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Scientific communication study about health for young people and quality assessment of digital resources

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Abstract
Introduction. The increase of Internet's popularity in recent years has dramatically changed the ways in which people carry out health information searches. This is not limited to the searches made by adults but also have a repercussion on young adults and teenagers. **Objectives.** The research had two main objectives: to know the quality, selection and accreditation criteria of the health information which is communicated in the web pages and verify how young people search for health information on Internet. **Method**. The study responds to a qualitative and quantitative paradigm, as complementary ways of perceiving the same reality, based on a holistic study from its entirety and its context. Thus, we have carried out an analysis of the contents of the digital resources with health information; in-depth interviews with the heads of web pages; *focus group* with teenagers from advanced secondary education and university students; concluding with an ethnographic study and quantitative study based on the execution of closed questionnaires to the analysed population segment. **Results**. The heads of the web pages with health information for the younger population are aware of the importance of their labour and the responsibility which corresponds to them. They are aware that information should not be focused from a paternalistic perspective but with objectivity. The young adults and teenagers consider that the ideal web page with health information must be very practical and visual, with accessible and reliable information, which permits interactivity with the users and where user opinions and professional health care advice are clearly distinguished. **Discussion and Conclusion.** The need to acquire healthy habits has emerged as a topic which generates major interest among young people and it has a cultural component: it is

primarily learned in the home, reinforced at school and in the relations with peer groups. The mass media also play a major role in the way in which young people interpret health.

Keywords
Health information, communication, Internet, web, information quality, young, teens

Contents

(Translation by **Nekane Ramirez de la Piscina Audicana**, Lda. in Translation and Interpretation from the University of Granada and she is Interpreter of English named by the Foreing Office / Ministerio de Asuntos Exteriores)

1. Introduction

The Web 2.0 communication has revolutionised the methods of accessing Medicine and Health topics. Internet provides solutions for the information needs and facilitates efficient communication for professional doctors and researchers from all over the world. In Medicine and different fields of science and knowledge, communication is essential for suitable development and the option to immediately possess the latest advances which have arisen.

The access to the information available in the World Wide Web (www), permits us to obtain information from databases, medical magazines, medical and scientific organizations, universities, etc. and compared with the traditional static web pages (web 1.0) where it is only possible to read the supplied contents, the web 2.0 has initiated a paradigm change about the conception of Internet and its functionalities. The Web 2.0 represents the democratization of the access tools to information and the preparation of contents and has multiplied the active participation options. Recently, different types of initiatives have appeared in Internet for the development of disease prevention programs, promotion of healthy habits, information about health topics, communication between doctors and patients, etc. "This consequently involves a new era of communication which is characterised by the interaction between the users, the personalization of the relation between consumers, the easy publication of all types of contents, the universality, convenience and simplicity to update these contents" (Mayer, Terrón and Leis, 2008a).

The concept of empowerment, which is considered the cornerstone for the improvement of individual and collective health, must be revised in order to achieve a greater impact in terms of "our personal health management" and the capacity to improve collective health. Empowerment is not

possible without the real involvement of people in their self-care process and in turn, a community committed to its health is not possible without a clear identity and shared objectives (Resende, 2008).

We exist in a type of techno-scientific universe where technology has invaded all spheres of life, from the infinitely large to the infinitely small. A technology which also, as Lipovetsky and Serroy (2008) clairvoyantly pointed out, is the same everywhere and is sustained and uses the same symbols and value systems: the search for maximum efficiency, operative rationality and the calculation of everything. These new technologies have infiltrated our lives to such an extent that they have become the structuring element of society itself and human nature, transforming the way we think and feel. As Ellul (1977) stated: "Technology has brought about ways of being, thinking and living for everyone. It is global culture, it is synthesis" (Ellul, 1997: 202).

One of the consequences of this type of "technological optimism" makes reference to the promise of "perfect health" (Sfez, 1995). A kind of "eternal youth", thanks to the collaboration of Information and Communication Technologies (ICT), genetics, robotics, nanotechnology, neo-pharmacology, etc., etc. (Cuesta and Menéndez, 2010). In this imaginary psychosocial outlook, "social fantasy" of interconnected bodies -and minds- occupy lot of space. And not just simply interconnected between friends and other members of the social group (friends, simple acquaintances or unknown people to meet), but also interconnected to the health care "system": connected to doctors (or other health care suppliers), to health information sources, to other patients, a *homo nexum* (interconnected) species.

Cuesta and Menéndez (2009) conducted a study about the use of ICT's among university students in the scope of health prevention and promotion. In summary, the central axis of the result was: *the young adults rejected the use of SMS as a means to prevent or promote health, as well as the use of advertising (of any type) in the social networks of a Facebook or Tuenti type since they were perceived as invasive.* In relation to the web pages, they were not used as an information source in preventive or educational health, solely as an information source in "health and beauty" (Cuesta and Menéndez, 2009). Several years later, the results have varied slightly since current young adults (average age of 19) are more digital natives today.

Despite the fact that there is increasingly more health information, we have observed that in Spain, very few studies have been carried out to determine the search patterns for health information in Internet and the perception about the quality of these resources which different population groups have about them. This approach permits us to be in a pioneer group in this type of research.

We detected that the closest background to our research was in a study conducted between 2006 and 2008 by a research group[1] from Barcelona about health web sites targeted to a heterogeneous public in the framework of the Health Research Fund (PI07/90015) whose objective was the preparation of a recommendations guide for the responsible use by Internet users, of the information obtained in Internet and e-mails with health care aims. The research carried out during 2008 was based on: revising the legislation and most relevant international quality initiatives to determine the most habitual criteria considered for quality in the medical web sites; to analyse the features of Spanish web pages in Internet; and based on the above, to prepare practical guides which would encourage the responsible use of the information obtained in Internet. A comparative analysis was performed with the recommendations proposed by the European Union (EU), eEuropa 2002: quality criteria for web sites with a health care content, which are organised in diverse areas (transparency,

honesty, authority, privacy and data protection, information updates, accountability and accessibility) (Mayer, Leis, Lupiáñez, Terrón and García Pareras, 2008b).

We discovered another background in the Doctoral Thesis by Antonio González Pacanowski, who analysed 33 digital resources of the Web in the period between 15/01/2003 and 15/09/2004 about the criteria of functionality, accreditation and credibility. We used this study as the basis to carry out surveys to web sites with health information, in our case, especially the web sites aimed at young adults and teenagers. This has been our particularity and contribution to the study of the digital generation or digital natives (Premsky, 2001), net-generation (Tapccost, 1996) and also the interactive generation (Bringué and Sádaba, 2008). Our research has been carried out in what is considered as a young people's environment which responds to persons who form a part of the collective group comprised between the ages of 12 and 24, approximately, although we must highlight that the age is a derived variable and not a determining factor (García Ampudia, 1998).

The quality criteria for the on-line and off-line information about health were several of the aspects which our research considered most. The health information requires special and well-defined quality policies, highly applicable to the matter in question because of the importance and consequences which poor quality information can have on the audience. This is the question which we must ask ourselves: Should health information possess the same treatment as any other type of information?

In an investigation prior to this one[2], a group of professional health care staff from the Basque and Navarra communities were asked about the quality criteria which health news should possess. More specifically, they were asked to express their point of view about concepts such as rigour, quality and the professionalism of health news editors. For this professional group, the quality of health news consists in the knowledge of the sources, the mention of the same, the cross-checking of the information and above, the collaboration in the write-up by professional staff from both sectors: health and communication (Peñafiel et al, 2013; Echegaray et al, 2013). They all coincided that in this type of news, they must be produced with responsibility and rigour and special importance must be granted to the educational component which they should have. The union of all these factors generated health news with quality information and the vocation of public service. However, the research clearly showed that practically none of the interviewed professionals were capable of citing all the requirements necessary to achieve this quality level. This means that they were not able to establish a series of sub-criteria which would lead to the general criteria.

Our interest is to compile all the information which could be useful to propose good practices in this field of communication, education and medicine based on interviews with institutional leaders and collaborators, as well as verify the use of the youth population and the effects on the teenagers and young participants. We also wished to analyse the principles of accreditation and functionality of the digital resources with the health information aimed at young people and teenagers. Likewise, we planned to provide in-depth communication and transfer of the results of this investigation to situate the University in an avant-garde contribution to knowledge. Accordingly, we have carried out our research with the aim to obtain results which can contribute to keep making progress in order to improve the quality and design of the health information and which contributes to the training and education in the healthy habits of our young people.

2. Objectives, hypotheses and applied methodology

The research is focused on a general objective: To analyse the contents of the web sites about health in Spanish and Euskera (Basque language) aimed at young people and teenagers, as well as their impact on the users.

Regarding the specific objectives, we can highlight the following:

1. To detect the main health web pages which are used by the young segments with the aim to carry out a 'mapping'.

2. To analyse the contents and guidance which these web sites about health for young people and teenagers communicate and what function they fulfil as educators in order to prevent diseases and addictions (Prior prevention of problems or subsequent solutions for them) based on the directives established by the WHO.

3. To analyse the quality of the digital resources, based on aspects such as the accuracy of their contents, the source or professionalism of their responsible heads ('Accreditation' indicators) and the 'Functionality' principles of the web sites.

4. To analyse the browser experience of the young people and teenagers, the potential relations and interactions between the existing equals in it, as well as the existence of complicity at the confidentiality level during the browsing and information search process.

5. To detect how the use of Internet has changed as a source of health information for young people.

The initial hypotheses were:

H1. The majority of the web pages about health aimed at young adults and teenagers focus their contents on aspects related to the prevention of addictions and diseases. Consequently, their objective is to fulfil an essential role in the health education for young people.

H2. As a consequence of the expansion of Internet's use as a hegemonic means to search for health information among young people, the Public Health and education agents remain in a secondary plane as health educators and Internet is configured as the main source of information about prevention for the upcoming generations.

H3. The communication paradigm of health information has evolved from a one-way model, in which health care professionals issue information to the patients, into two-way communication in which the recipient visits the clinic informed by diverse on-line sources and in turn, is the issuer of information, hence there is feedback in the transmission of this type of information.

Work has been done with both qualitative techniques and quantitative analysis based on the survey focused on young people and teenagers from the Basque Autonomous Community and the Navarra Autonomous Community. Both techniques complement each other very well to provide a full vision of the reality object of this study. The research was designed based on six well-differentiated phases which were executed during the two year period of the investigation (2012-2014).

2.1. Research stages

1. *Document revision and framework of the theoretical contemplation about the lines of research and the health communication scenarios*

We have explored several lines of research work which has situated us in the background records and current status of the topic in order to possess a base founded on other investigation works and from our study, help to contribute other scientific communication and transfer results to society.

2. In-depth interviews with the male and female experts who manage the web sites with health information

Six interviews were carried out for which we used a questionnaire structured into 58 questions divided into two sections: 'criteria and functioning'; 'contents and objectives'. The interviews were carried out with the Contents Management Heads of the web sites with health information: the Spanish newspaper, El País; EDEX (private non-profit organization, independent, secular and professional, from the social and educational action sector); the Portal: Teinteresa.es; SEMA (Spanish Society for Adolescent Medicine), integrated in CODAJIC; Web page: Gazteaukera (web page focused on young people) from the Basque Government which includes interviews with the Heads responsible for the Drug Addition Department, the AIDS Prevention and Control Plan of Osakidetza and the Health Department of the Basque Government; and with the Planning and Observatory Section of the Navarra Institute of Sports and Youth from the Social Policies Department of the Navarra Government.

3. Surveying the web sites with health information

The first difficulty in our research was to find a methodology which was capable of accounting for all the units which comprise the universe of web pages dedicated to health. The extension and breadth of Internet in all fields, issues and topics do not have geographical borders but rather linguistic ones and make this task practically impossible to manage. We then entered the terms of "health", "young people" and "teenagers" into the search engines of Google and Yahoo in Spanish and Euskera and we selected a composition with a universe of 235 web pages.

From there, we prepared an *ad hoc* classification of web pages for this research with the aim to differentiate them from each other by taking into account: *Typology*: international, state, autonomous, municipal / official organisation (public), unofficial organisation (private, non-profit organisation, NGO, press); *Public which it targets*: teenagers, young people, people, both; *Nature of the resource*: complete web page, section; *Language*: Spanish, Euskera, both, others; *Social Networks*: Facebook, Twitter, Google, Google +, Youtube, Flickr, Vimeo, Pinterest, Tuenti, Technorati, Menéame, Eskup, Blogs, none; *Topic which it addresses*: addictions, sports, beauty, nutrition, psychology, protection, general health, sexuality, diseases, other; *Speciality*: topic diversity, legal drugs, illegal drugs, AIDs, health education, schizophrenia, cancer, asthma, diabetes, diet and nutrition, mental health; and whether or not it has an educational perspective.

In the analysis of the web sites' contents, we conducted another study with the aim to find out the Functionality and Accreditation Principles of the web site. We have analysed a total of 75 indicators between primary and secondary ones to determine if the analysed web sites fulfil and to what degree they comply with the principles of quality and suitability.

Once the sample was defined and its elevation coefficient was determined according to the categories, the distribution of the universe remained as follows: 135 correspond to web sites of a national and international type and 100 are from the Autonomous Communities of the Basque Country and Navarra. Applying the sampling formula for finite universes on a defined universe, it was considered that a sample of 53 units, always distributed according to the categories and subcategories as explained above, is the size of the representative sample for a confidence level of 95.5% and error margin of 4%. The *surveying* phase was carried out on a sample of 53 web sites during the month of March 2014.

4. Focus Groups
From a qualitative perspective, we collected the opinions of young people of both genders from the Basque Autonomous Community and the Navarra Autonomous Community distributed between adolescents (ages of 12-17) and University students (ages of 18-24): the groups are comprised by eight persons (four males and four females) who belong to the young people segment and another to the teenager segment in each of the provinces of Álava, Bizkaia, Gipuzkoa and Navarra.

5. Ethnographic Study
With the aim to carry out a follow-up of the information searches of young adults and teenagers, an ethnographic study was executed with video recordings of four young people: two from the Advanced Secondary Education group (male and female) and two from the University group (male and female). It was performed during the months of November and December 2014. We executed the ethnographic study in three parts: one, basic follow-up with an approach of 26 questions about the opinions and personal customs about the use of internet; two, individual recording of the information search based on a topic of personal choice; and three, conclusions and personal assessment based on five specific questions.

6. Questionnaires (Quantitative Paradigm)
This was carried out with a sample of 250 questionnaires distributed in the two Autonomous Communities of the Basque Country and Navarra during the months of November and December 2014 about the users use of internet and what perception they have about on-line health information.

The participants in the questionnaire responded to a wide range of questions. These questions range from the perceptions which these persons have of the health concept and their specific concerns about specific health topics to their use of internet and all the social networks derived from the web in order to compile information about this topic.

3. Most relevant results of the research

3.1. Perspective of the Contents Management heads of the web pages: education continues to be key

The majority of the interviewed persons are members of multi-professional teams interested in the health care which is provided to the youngest segment of the population and agree that the information must be transmitted with quality and must be focused from a paternalistic perspective, but with cold and scientific objectivity (non-alarmist) and by means of a gradual process, taking into account the physical, psychological and emotional development of this age group.

They consider that the quality health information is what permits people to make suitable decisions about their health and in which the different sources (journalists, doctors, male/female experts) provide the recipients with reliable and rigorous information. They are aware that the function which these web sites fulfil is that of training and information. Their objective is to provide health information which is interesting, easy to understand and which helps to make decisions about their habits and behaviours.

The topics most prevalent in the web pages are those related to the problems of teenagers and young people and subjects related to illegal or legal drugs, drug consumption, nutrition problems (bulimia, anorexia, obesity, etc.) and the risks associated with unprotected sexuality (sexually transmitted diseases, etc.), as well as mental health (behaviour disorders, anxiety, depression). In several cases, this information is aimed at a specific gender. In the gender violence or reproductive health issues, they address the women.

In general, the interviewed experts and heads in this phase of the research placed significant importance on the preventive information starting from childhood, subsequently reinforcing it and consequently, they consider that the educational approach must be a priority, understanding this as communication or dissemination of truthful information promoting healthy habits and the development of skills which help them to behave in a healthy way. For the interviewed persons, education continues to be key and they consider it necessary to teach the skills which help to construct these life styles at a more precocious age. It is necessary to provide health education with the aim to explain the risks and their consequences.

Although a lot of importance is placed on preventive information, they also take care that the information is aimed at the solution of cases, such as for example, contacting health care centres about drug consumption or mental health.

Likewise, we have detected that they take very good care of the profiles in Twitter and Facebook and they are updated with new information every few minutes. The interactivity with the users plays an essential role and they warn about the danger of pseudo-informants which exist in Internet. These networks are useful to break the communication scheme and traditional outreach and their role is very important to provide information, address questions, etc. and always redirect the traffic to the web site.

The information which is available in the health web sites has several clear objectives to fulfil, as stated by the interviewed persons: that they have good information about healthy habits, about the risks of poor nutrition, new diseases and the importance of sports for good health and the acquirement of skills for a full adult stage and how moral advice is not very effective; the prophylactic-educational function must be the priority.

For the Contents Managers in web pages focused on young people, it is possible to mention three work sectors: those related to physical health, those related to mental health and the risk situations to which young males and females may be exposed. Topics such as sexual identity, depression, suicidal ideas, eating disorders, bullying and other issues which are included in the mental health field. The risk situations include accidents, legal and illegal drug consumption, violence in its different modes, including computer information, sexually transmitted diseases, pregnancy, etc. Accordingly, the

preventive information is highly important but together with it, information is also provided for the solution of cases –to contact the health care centres about drug consumption or mental health, for example–.

For all the interviewed participants, education continues to be key. It is necessary to teach the skills which help to construct these life styles at a more precocious age, since the behaviours and social trends will affect the health and welfare of the boys and girls in the future. Adolescence is a period of life which presents the opportunity to prevent the start of behaviours which can be harmful for health and their future repercussions.

It is also considered that information alone is not sufficient. The desirable option is that the young people have received training in skills and personal competencies throughout life, so that upon the arrival of adolescence, they know how to manage the risks and challenges which they will face.

3.2. *Surveying* the web pages with health information aimed at young people and teenagers: as a whole, the fulfilment is positive (66%)

When conducting a pilot test on 53 web sites, we detected the infringement of specific elements of the sample in a total of 14 web site, such as : dedication of pages to other areas unrelated to health which were specified at the beginning; lack of suitability in relation to the public for which they stated they were addressed (they are not for young people and teenagers) but intended for another type of public (professionals, teachers); appearance of web resources which in reality cannot be considered as such, since they do not permit the browsing through the site; or they changed the topic which they announced at the start of the 'universe and sample determination' phase. For this purpose, we decided to use a methodology in the selection of digital resources which mixed the random chance of simple sampling ((Sierra Bravo, 2007) with intentional samples (García Ferrando, 2006: 150. The elimination of specific units of the sample have always responded to the criteria related to the suitability or unsuitability of the resource and never in relation to the resource's quality or lack of quality.

The main parameters analysed were configured in the following way:

> a) *Functionality Principles*: 1. Authorship/source: identification and solvency of the source. 2. Contents: quality of the information. 3. Access to the information: browsing or recovery. 4. Ergonomics: comfort and facility of use. 5. Luminosity. 6. Usability: processes. 7. Usability: errors. 8. Usability: adaptation.
>
> b) *Accreditation Principles* (If the resource declares whether or not to assume being controlled and/or evaluated by any quality control organisation of the contents): 1. Subscription of the legal principles in force in the State. 2. Guarantee of the professional qualification in the medical advice. 3. Professional Responsibility. 4. Adherence to ethical rules. 5 Presentation of a quality certificate and accreditation from any Institution. 6. Presentation of a self-applied quality label. 7- Offer of a verification guide to the user. 8. Data Protection.

The results obtained from the *surveying* of the web sites with health information for young adults and teenagers respond to the fulfilment level of the indicated parameters and indicators.

As a whole, the positive fulfilment covers 66% of the analysed web site resources. Two-thirds, whose majority (21 resources, 39.6%) fulfil in a basic way and 14 which fulfil it in a "satisfactory" way (26.4%). Only 18 resources failed to reach the established minimum (34%) and there is no web resource with the percentage total of "excellent". Among those selected, eight of the best (between the 70-90% score) correspond to institutional web sites of a government or international nature such as the WHO or the EC and six correspond to private organisations.

By specific identifiers, the Authorship is the best fulfilled parameter (93.3%). Next, it is followed by Processes (90%), then Errors (85%) and Ergonomics (82.6%). The next identifier is Access to information (60.5%) which is followed by Luminosity (57.5%). The remaining identifiers are negative: Contents (48.6%), Adaptation (46.7%) and Accreditation (36.3%) which was ranked in last place in the fulfilment of the quality parameters in the health/heath care web pages for the type of teenage/young adult public**.** By separating the analysis into two large parameter groups, Functionality and Accreditation, we discovered the following results:

Functionality.- Taking into account all their indicators, the positive fulfilment covers almost 74% of the analysed web resources. Almost three-fourth, whose majority (22 resources, 39.6%) fulfil in a basic way 17 which fulfil it in a "satisfactory" way (32.1%). Only 14 resources failed to reach the established minimum (26.4%) and there is no web resource with the percentage total of "excellent". Among those selected, eight of the best (between the 70-90% score) correspond to institutional web sites of a government or international nature such as the WHO or the EC and six correspond to private organisations.

Accreditation.- It proves to be the parameter with the worst fulfilment although it has several resources with an "excellent" fulfilment. As a whole, taking into account all their indicators, the positive fulfilment in this aspect does not reach one-third, 16 resources (30.2.%) among those analysed. 5 resources (9.4%) are fulfilled in a "basic" way, 4 resources (7.5%) are fulfilled in a "satisfactory" way, and 7 resources (13.3%) are fulfilled in an "excellent" way. Of the total, 37 resources failed to reach the established minimum (69.8%). Among those selected with an "excellent" score, six resources correspond to institutional web sites of a government or international nature such as the WHO or the EC and one corresponds to private organisations. Among those which have a "satisfactory" score, two are public institutions and two are private organisations. From the average percentage perspective, the level increases to 36.3% fulfilment, compared with 30.2% if we specifically focus on the Resources scope. It is one of the parameters which has the most completely negative qualifications, a total of 12 with 0 points (22.6%).

On the other hand, it seemed interesting for us to mainly focus on *the quality of the information from the web sites.*

Our interest was focused on observing if their communication is with a quality for the benefit of the whole population in general -and for young adults and teenagers in particular- because health is a question of general interest and health information is one of the most requested topics in Internet. However, after measuring the results of our research, we can conclude that the digital resources with

medical-health care contents *failed* in the 'quality of the information'. Of the 21 indicators analysed in this section, the infringement result is 58.5% and the fulfilment is 41.5%, which is in absolute terms. The most negative indicators were registered in edition, update, multimedia resources, interactive resource and archive. This means that the digital resources failed to comply with the quality criteria in the edition of the texts because it was observed that they did not correctly document the record styles: in the graphics, tables or images, titles were not usually shown, there were not informative footnotes under the graphic resources, no dates were displayed, etc.

It was also observed that there are numerous web sites which do not contain multimedia resources such as sound, photographs and videos.

Other web sites failed in the interactive resources: they do not have animated infographics, forums, chats, however they all include some social network. The majority have more than three social networks in their web page structure.

Another indicator with a negative result corresponds to the 'archive', which tells us that in many web sites, it is not possible to query the outdated information because there is not historical archive or it has one but it does not have free access.

Finally, there is also a negative aspect in relation to the 'updates'. The majority of web sites are not periodically updated, on the contrary, there are 16 web pages (of 53) which assiduously update the health contents with over 90% fulfilment.

Although the digital resources fail in the edition and update indicators, we can state that the positive results are highlighted in other major indicators such as the rigour of the health information in the digital environment: sources were cited, they were displayed as correctly cited, information or complementary data was added, which goes beyond the current news or data. We have seen that the majority have an educational perspective (83%).

The editorial policy and the responsibility of the web sites is completely visible and correctly defined.

In relation to the typology of the web sites, we observe that there is little thematic specialisation inside the analysed web sites and a high percentage (37.7%) are constituted by web pages with 'general health' contents, followed by web pages which communicate contents about drug addiction (26.4%); next there are the digital resources in which there are predominantly sexuality topics (13.2%) and the resources dedicated to informing about diseases (13.2%): AIDS, cancer, asthma, diabetes, schizophrenia; the remaining subcategories were below 5%.

3.3. *Focus Group* in Advanced Secondary Education Centres and the University of CAV and CFN: sexuality, nutrition, addictions and mental health are the highest search topics

The young participants in the *focus group* considered that Internet is an essential element in today's communication sector and they are aware of the risks which may be caused by its poor use. In Internet, they search for health information about intimate and personal topics because this guarantees their anonymity. The highest search topics: sexuality, addictions, nutrition, mental health.

Young people have a clear idea what health is, although they do not know how to define it with academic precision. All males and females agree that health is a state of general physical and mental well-being which transcends the mere fact of not having any diseases.

The discourse generated within the young adult's group, in relation to what health is and the search for information about health in Internet, offer more contents in the segments of a higher age, starting from the age of 21, without gender difference.

The young participants were not familiar with all the web sites which were mentioned to them. Only the official web sites, those of Osakidetza, Basque Government, Ministry of Health, Government of Spain were known to all of them and reliable above all due to the fact that they are institutional. The same was not the case with the private web sites. In their opinion, the ideal web page with health information must be very practical and visual, with accessible and reliable information, which permits interactivity with the users and where user opinions and professional health care advice are clearly distinguished.

If we delve into the perspective which young people and teenagers have about health information in the web universe, we can highlight the following results:

3.3.1. Focus Group: Teenagers aged 12-17

The teenagers from this age segment primarily use Internet for games, contacts, information about film schedules, shopping and prices for the items which they wish to purchase. In addition to this recreational use, they also use Internet to do their school homework assignments (information search).

When talking about health topics, the youngest persons in this group are the most motivated, although they do not have much to tell. Together, they are able to make a list of the diseases, which seems important to them but this is about a topic which they have not previously searched for information. Thus the teenage girls of the youngest segment -aged 12 to 15- talked about cancer, obesity, the heart, breathing, Alzheimer, AIDS and bulimia. They consider them as ‘sensitive’ topics. In the segment aged 15-17, they talked about other diseases, although they take longer to be mentioned: epilepsy and tumours. They are also concerned about the health problems which could be hereditary.

They all use Google as their frequent search engine to find information. However, they assure us that if they have health problems, the first thing that they do is to discuss this with their parents and it is they who take the initiative prior to trusting in Internet. In the sexuality topics, the information requests to parents no longer plays a central role because it generates more mistrust. In the case of sex, the older males and females are capable of thinking about the problems which they may face in relations, but they also consider that this is always preventable with a condom. In the youngest age segment, they do not raise these issues: no mention of pregnancies or infections with contagious diseases. However, the risk is always present in the females and in the debate, there was mention of a television series which is broadcast on MTV which was titled ‘Embarazadas a los 16’ ("Pregnant at age 16") where they can see how life can become complicated.

They said that they did not have any serious problems, although the topic of diets and being overweight did arise, above all in the aged 12-15 segment. They consider that this is a female topic rather than a male topic.

With regards to drugs, this is where they recognized that they had searched for information in Internet, not only as an interest in them but also due to close persons who were suffering from them and they spontaneously mentioned: marijuana, cocaine, speed, MDMA, tobacco and alcohol, mentioning that they are used by people around them. They believe that they are dangerous because of the addiction which they create.

The older boys recognize that they had searched for health information in Internet but they do not trust it. They indicated that they must search very well to reach the information which seems good to them and they consider that the official web pages (for example, the Basque Government) are the most accurate. Following Internet, they consult their parents and after that, they consult the doctor. The female teenagers however also search in Internet for their own and external queries and they consider that this information is credible because they have made a prior query with people who are close to them. Although there is difference of opinions among them about the credibility of the health information and there are opposing positions.

At the time of defining what their ideal web page would be, they want the contents to be prepared by a doctor, with extensive answers, easy to find, with a contact in order to make an on-line question in an anonymous way and better if they have one in each town.

3.3.2. Focus Group: Young adults aged 18-24

In line with what took place in the prior focus group, in this group, the older males and females (21-24) offered more contents.

This age group mentioned that the search process always begins with Google and after that, they mentioned Yahoo Answers. When Google offers web resources options, they usually look at the first five results. In the average age sector, a young man (20) stated that on one occasion, he had entirely tracked the first two pages of Google.

As particularities in relation to Internet, this group indicated they search for all types of information. The most used access platform is the cell phone, a *smart phone* type, which they all have and use. From these devices, they connect, above all, to the social networks in order to communicate with their friends and family, although they also fulfil an information search function when this is urgent. However, this group prefers to use the home computer when commonly searching for information.

The most frequent searches are games and information about games. To a lesser degree, entertainment information such as film schedules or the activities which are offered in other nearby towns (festivities, concerts, etc.) and to access sports information. When asked about the topics which they search for in Internet in a spontaneous way, health was not mentioned. It was necessary to suggest it in order for this topic to arise. In addition to the aforementioned search topics, they also searched for: trips, flights, camp grounds, current news, crisis and the stock market.

When the templates were delivered to determine the aspects about which they seek health information, the results cover a much wider range than the mentioned topics. We understand that at times, they search for information about personal matters and on other occasions, information about the topics of people very close to them.

The searches are carried out due to doubts or curiosity, and although they say that the information which they track is not intended for them, nevertheless, as the discussion advances, we notice that there are personal aspects which concern them and which cause them to make the searches. Among the oldest young men, they affirmed that on occasions, they search for health topics in Internet because they are not convinced by the diagnosis which they have been given in a health care centre, for example. This leads them to comment that Internet is a source for primary information but never definitive nor valid, if a specialist is not consulted afterwards. We can state that this provides safety at the time of giving credibility to a final diagnosis.

They affirm that they usually rely on their parents to enhance the information of their health problems, which shows that there is trust in them, although the young females- of all segments- mention amidst laughter and intimate complicity that some topics are not *'mentionable'* (pregnancies, potential pregnancies or fear of pregnancy). These types of topics are discussed with the 'friends'. The young females in general place importance on this topic and the word 'paranoia' appears in the discussion, which usually takes place among girlfriends, never by the informing party. The topics which most concern the female gender are related to sexuality such as menstruation or pregnancy issues. On the other hand, the young males made searches more related to physical health and aspects related to sports. In the young male group, young men, especially those above the age of 22, expressed an interest in searching for topics related to sexuality and infectious diseases. However, they may think that they are at risk in this aspect and not seek information. They prefer "to wait and see the consequences and if their fears are confirmed".

The health topic and search in Internet are aimed at physical appearance, which they relate to health and they now believe that this is what captures the attention of the searches, although not the ones by males. The discourse is defined by this topic: they talk about today's society, the importance of image, of nutrition as a path to reach this image and physical exercise (above all, the gym) in order to achieve it. Society, they say, demands a perfect body: "All you have to do is watch TV".

Their experience in these searches tells them that they should not trust in the pages which supply information and advice in this matter: *Is it healthy to lose 10 kilos in a week?* They believe that the commercial concept prevails in these web pages and this undermines their credibility.

Regarding the topic of drugs, they think that it is not necessary to search for information because there is already too much in the street. They already know everything.

Queried about the quality of the web resource, the oldest participants indicated the design, the web page, and based on the amount of text ("it depends whether they have worked hard on it"). Likewise, they trust in the amount of advertising which these web sites offer: if there is a lot, this reduces its credibility. Those with a younger age follow this idea in the group.

3.4. Empathic research based on an ethnographic study: it seeks the contrast of sources in Internet

We have used another qualitative research technique such as ethnographic analysis with the aim to reveal the meanings which sustain the actions and interactions of the youth segment. Thus by means of direct participation as researchers, we request explanations and interpretations in order to obtain more details about the decisions, actions and behaviours of the youngest population in the health information searches, which permit us to contrast 'what is said' or 'what is done', in order to offer added-value to the investigation.

The recordings were made based on the specific interests of four young people in search of information about the Crohn disease; about a nutrition topic to obtain the definition of muscular mass; about a healthy diet or healthy nutrition; and about the 'borderline personality'. Each one with different well-argued motivations.

In the health information search, the young people use Google first, with Youtube as the main channel. They rarely use the social networks for health topics although the teenage girl informed us that she visits Instagram to find information about nutrition, diets and physical exercise. For her, Youtube and Instagram are the quickest "indicating the hashtag takes you directly to the information and images which are included in this hashtag". In the case of the blogs, this is different, and although they also do not use them very much, in one of the cases, they did recognize an information value in them. They also do not enter the health forums (with exceptions) or leave comments in the Web site. In reference to the search for help and advice, they automatically rely on non-human sources of information, Internet in the first place, if the topic is not serious. If they consider it worrisome, they resort to the family and afterwards to a doctor.

After carrying out the information search which is provided in Internet about health, the teenagers generally value the 'quite contrasted' information, at least in the web sites or channels in which they pause to be informed, although they indicate that "it is possible to find everything. It is possible to find very well contrasted, specialized or not very reliable information" and it is necessary to have criteria to make the search. The university male considers that the information which interests him about a nutrition topic to achieve the definition of muscular mass is not properly located, "it does not take you where you need to go".

In these recordings, the topic of confidentiality arises as an important aspect and they highlight that everyone considers it essential for the freedom of the search. Likewise, they value that the quality is effective. The female teenager has a list of channels which she considers as quality because she makes habitual searches in the Youtube and Instagram platforms searching for nutrition, diet and healthy lifestyle topics and she adds- while she observes these web sites in Instagram- "the text is well-documented, well expressed and the photos which accompany the text have good quality. if I see photos which are not well illuminated, which are not professional, they do not attract me and I do not enter. For me, the information sources must have a solid base in the topics which I search; they must demonstrate the knowledge and know what they are talking about".

In addition to the web sites which they usually follow, they mentioned that, in the information search, the health web pages or the health sections in general web pages, those which offer the

highest quality are usually the official organizations; professional medicine associations; ill patient associations, associations with social interest; and medical staff/doctors. They all recognize that they do not usually visit them very much because, although they have quality, they are not attractive to the persons with their age. The design of the web pages are not very attractive, however what they value most is that the contents are attractive, not the appearance.

For the question, what would an attractive web page with health information be like? They consider that it must be a web page with clarity (text and image); it must have quality images; the topic must be correctly presented, which means, so that it can be understood without too many technical terms but also not in a language which is too colloquial. It is always good that they provide an option for people to participate by means of the comments, forums or chats although they do not use them very much. There are contents updates and they permit browsing and interrelation of topics, users and information sources.

Regarding the preparation of the visit to the doctor and complementing their information afterwards, they do agree although it depends on the problem and in any case, they enter more than one web page to be informed and contrast the information.

In relation to whether the web sites inform well about what interests young people, there is a difference of opinions: it is considered that the information is scarce and when someone needs something, one must search for it on their own account; on the other hand, it is considered that it is not the responsibility of the press to inform about health, and that when they do inform, they should not have motivations which are not informative about something which is news. Accordingly, for the question whether the media tends to inform about health in an alarmist way, their opinion is yes, however in general, they only report what is news and there are other topics which are not news and they need to 'alarm' the population more in order to become more aware. Likewise, they believe that the topics in which there is a social alarm are more occasional and not so much, topics that are really important throughout time.

In relation to the specific search for information which they carried out, they considered it to be quite useful. Finally, their satisfaction varies: high, medium and low, due to their prior experiences.

3.5. Assessments of the University students and teenagers *surveyed* in relation to the health information in Internet

This research phase is still in the data mining process and at this time, we can extract several results for the interpretation of the data obtained in the questionnaire phase to 250 young people, from the two segments studied during November and December 2014.

The connection to Internet was performed on a daily basis in all the segments of the sample and in general, it was related to both information to prepare school assignments and for entertainment. Among the uses which they mention most is the access to the social networks and their interests include the connection with their friends in addition to carrying searches for school assignments. They take precautions in the use of Internet, although not as many as could be expected. Many users recognize that they make use of security measures to protect their privacy. These measures range from blocking the programs which are considered to be dangerous up to not revealing personal data

or not having an open profile in social networks. Among the young people who do not take any security measures, we highlight that in the majority of cases, this involves persons who have not had any problem of this type in Internet thus far.

Among the responses explored to date, it is considered that the majority of the young people and teenagers rely on their parents whenever they have a health problem and sometimes, they consult other persons close to them such as their friends. The first practice is the most commonplace.

The habit of searching for information about health topics varies but according to the data, this is carried out more frequently than expected, where we detected a frequency range between once a week and once a month in the sample.

We are amazed how Internet has consolidated among the youngest age levels as a reliable source of health information, above newspapers and magazines, but still not above books. This does not occur among the more adult age levels where Internet is assessed as less reliable and the specialised magazines are considered the most reliable.

However and based on this information, it is curious how in all segments, health information is sought in Internet, despite the mistrust in its quality, which in general is considered average. However it also states that it is useful information in the majority of cases, although the contrast of the information or its attractiveness is not valued highly.

As we stated, it was the segments of teenage students who evaluated the information which they found about health as contrasted, reliable, acceptable, attractive and useful in the majority of cases.

In the analysis, we were surprised by the number of surveyed participants who defined themselves as *Troll* [3] in the use of Internet when dealing with young people. In general, the more adult ages are commentators or more reserved about their role in Internet.

The search for information in relation to topics such as alcohol, drugs or sexuality is commonly practised by almost all university segments. In this group, women are among those who carried out the most information searches related to body aesthetics. In the case of males, there are more cases in which young adults assure that they first search for information about alcohol and drugs. These declarations confirm what has been perceived in the focus groups with teenagers and young adults: in general, females pay more attention to the topics of sexual health and reproduction.

Among the thirteen topic options provided so that the teenagers and young people could indicate which ones interest them the most and search for most frequently in Internet, more than one-third of the survey participants indicated the section of psychological disorders among the six highest search topics (among them, many in the first three search options).

The participants, both young adults and teenagers, agreed that the home is the point where the importance of health and physical, mental and emotional well-being is transmitted to them. However this does not necessarily mean that the communication with the parents does not have its drawbacks, above all at the time of addressing specific topics with them. In these cases, the circle of friends also constitutes a point of reference and help for them. School is also a reference point for them at the

time of receiving information about healthy habits, but this option does not have the same degree of unanimous opinions shown, for example, at the time of highlighting the relevance and influence of the family environment in this aspect.

Accordingly, we highlight that the few detected cases in which persons assured that the family environment did not help to internalise the importance of health, corresponded to the youngest population segment in the 14-15 age group. Perhaps their age still does not permit them to be aware of this factor as the importance placed on this by their older age colleagues? Unknown.

The young people agree when stating that the new information and communication technologies facilitate the access to all types of contents, also those related to health. In any case, they do not agree at the time of granting a specific degree of reliability on the health information which they find in Internet. There are discrepancies about this. The young people offer different assessments in relation to the quality of information as well as the contrast level which this information can offer.

4. Discussion and Conclusions

Hypothesis H1 was confirmed: the majority of the health web pages aimed at young people and teenagers fulfil their essential objective which is the education in healthy habits and the prevention of addictions and diseases. 83% of the analysed digital resources positively fulfil their educational factor: Complementary information or data is added, which go beyond the current news or the data. We have seen that the majority of information have an educational perspective.

The web page heads place a lot of value on preventive information but jointly with this, they also wish to offer information for the solution of cases, such as contacting health care centres about drug consumption or mental health, two of the most worrisome problems in this age group. Suicide is the second or third leading cause of death among teenagers in developed countries. Depression as well as hyperactivity or eating behaviour disorders exist, hence it is important to establish a basis at very early ages and promote emotional health. This educational projection is correctly focused on the health web pages for young people and teenagers.

The Contents Management Heads of the web sites have shown a clear willingness to transmit quality information from a multi-professional and multi-disciplinary perspective. Although they are aware of the importance of Internet as a source of health information for young people, they consider that the parents continue to be the primary educational agents and difficult to replace.

With regards to the web sites with health information, we can also state that 26.4% of the sample had to be replaced by other web pages which fulfilled the relevant basic requirements: they had to have health information which was aimed at the youth population; they were web sites in use and they were active. The percentage of replaced web sites represents more than one-fourth of the sample, in turn, this indicates the failure level of the large search engines in Internet at present. Accordingly, one the major problems consists in the habit of using the Google browser as the first option, very powerful and reliable in its searches but with a clear deficit at the time of organizing and classifying highly complex information.

As a whole, counting all the parameters and indicators**,** the positive fulfilment covers 66% of the analysed web resources. Two-thirds, whose majority (21 resources, 39.6%) fulfil in a basic way and 14 which fulfil it in a "satisfactory" way (26.4%). Only 18 resources failed to reach the established minimum (34%) and there is no web resource with the percentage total considered as "excellent". Among those selected, eight of the best (between the 70-90% score) correspond to institutional web sites of a government or international nature such as the WHO or the EC and six correspond to private organisations.

In relation to the second hypothesis H2 raised about whether Internet is the main source of information for young people and teenagers, there is no full confirmation of this however there is a double perspective: the younger teenager group do not rely on Internet as the main source of information, first, there are the parents and secondly, the medical staff/doctors. It is necessary to take into account that this group has Internet as a recreational platform and to search for information for their school assignments; they state 'they have little trust in Internet'. However, the young adults from the age segment comprised between ages 21-24 are the people who search most for all types of information in Internet, including health information, as a hegemonic means and the Public Health and education agents (parents and teaching staff) remain in a second plane as health educators and informers. They tell us that Internet is a source for primary information (if the topic is not serious) but never a definitive or valid source if a specialist is not consulted afterwards. The young females place importance on health topics such as sexuality, healthy diet and exercise. The young males are more concerned about topics such as infectious diseases.

The communication paradigm of the health information has evolved towards two-way communication –Hyphoteses H3-, in which the recipient visits the clinic informed by diverse on-line sources, however it warns that these young males and females do not participate very much in the feed-back which Internet offers which can be information issuers (with exceptions, very occasional cases, however not by custom), by entering chats, leaving comments, sharing opinions in forums, etc. however they do so from a more observer plane, for information collection, in order to resolve their doubts or increase their information level due to curiosity or due to health problems which occur in their family environment or those of their male/female friends.

The ideal web page for the young adults and teenagers would be one in which the contents are prepared by a doctor, with extensive answers, easy to find, with a contact section to ask questions on-line in an anonymous way, with a web page design that has quality, the text provides in-depth information about the topic and does not have much advertising because this reduces their credibility.

Definitely and as a conclusion, it is proposed that education continues to be key and the information among the youngest people must have a preventive function starting from childhood in order to subsequently reinforce it in the successive growth stages. For this purpose, priority must be placed on the education focus, understood as the communication or dissemination of truthful information, promoting healthy habits, the risks of poor nutrition, new diseases, the importance of sports for health and the development of skills which help them to behave in a healthy way.

Indeed, education continues to be key and the information among the youngest people must have a preventive function starting from childhood in order to reinforce it in the successive growth stages.

For this purpose, priority must be placed on the education focus, understood as the communication or dissemination of truthful information, promoting healthy habits, the risks of poor nutrition, new diseases, the importance of sports for health and the development of skills which help them to behave in a healthy way.

Finally, we consider that with the establishment of the parameters and indicators queried in the web pages with health information, we sought answers for the quality of the health information and we seek professional ethics in the practice of honest and responsible communication for its transmission to society and especially for young adults and teenagers.

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5. Notes

[1] The research group was comprised by health care professionals and professors from the medicine and communication sectors: Miguel Ángel Mayer, Ángeles Leis, Francisco Lupiáñez, José Luis Terrón and Luis García Pareras.

[2] Research carried out by the same team in relation to the study of health information in the Basque and Navarra press between 2001-2010

[3] In Internet language, a *troll* is equivalent to a person who sends provocative, irrelevant or off-topic messages in an on-line community.

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