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Information needs in Spanish nursing students: results of a survey

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Abstract

Nursing professional practice requires continuous knowledge updating, which makes essential "Management of information" competency and its inclusion in undergraduate curricula. That requires knowing and measuring the undergraduate nursing student's information needs and their satisfaction with learning process related to information competency training. An observational, descriptive and transversal quantitative study was carried out. A structured questionnaire was administered to nursing students from 21 University centers. Interest in informational competences integration in successive courses was shown by 73% of the participants. Almost three quarters of this percentage considered a subject on information skills as necessary. Some authors recommend information literacy (IL) to be integrated mostly into the first year of the program. Others think that each faculty must examine its curricula in order to determine the best placement for information literacy content and experiences. In all blocks analyzed, results show a positive impact of information competencies trainings on the students.

Keywords: *Information Literacy; Nursing; Competencies; Education, Nursing; Health Literacy.*

1. Introduction

The exponential information growth, the current technological context, together with the changes in education and the need of constantly analyzing information in any of its formats, put the accessing and using information skills in the basis for lifelong learning. These skills apply to all disciplines, all learning environments and all levels of education. When starting their studies at University, student`s skills are not enough to autonomously locate, access, retrieve, evaluate and critically use information, so they require basic training to interact with the information process. Theoreticians refer to the information process competences in multiple ways, such as informational or digital and multimedia competences, and all these competences are the object of informational literacy (IL).

IL concept and practices have evolve since its appearance in 1974, initially related to the work context and applied to problem solving. Since then, IL has also settled above Anglo-Saxon library and educational contexts supported by relevant institutions as ALA, IFLA and UNESCO.

IL is about acquiring the ability to know when and why information is needed, where to find it, and how to evaluate, use and communicate it effectively and ethically (Abell et al., 2004).

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Universities have shown an interest in it–, as the establishment of new degree programs means a constructivist pedagogical model where the student takes center stage in their learning process. In this scenario, students need to have a set of competencies and skills which allow them to locate, retrieve, and manage information effectively. All this has led to the proposal of literacy interventions related to information and technology. Nevertheless, such literacy has not been included in many curricula in a strategic and planned manner. Therefore, students are graduating without the necessary information and digital competencies (Derakhshan & Singh, 2011).

Nursing activities, both during university and later on in professional practice, involve a great amount of information and include many information elements (García Martínez, 2011; Ortoll Espinet, 2004) Undergraduate nursing students face new pedagogical challenges, more practice-oriented, based on self- initiative and on the acquisition of skills for searching, managing and organizing the available scientific information (Guerra Martín, Lima Serrano, Zambrano Domínguez, & Lima Rodríguez, 2014). In higher education, the development of information skills is seen as one of the specific and basic competencies for professional development. Consequently, the acquisition of such skills provides students with the acquisition of a new competency: information competency. In Nursing, the Information management competency is included in the white papers of the discipline. In the Spanish context, legislation about nursing undergraduate competencies comes from 1393/2007 Royal Decree, and it is through the Ministerial Order CIN/2134/2008 that they concrete. Regarding that competencies, it is specifically contemplated the “application of information and communication technologies on health care” (ORDEN CIN/2134/2008, de 3 de julio, por la que se establecen los requisitos para la verificación de los títulos universitarios oficiales que habiliten para el ejercicio de la profesión de Enfermero, 2008).

Assuming that the issue we are presenting is not limited to a specific social context, it is especially important in the health context considering the consequences that health care professionals’ decisions have on people’s health, and the ever-changing scientific innovation in all health-related fields.

The Evidence-Based Practice (EBP) development and the exponential information growth, leads to the argument that if scientific knowledge is wider, clinical practice must be more effective if it is based on the right decisions (Alonso Coello et al., 2014). However, in this regard, it is necessary to be able to not only recognize scientific evidence in the literature, but also to access it. Thus, EBP depends to a large extent on the ability to know information resources and to know how to find relevant literature. On the other hand, the development of information competency in nursing professionals has an impact on the quality of document production. They should know and use the tools available for them, in order to be competent in the management of scientific production related to their discipline. In this sense, they should be familiar with the different resources which include open-access publishing, and they should have access to the criteria for selecting the quality of an article in this kind of publications.

The use of ICTs is also essential to foster autonomous work in health sciences students: virtual campus, databases, or reference management software. University education must provide nursing students and future nursing professionals with the development of skills to access, process and manage the abundance of available information, as well as to know the tools available to them, so they can be competent in scientific production management. Taking this into account, we can also point out that

distance and virtual learning offers a new opportunity for nursing professionals to have a learning environment which allows them updating their knowledge in any of their future endeavors.

Likewise, one of the aspects that have been modified is the relationship between nursing professional and patient. Patients have increasing possibilities to access information related to health sciences. They can search for alternative treatments, new self-care techniques or drug information. This evolution of the users' technological profile has allowed them to adopt new practices. Nowadays, they stay informed, they share their experiences on blogs, forums and social media, they build tools and they commit to health. Professional nurses must be prepared to transfer the necessary knowledge to their patients, so they can develop attitudes and skills for locating and managing information, which can be used as a basis for decision-making at an individual level when it comes to each person's health. This reality has major implications regarding health care professional training towards the patient, in relation to the access to information and in their own training with regard to the knowledge of resources and aspects related to the dissemination of this information (García Martínez, Lleixà Fortuño, Nieto de la Fuente, & Albacar Ribóo, 2011).

ICTs have had a major impact on health sciences processes, from diagnosis to treatment, rehabilitation, administration and epidemiology. The effective use of information, supported by the use of ICTs, has allowed for higher-quality health research, health care and, ultimately, higher quality of life (Sánchez Tarragó & Alfonso Sánchez, 2007). Despite the fact that there are different interventions in the nursing program and that students receive training in information competency, some studies show that students do not have enough knowledge to access and evaluate relevant information after they graduate (Brown, Kim, Stichler, & Fields, 2010; Franks & McAlonan, 2007; Jacobsen & Andenæs, 2011; Scott, Gilmour, & Fielden, 2008; Tarrant, Dodgson, & Law, 2008).

Today's projects aiming to integrate IL in the curriculum are inconsistent, especially because these kinds of initiatives are based on an informal approach. This is either because of the librarians' proactive attitude and enthusiasm — seeking collaboration with academics — or, on the contrary, academics who seek collaboration with librarians. These initiatives with an unclear academic status — since they are not institutionally endorsed — have been occasionally successful and play a major role in building partnerships between students, academics and librarians. However, they do not guarantee or sustain a long-term IL program (McGuinness, 2007).

Against this background, several studies have suggested potential strategies for integrating IL into the Higher Education curriculum (Argüelles, 2016; Barnard, Nash, & O'Brien, 2005; Beck, Blake-Campbell, & McKay, 2012; Bønløkke, Kobow, & Kristensen, 2012; Courey, Benson-Soros, Deemer, & Zeller, 2006; Dorner, Taylor, & Hodson-Carlton, 2001; Farrell, Goosney, & Hutchens, 2013; Flood, Gasiewicz, & Delpier, 2010; Jacobs, Rosenfeld, & Haber, 2003; Jacobsen & Andenæs, 2011; Janke, Pesut, & Erbacker, 2012; Schutt & Hightower, 2009; Sin & Bliquez, 2017; Stombaugh et al., 2013; Tarrant et al., 2008; Verhey, 1999; Wadson & Phillips, 2018; Wallace, Shorten, Crookes, McGurk, & Brewer, 1999).

In Spain, librarians, academics and universities have set up collaborations in order to integrate information literacy competencies into the nursing curriculum (Domínguez-Aroca, 2017; García Martínez, 2011; Manso-Perea, Cuevas-Cerveró, Martínez-Miguel, & García-Carpintero-Blas, 2015).

In this context, the aim of this study is to know the Spanish nursing student`s information needs, and to measure their satisfaction with information competency training during their learning process.

2. Methods

An observational, descriptive, cross-sectional, quantitative study was conducted.

The participants were Spanish Nursing students across all years of the degree program during 2015-2016 academic year who had taken a course covering content related to information competencies. The fact that the sample includes students from 1st to 4th year of the degree program allows representing different knowledge levels and different moments of the student's cognitive maturity (Martínez-Miguel, 2016).

A questionnaire was designed based on the researcher`s reflection after reviewing the existing literature on the subject matter. It was structured in 32 interrelated questions and divided into 3 sections which provide an insight into the subject matter. The first section deals with the analysis using variables related to socio-demographic issues. The second section deals with information literacy (IL)-related issues, using the definition by the British Chartered Institute of Library and Information Professionals (CILIP). Information literacy is "knowing when and why you need information, where to find it and how to evaluate, use and communicate it in an ethical manner" (Abell et al., 2004).

The questionnaires were distributed in two different ways to facilitate student`s access to them: on paper and via Google Drive Forms. Professors responsible of IL subjects selected the way of distribution and 1350 were gathered, receiving 1270 responses between October 2015 and June, 2016. Regarding geographical distribution, the participating students came from 21 (public and private) higher education institutions which offer the Nursing Degree Program, belonging to 18 Universities and 9 Autonomous Communities (Table 1).

Two types of analysis were performed: descriptive and stratified analysis. The descriptive analysis was in turn divided in two parts: socio-demographic variables and other variables. On the other hand, a stratified analysis per year was performed. Data processing and statistical analysis was carried out using the IBM® SPSS® Statistics V21.0.0 software.

Table 1: Geographical distribution

Autonomous Community	University	n
ANDALUCÍA	US	1
ARAGÓN	UNIZAR	1
CANTABRIA	UNICAN	1
CATALUÑA	URV	6

	UB	
	URL	
	UVIC- UCC	
	UPF	
CASTILLA Y LEÓN	UPSA	2
	USAL	
COMUNIDAD DE MADRID	UAM	4
	UCM	
	UAH	
COMUNIDAD VALENCIANA	UCH-CEU	1
GALICIA	USC	3
	UDC	
PAÍS VASCO	UPV	1
REGÍÓN DE MURCIA	UCAM	1

US: University of Seville, UNIZAR: University of Zaragoza, UNICAN: University of Cantabria, URV: Universitat Rovira i Virgili, UB: University of Barcelona, URL: Ramon Llull University, UVIC-UCC: University of Vic - Central University of Catalonia, UPF: Universitat Pompeu Fabra, UPSA: Universidad Pontificia de Salamanca, USAL: University of Salamanca, UAM: Universidad Autónoma de Madrid, UCM: Complutense University of Madrid, UCH-CEU: CEU Cardenal Herrera University, USC: Universidad de Santiago de Compostela, UDC: University of A Coruña, UPV: Universitat Politècnica de València, UCAM: Catholic University of Saint Anthony.

3. Ethical Aspects

When gathering information and processing data, the ethical principles enshrined in the Declaration of Helsinki and the current Spanish legislation were respected. Informed consent from the participants was obtained.

4. Results

Of the 1270 students who participated in the questionnaire, 967 (76.1%) are first-year students, 158 (12.4%) are third-year students, 107 (8.4%) are fourth-year students, and lastly 37 (2.9%) are second-year students. Regarding school entrance, 78.5% entered via Selectividad (University entrance examination in Spain). Of the total participants, 82.7% were female.

4.1 Need for information

Among the total of the study sample, 78% of the participants had not received any kind of training in information and/or digital competencies before university. Solely 29.1% of the students go to the library

several times a week and only 4% go to the library every day. The most used service was the WiFi with an average of 5.11 — with a standard deviation (hereinafter, SD) of 2.32 — knowing that they were assessing the frequency for each option, 1 being very infrequent and 7 being very frequent. On the other hand, 41.55% of them answered that they used the Catalog to locate a book. When they do not find it, the most popular alternative among the students is to ask the librarian, with 68.4% of them doing so.

Almost 70% answered that they use Google to obtain information when writing an academic paper (Table 2).

Table 2: Method for obtaining information when writing an academic paper

Method	% Yes	% No
I use a search engine (Google)	69.37%	30.69%
I ask the librarian	5.59%	94.40%
I search databases	52.44%	47.55%
I only search books	22.28%	77.71%
I search other resources: repositories, etc.	4.88%	95.11%

The students consider that the main aim of information seeking during academic development is to Update their knowledge — an average of 4.7 out of 6 (SD of 1.30) and to Answer a clinical question — 4.57 (SD of 1.30).

4.2 Accessing information effectively and efficiently

In this section, 62.5% answered that they use search strategies with Boolean operators in databases and 76.2% used advanced search in searchers. The statement I spend more time than I would like to search for information obtained an average score of 4.06 (SD of 1.65). On the other hand, a high percentage (87.9%) are familiar with and make the difference between the different types of scientific information sources.

The students revealed that almost 50% use PubMed as a reference database or resource for health-related information search in the Nursing program (Table 3).

Table 3: Databases or resources where health-related information is found

Databases/resources	%
Google	44.57%
Google Scholar	13.31%
PubMed	49.13%
Cinahl	2.36%
Embase	0.00%
Cuiden	32.13%
IME	4.33%

IBECS	4.88%
Dialnet	18.11%
Scielo	24.33%
Cuidatge	4.41%
Enfispo	15.51%
Medes	2.44%
Cochrane	8.43%
Up to date	0.16%
Trpdatabase	2.60%
Clinical Key	0.16%
Other	31.81%

4.3 Evaluating the authenticity of the information gathered and its sources

Data shows that 63.3% of students evaluate the quality of the health-related information gathered on the Internet. Furthermore, almost three in four students (71.7%) said they reflected on the information search process and revised the strategies if necessary. Next, they were asked about the quality of the information gathered in their searches and 87.6% replied that they assessed the quantity, quality and relevance of the search results. On the other hand, 85.6% verified the sources when searching for information and 80% were able to determine whether the information provided in the resource was up to date.

4.4 Communicating information

Regarding “communicating information” item, 85.1% were familiar with the guidelines for writing an academic paper. The results show that students’ preferred means for disseminating information was the email, with 75.4% of the students using this.

4.5 Using it in an ethical and legal manner

In this section, 85.6% of the participants admitted they cited all the resources they had used in their papers, and 96.7% were familiar with the Vancouver style for citing and referencing. In line with the previous premises, they were also asked about their level of knowledge regarding this citation and reference style. An average of 6.05 out of 10 (SD of 2.19) was obtained.

4.6 Satisfaction

Students were asked about their satisfaction with the training they had received. 15.27% are below dissatisfied and 58.5% are above neither satisfied nor dissatisfied with their information-accessing skills. Moreover, 64.5% stated they know what it means to be an information literate individual.

They were also asked whether they were interested in having information competencies included in the following years of the program. 73% answered yes. Likewise, almost three-fourths of that percentage deemed it necessary to include a course providing knowledge about information competencies.

With regard to the year of the degree program, the results showed that fourth-year students (82.75%) are the ones who do deem it necessary to include a course providing content related to information competencies (Table 4).

Table 4: Preference for integrating a course providing knowledge on information competencies, by academic year

Academic Year	% Yes	% No
First	57.70%	42.30%
Second	65.30%	34.70%
Third	71.60%	28.40%
Fourth	82.75%	17.25%

5. Discussion

The results show that first-year students were the most involved in the study. Some authors recommend-IL to be integrated mostly into the first year of the degree program (Secker, 2011), Others think that each faculty must examine its curricula in order to determine the best placement for information literacy content and experiences (McCleary-Jones, 2016). Although some Universities prefer to include this kind of content in the last years of the degree program, there are reasons to recommend introducing it since the beginning, because this is when they first start having information needs, the time to develop and determine the necessary skills for their professional life during training, as well as the possibilities of extended and flexible learning produced by them (Nodarse Rodríguez, 2005).

There is a common tendency of greater female enrollment in the health sector in general and in nursing in particular. These results support previous studies on information competencies in health science disciplines, which show greater participation of women compared to men (García Martínez et al., 2011; Guerra Martín et al., 2014; Lázaro Ruiz, 2016). Nevertheless, gender was not relevant to the answers of the questionnaire.

The results show a high percentage of students who had not received training in information competencies before University. Some authors point out that such training should be pre-university training (Hernández-Rabanal, Vall, & Boter, 2018) which would be followed by more advanced training in University and, later on, continued training during professional life (García Martínez, 2011; Kim & Shumaker, 2015).

Other studies show that a high percentage of students claim they do not use resources available at the library and they mainly use Google to seek information when writing academic papers (Comas, Sureda, Pastor, & Morey, 2011; Fast & Campbell, 2004; García Martínez, 2011). This result could be considered as disheartening, especially if we take into account that the responses were obtained after the students had received training in information competencies. In this regard, the results also showed a positive percentage of 52.44% when it comes to using databases for academic papers.

The analysis demonstrates the importance that students attach to updating their knowledge and to answering a clinical question as the purpose of performing a bibliographic search. These answers have an impact on health care in the form of decision-making based on scientific research, in the context of EBP.

Using PubMed does not necessarily indicate a strong comfort level using it. The fact that they resort to Google as a second option may be due to its use for immediate needs or when they encounter an obstacle in databases (Morley & Hendrix, 2012).

The results show that either more time needs to be devoted to teaching content related to citation and reference or to the use of reference management software, or that it is necessary to work more on that throughout different courses, so that they practice more often. The ethical and legal use of information must be addressed in different areas of higher education, in order to instill academic honesty in students. To this end, this effort needs to be reinforced in health sciences, due to the ever-changing scientific innovation in this field.

The analysis indicates that it is in the fourth year when students are more aware of their information needs throughout their academic career and have a greater insight into the need for a compulsory course offering contents related to information competencies. Moreover, it is in the final year when the students' academic maturity becomes clear. Their information needs also keep changing throughout the years. As fourth-year students are close to their graduate profile, they ask themselves research questions which are more related to decision-making in clinical practice, in order to be able to solve a clinical question. When it comes to clinical practice, information sources, data base and electronic resources are used most frequently by recently graduate nurses, who have received IL competencies training in compare with those with more years of professional experience and a more distant training experience (Wahoush & Banfield, 2014). But nevertheless, scientific literature does not explore other IL aspects as knowing when and why there is an information need, critical evaluation or the usefulness of the information retrieved by the nurses.

It is also in their final year dissertation where 4th year students prove that they have achieved the competencies related to the degree. Therefore, it is our understanding that achieving competency in information management and use is a prerequisite for meeting this course's targets. The minimum percentage obtained in responses from first-year students is due to the fact that these students are not involved with research papers yet. This training is more productive later in their academic career, when they are more aware of their academic reality and are involved in research projects (Burke, 2012). Academic papers, such as the final project, offer the opportunity to integrate information competencies into the university curriculum (Gómez-Hernández & Benito-Morales, 2001). Other authors point out that when IL training is provided to students who have been assigned to research work, students see this as an incentive, which leads to higher participation rates and, consequently, better results (Bent & Stockdale, 2009; Limberg, Alexandersson, Lantz-Andersson, & Folkesson, 2008).

The size of the sample and a multidisciplinary team made up of information and health care professionals must be pointed out as the strengths of the study. Regarding its limitations, the questionnaire has not been validated and it would be beneficial to pre-test the questionnaire.

6. Conclusions

To conclude, nursing professional practice requires ongoing knowledge updates. This makes information management competency essential and requires its integration into the programs curricula. The information needs of incoming freshmen change as they progress through their academic studies and their knowledge on the discipline evolves, culminating in the final project. This confirms the need to design IL in a progressive manner, providing greater support to first-year students and evolving up to the final project, which allows for a comprehensive evaluation of the program competencies.

EBP reaffirms the importance of information competencies as a guarantee for seeking and accessing the best evidence to support clinical decision-making. Students show high satisfaction levels regarding the training experiences received in information competencies, and they demand for a specific course which enables the development of these competencies to be integrated into the curriculum.

University libraries must be the starting point for initiatives aiming to build a strategy for integrating IL into the academic curriculum, which require collaboration among all members of the university. The results of this research confirm that university libraries must guide and promote IL instruction in Higher Education. In our opinion, this must be one of its key roles.

University libraries enjoy a strategic position at universities. Therefore, it is imperative that they be in line with their new roles and take responsibility for the training of future graduates so that they are labour market-ready in terms of information literacy.

Promoting IL encourages librarians to engage in the teaching process — direct and seamless learning — getting close to the students, better identifying their needs and shortcomings, and working together with academics when it comes to designing academic activities.

It is essential to provide university students with gradual IL instruction through different courses throughout the program. This would mean developing an inclusive approach to information literacy competencies in a scenario where the IL-related course of study is duly planned.

Given that students need to intensely interact with information in nursing education, the higher education community should be sensitized and made aware of the importance of IL training as specific, cross-cutting training integrated into the curriculum. This would enable the actual development of this competency in future nursing professionals by training teachers and explaining — using evidence-based practice — that it is not possible to achieve it if future professionals do not know how to manage information needs.

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