it is credible to imagine that sites certified by the regulatory authority offer better quality of information, resulting in more benefits and less "iatrogenic". Studies could be designed to confirm or deny this proposition. Thus, if confirmed, voluntary certification and guidance to the public, so that preferably make use of such websites could be useful tools to promote health and improve the physician-patient relationship.

Another suggestion, finally, would be that physicians themselves, in specialty-oriented associations, formulate lists of sites with reliable information, thus contributing to the dissemination of reliable content in its specialty and to strengthen patient's autonomy regarding health and quality of life.

References

1. Pletneva N, Cruchet S, Simonet M, Kajiwara M, Boyer C. Results of the 10th HON survey on health and medical Internet use. *Stud Health Technol Inform.* 2011;169:73-7.
2. Stevenson FA, Kerr C, Murray E, Nazareth I. Information from the internet and the doctor-patient relationship: the patient perspective, a qualitative study. *BMC Fam Pract.* 2007;8:47.
3. McMullan M. Patients using the internet to obtain health information: how this affects the patient-health professional relationship. *Patient Educ Couns.* 2006;63:24-8.
4. Silva W. Navegar é preciso: avaliação de impactos do uso da internet na relação médico-paciente. [dissertação]. São Paulo: Universidade de São Paulo; 2006.
5. Rapparini C, Barroso PF, Saraceni V, Machado AA, Fernandes GC. Occupationally acquired infectious diseases among health care workers in Brazil: use of internet tools to improve management, prevention, and surveillance. *Am J Infect Control.* 2007; 35(4):267-70.
6. Eysenbach G, Köhler C. Does the internet harm health? Database of adverse events related to the internet has been set up. *BMJ.* 2002;324(7331):239
7. López-Jornet P, Camacho-Alonso F. The quality of internet information relating to oral leukoplakia. *Med Oral Patol Oral Cir Bucal.* 2010;15(5):727-31.

Does the medical information currently available on the Internet affect the physician-patient relationship?

8. Jadad AR, Gagliardi A. Rating health information on the internet navigating to knowledge or to babel? *Jama*. 1998;279(8):611-4.
9. Pérez-López FR. An evaluation of the contents and quality of menopause information on the world wide web. *Maturitas*. 2004;49(4):276-82.
10. Ellis MJH, Thomson CE. Consumer health information on the www: an evaluation of information on verrucae. *The Foot*. 2003;13:130-5.
11. López-Jornet P, Camacho-Alonso F. The quality of patient-orientated Internet information on oral lichen planus: a pilot study. *J Eval Clin Pract*. 2010;16(5):883-6.
12. Rajani R, Mukherjee D, Chambers J. Murmurs: how reliable is information on the internet? *Int J Cardiol*. 2007;119(1):112-3.
13. Tan BH, Kostapanagiotou K, Jilaihawi AN. A review of mesothelioma information on the world wide web. *J Thorac Oncol*. 2009;4(1):102-4.
14. Jetha A, Faulkner G, Gorczynski P, Arbour-Nicitopoulos K, Martin Ginis KA. Physical activity and individuals with spinal cord injury: accuracy and quality of information on the Internet. *Disabil Health J*. 2011;4(2):112-20.
15. Lewiecki EM, Rudolph LA, Kiebzak GM, Chavez JR, Thorpe BM. Assessment of osteoporosis-website quality. *Osteoporos Int*. 2006;17(5):741-52.
16. Health On the Net Foundation. Analysis of 9th HON survey of health and medical internet users: winter 2004-2005. [Internet]. Geneva: HON Foundation; 2006 [acesso 12 set. 2012]. Disponível: <http://www.hon.ch/Survey/Survey2005/res.html>
17. Health On the Net Foundation. Evolution of internet use for health purposes. [Internet]. Geneva: HON foundation; 2006 [acesso 12 set. 2012]. Disponível: http://services.hon.ch/cgi-bin/Survey/Survey2010/quest_oct.pl

Authors' participation

José Eduardo Dias Cardoso guided the analysis of results and preparation of the final text. Elisa Lent Rabbit applied the questionnaires, tabulated and analyzed the data, discussed the results and prepared the final text. Augusto Quaresma Coelho contributed to statistical analysis and discussion of results.

