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Knowledge, practices and skills seeking health information online at participating research lecture at the Universidad San Francisco Xavier de Chuquisaca, 2013

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The available information on health issues is growing rapidly. The lack of information let us to search strategies especially on the internet exposes students and professionals unreliable, outdated affecting professional performance. In Bolivia and particularly in Sucre, this topic has been little explored, so it was raised as a general objective for this research to determine the level of knowledge, practices and skills regarding finding information on health issues in participants cycle research conference organized by the Science and Technology University of San Francisco Xavier de Chuquisaca. Through a quantitative study type with a cross-sectional descriptive design, the level of knowledge, practices and skills explored in 20 people who attended the meeting on June 14, 2013 (95% response). Based on the literature and on the Fresno test (standardized for measuring information search skills with a focus on evidence-based medicine questionnaire) questionnaire was developed. The results showed a low level of knowledge and use of some databases of particular relevance in Latin America (Cochrane, Lilacs, Hinari) and poor knowledge of MeSH terms / MeSH and Boolean operators. 10% of the population reported good practice. As for skill development in conducting a search for information, 70% no skills are evident and the remaining 30% showed limited skills. In conclusion, the need for training was evident in issues related to information search strategies to locate the most valid and reliable scientific information available on the internet to support decision-making in different situations of their professional performance.

Fresno test, MeSH, San Francisco Xavier, Bolivia

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Introduction

The training of health professionals increasingly requires more and more knowledge about access and management of information available online, so that capacities have to recognize when and what information is needed where it is located, how obtained it and also how it is evaluated critically to use it to communicate properly, this process being called "Information Literacy" (1).

These aspects are essential to improving clinical care, efficiency in operations, improving health equity, increasing and improving research processes, increasing the level of health and ultimately improving the living standards of people. Currently, there is much information on health issues available online, especially in non-specialized sites (like Google, yahoo), those without editorial filters and systems for evaluating websites, exposing professionals and patients to quality information dubious and unreliable which could have important implications for the health of the population (2).

Although among professionals and students in the area of health has extended the use of internet and there is a very positive perception about its application, studies in Latin America (3) (4) found in them, insufficient skills to access, read critically interpret and apply all the information they need.

In Bolivia, they have not found any studies on this topic. Moreover it is necessary to emphasize the increasing value that has been attributed to the information from the last decades.

Health, knowledge management is critical, since the access, use and interpretation of it plays a fundamental role in developing policies, programs and practices that can improve the quality of life of the community, which is why the remaining barriers in terms of access and proper use less chance to make proposals on key issues for social and economic development of communities.

The main barriers to entry described affecting mainly the least developed countries like Bolivia are: technical, economic, administrative, educational and cultural. These limitations are further accentuated when referring to restrict access to information produced by the requirement of a subscription fee or payment from reading certain articles.

While still this inequity in access of information is evident is the expense of developing countries, it is necessary to mention some initiatives that are increasing (5) as the so-called free (Open Access Initiative, OAI), promoted by the Open Society Foundation, through the declaration of Budapest in 2002, which promotes public access and availability of content on the network, allowing reading, download, copy, distribute, print, search, or link to the full texts with no economic, legal or technical barriers, only respecting copyright (6).

These initiatives greatly facilitate access to current high standards of quality, providing ample opportunities to developing countries information.Assessing knowledge and skills regarding the literature search in health among students and health professionals in the San Francisco Xavier University interested in research activities, provide a baseline to identify weaknesses in the process and propose actions specific so that students have the necessary skills to make efficient use of information for the community.

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1 Materials and methods

Quantitative and descriptive study: Population: Students and regular participants in the area of occupational health research lecture series on 2013 organized by the Department of Science and Technology (DICYT) University of San Francisco Xavier de Chuquisaca. For reference of those responsible for the organization in the health area a population of an estimated 20 to 30 people. Sample: A convenience sample was selected to survey all session participants regarding the diagnosis and development of a proposal in the area of health. Those attending the activity that day were 21 participants.

Instruments

A self-administered, anonymous survey of 14 questions, 11 closed questions and 3 open was implemented. For the proper performance of the instrument a pilot instrument was conducted to address some aspects of the drafting and interpretation of the questions.

2 Statistical Methods

Definition of variables:

Variable	Conceptualization	Dimension	Indicators
Knowledge	Organized set of data and information for solving a particular problem or make a decision	Medium/High Knowledge	-Meet And manages websites for specialized searches in health (good and very good categories) -Define Correctly or MeSH terms MESH -Describes Correctly use the operators AND, OR and NOT
		Low Knowledge	-Meet And manages websites for specialized searches in health (Basic categories and no) -Not properly defined MESH terms or MeSH -Not correctly describes the use of AND, OR and NOT
Practice	Action develops the application of certain knowledge	Correct Practice	-Own initiative -Using Database specialized health -Consultation of at least three databases in the last month
		Incorrect Practice	-The search for teacher direction. -Using Google or other unspecialized web pages -Visit at least three databases in the last month
Skills	Talent, skill or aptitude for a task	Excellent	- Mention 3 or more terms that reflect patient, intervention, comparison and event (PICO) -List At least 4 types of sources; Mention and explain at least two aspects of convenience; Mention and explain at

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			least two aspects of clinical relevance; Mention and explain at least two aspects of validity
		Strong	-Mention 2 PICO terms -List 3 types of sources; Mentioned and said at least one aspect of convenience; Mentioned and said at least one aspect of clinical relevance; Mention and explain at least one aspect related validity
		Limited	-Mention 1 PICO Term -List Mentions the two types of sources, but does not explain one aspect of convenience; Mentions but does not explain one aspect of clinical relevance; Mentions but does not explain at least one aspect regarding validity
		Not evident	-No mention of PICO term -List Just 1 type of source; No mention of any aspect of convenience; No mention of any aspect of clinical relevance; Not describe any aspect related validity

Table 1

Knowledge: Defined as the organized set of data and information for solving a particular problem or make a decision (7).

This variable has two dimensions used in previous studies (8) and is defined as follows:

- Medium / High Knowledge: Considered with medium or high knowledge when it meets three requirements: Meet and manages websites for specialized searches in health considering the good and very good categories, correctly defines the MESH terms or MeSH (Tesuro) and finally correctly describes the results obtained with the use of aND, OR and NOT operators.

- Low Knowledge: Considered low knowledge which does not meet the requirements mentioned previously: Meet and manages websites for specialized searches in health considering the basic categories and not properly defined MESH terms or MeSH, not described correctly results obtained with the use of aND, OR and NOT.

- Practice: Defined as the action unfolds with the application of certain knowledge (Praxis) (9). This variable has two dimensions described elsewhere (8) and defined as follows:

- Right Practices: Considered good practice when the literature search is mostly on their own initiative, using database consulting specializing in health and at least three specialized databases in health over the last month.

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- Wrong Practices: Considered malpractice when the literature search is mainly teacher direction, use Google or not specialized websites and check fewer than three specialized databases in health in the last month.

Skills: Defined as talent, skill or fitness for any task (10).

Questions about skills are based on two questions (2 and 4) of the Fresno test, standardized test and validated in its English version to measure skills on Evidence Based Medicine.

Question 4 of the Fresno test (question 12a our questionnaire) explores strategies search databases such as Medline for original research, and is described as follows (Table 2): Table 2 Rating Skills about search strategies (terms and delimiters used)

Score	Search Terms	Delimiters (filters)
Excellent	Mention 3 or more terms that reflect patient, intervention, comparison and event (PICO).	Describe more than one way to limit the search strategy. (eg limited to humans, adults or language,. specific type of research; Boolean operators; terms related to optimal design study)
Strong	Mention 2 PICO Terms	Describe only one way to limit the search
Limited	Mention 1 PICO Term	Do not describe only one way to limit the search
Not evidence	No term	Do not describe only one way to limit the search

Table 2

Moreover, the test question 2 Fresno (12 b of our questionnaire), measures the recognition of strengths and weaknesses of the different sources of information in clinical practice and is described as follows (Table 3):

Skill Score	Variety of sources of information	Convenience	Clinical relevance	Validity (quality of information)
Excellent	List at least 4 types of sources: Databases original articles (Medline, scielo, etc) Journals Texts Systematic reviews (Cochrane) Medical websites General search on the internet (google, yahoo, ect) Clinical guidelines Professional organizations	Mention and explain at least two aspects: Costs Speed Easy to find User friendly Availability	Mention and explain at least two aspects: Outcome (event) clinically relevant Written for clinical application (eg information side effects, patient info, etc.) Information applicable to patients Includes specific interventions specificity	Mention and explain at least two aspects: Approach to Evidence-Based Medicine Expert bias systematic approach Peer review Availability to review Standardized care (accepted treatments in the community) Provides enough information to criticize validity Update
Strong	Mention three types of sources	Mention and explain 1 aspect	Mention and explain 1 aspect	Mention and explain 1 aspect
Limited	Mention two types of sources	Mentioned the desirability of one or more sources without any explanations	Mentioned the desirability of one or more sources without any explanations	Mentioned the desirability of one or more sources without any explanations
Not evidence	No mention variety, only mentions one type of source	No mention convenience	No mention convenience	No mention convenience

Table 3

3 Analysis Plan

The questionnaires were scanned using EpiInfo v. 3.5.3 and exported to SPSS v.17 program for the analysis. The graphs were created in Microsoft-Excel 2010. Considering the descriptive scope of the essay, the final sample size, and distribution of data, continuous (age) variables were expressed relative to the median value and the minimum and maximum value.

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Moreover categorical variables were expressed in absolute and relative value.

Ethical Issues

4 Results

The survey was conducted for the diagnosis on 14 June this year, 20 students who participated in the meeting regarding the proposed development of diagnostics and focusing on health. The rejection rate was 5% (1 student 21). The general characteristics of the study population are shown in Table 4.

		n	%
Age (median, min-max)	21 (19-33)		
Procedencia	Sucre	11	57.9
	Inside the country	8	42.1
Gender	Masculine	7	35.0
	Femenine	13	65.0
Career	Kinesiology / Physical Therapy	7	35.0
	Medicine	5	25.0
	Nursing	5	25.0
	Pharmacy	2	10.0
	Imaging	1	5.0
Grade	Second	1	5.0
	Third	9	45.0
	Fourth	5	25.0
	Interned	1	5.0
	Graduated	4	20.0
Management Languages Good / Very Good	English	4	20.0
	Quechua	3	15.0
	Portuguese	2	10.0
Memberships scientific society		7	35.0
Research conducted	None	3	15.0
	1-2 jobs	10	50.0
	More tan 2 jobs	7	35.0
Training literature search	Any formation	8	40.0
	Through the University	8	40.0
	Self-learning	4	20.0

Table 4

Increased participation of students was presented in the middle of the race course (45%) with a median age of 21, mostly in Sucre (58%), women (65%).

In this session there was greater involvement of racing Kinesiology / Physical Therapy (35%), medicine (25%) and nursing (25%). Moreover it is shown that only a small percentage of the study population manages a language other than Spanish to good or very good level (20% English, Quechua 15%, Portuguese 10%), something that often restricts access to international literature . Also about a third of the study population (35%) belong to some scientific society, while 85% made 1 or more research papers and 40% reported training in literature search through a course in college. As for the main point of access to internet shows that the highest percentage accessed from an internet point (50%) and uses an average of 1-5 hours per week (63.2%) (Table 5).

		n	%
Principal place of acces	Internet Point	10	50.0
	House	8	40
	Cellphone	1	5.0
	None	1	5.0
Frequency of Use	Less than 1 hour per week	4	21.1
	1-5 hours per week	12	63.2
	5-10 hours per week	2	10.5
	More than 10 hours per week	1	5.3

Table 5

Information sources are consulted more frequently during training are specialized books on health (often / always: 55%), class notes (45%) and Internet pages of general information (75%). Moreover the less frequented notes are compiled (never / only sometimes / sometimes 78%), articles, magazines or specialized health reviews whether print (70%) or digital (55%) (Figure 1).

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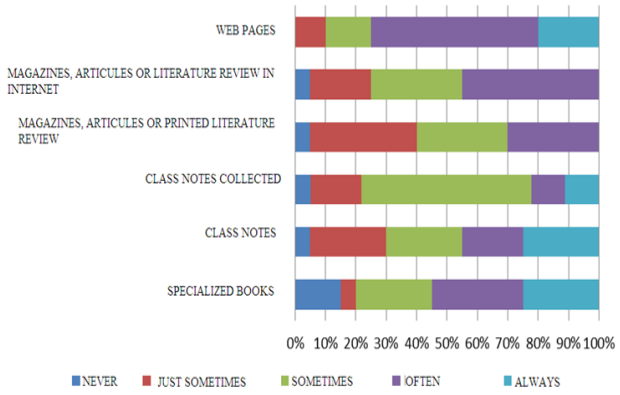

Figure 1

5 Results on knowledge

Specialized pages on topics best known as most health management are the World Health Organization (Good: 50%), Pan American Health Organization (35%) and Vademecum (Good / Very Good: 45%). Moreover among the lesser known websites and are handled INASP: Programme for Strengthening of information for research (None / Basic: 100%), Cochrane (100%), Lilacs (95%) and Hinari (95%), although some of those shortcut link from the college website (Figure 2).

None of the respondents knew the terms or descriptors Mesh Health Sciences (MeSH). Moreover four people (20%) correctly described the results obtained using the Boolean "AND" and only two (10%) correctly described the results operated by the Boolean "OR" and "NOT" respectively (Table 3).

	n	%
Knowledge of the terms Mesh o DeCS	0	0.0
Operator knowledge AND (Y)	4	20.0
Operator knowledge OR (o)	2	10.0
Operator knowledge NOT (no)	2	10.0

Table 6

6 Results on practical

Most of those surveyed visited Google to search for health information (95%), followed by SciELO (45%), and Lilacs (45%). Moreover the least visited are database Cochrane systematic reviews (8%) and Hinari (10%), (Figure 3). These practices relate to the previously reported levels of knowledge. A criterion is considered good practice for consultation over three specialized health pages per month. In our study, only 2 people (10%) visited at least three Internet sites specializing in health (Figure 4).

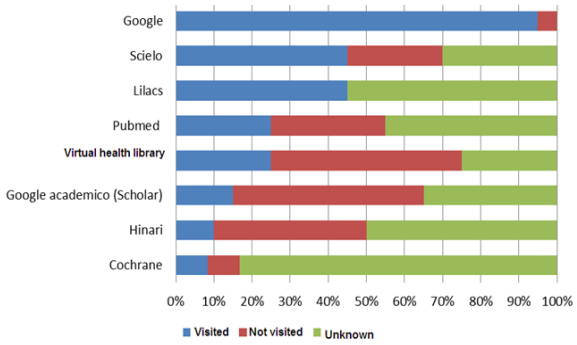

Figura 3

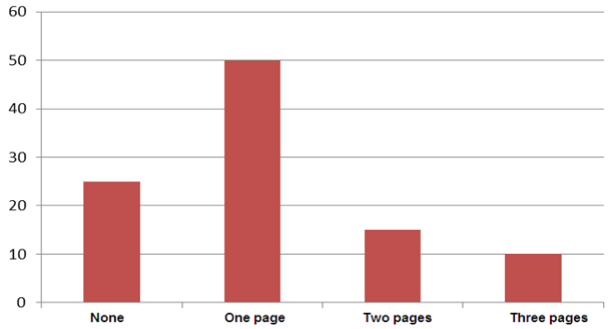

Figura 4

As the main reason for search, six people, of all respondents, reported having sought information at the request of the teacher while nine (60%) did so on their own initiative. For this question five missing values were recorded.

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Considering the number of pages visited and the main reason for search, only two (10%) are considered correct search practices.

Results on skills

For the rating of the skills developed during a literature search terms and filters or delimiters used in a search for a clinical problem described were considered. In our study population 40% (8) showed limited skills, and 60% skills are not evidence and that did not include any terms related to Patient Intervention Comparison Outcome or (PICO) and not to mention no way to limit the search .

As for the ability to recognize some related information sources on health as variety, convenience, clinical relevance or quality of information attributes, in our study, only one person (5%) was shown to have strong skills to mention at least three types of sources of information (Dialnet, SciELO, google / books) also mention and explain at least one aspect of convenience (subscription required, ease of access), clinical relevance (clinical application) and information quality respectively (sufficient) information. Five people (25%) reported limited skills to name just two sources, and mention only one aspect of convenience, clinical relevance and quality of information respectively. The highest percentage of the study population (70%) showed prowess and that only one type of information source and does not mention any aspect of convenience, clinical relevance and quality of information. Considering the skills to describe a search strategy and to describe the characteristics of the information sources, 30% of the study population (6) demonstrates limited skills; lie to the rest of the population does not demonstrate developed skills.

Finally, the perceived difficulty was explored to find health information and relevance of training on the topic and found that most of the respondents (55.5%) found it difficult to find health information (Figure 5) and 88.9% find the relevant receive training on the subject, a fact that supports the proposal made in the next chapter.

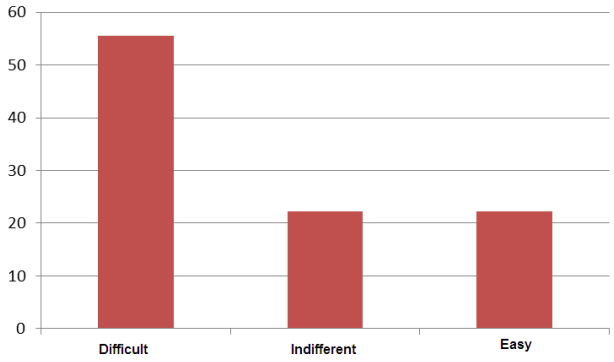

Figure 5

6 Discussion

The survey population reported a low level of knowledge of specialized databases available in Spanish language health as Cochrane, Lilacs or Virtual Health Library (VHL) which is a Latin reference for professionals in the health area. Moreover poor knowledge was also evident as the thesaurus (MeSH or MesH) and Boolean operators, which are key elements in achieving effective Internet searches.

Most respondents reported improper conducting searches for health information practices. While most searches conducted on they own initiative, few of them looked at health specialist sites. Moreover undeveloped search skills are also evidence describing incomplete terms in the search strategy for a specific clinical problem. Also little recognition of the diversity of information sources available, their advantages and limitations, clinical relevance or quality of the information they contain is reported.

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Although a convenience sample to consider attending one session is selected, it is likely that the sample is representative of the study population. This group has different characteristics to other students, being a population with greater motivation and research experience, as well as some access to internet. Given these characteristics it is possible that the level of training on this issue is deficient in most other students, aspects to be considered in the implementation of training workshops such as the one presented in the proposal.

7 Conclusions

In the present investigation a low level of knowledge, inappropriate behavior, and poorly developed skills regarding search strategies for health information on the participants cycle research conferences organized by the Directorate of Science and Technology, University San Francisco Xavier de Chuquisaca. It is necessary to include in undergraduate training workshops on finding information, whether in health as in other branches of science from the first training course, so to prepare professionals to deal with the abundant information produced, especially in the Internet, and student and professional optimize the time spent retrieving quality information and form both a critical thinking to evaluate information and its applicability considering each particular context. Moreover it is important to foster in students a more critical attitude towards the information accessed and assimilated so that a stronger background, updated to provide quality care and to consider the best available evidence is taken.

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