Health Professionals' Use of Online Information Retrieval Systems and Online Evidence

Paschalina LIALIOU[a,1], Ioanna PAVLOPOULOU[b] and John MANTAS[a]

[a] *Health Informatics Laboratory, Department of Nursing, School of Health Sciences,*
[b] *Pediatric Research Laboratory, Department of Nursing, School of Health Sciences,*
National and Kapodistrian University of Athens, Greece

Abstract. A cross-sectional survey was designed to determine health professionals' awareness and usage of online evidence retrieval systems in clinical practice. A questionnaire was used to measure professionals' behavior and utilization of online evidences, as well as, reasons and barriers on information retrieval. 439 nurses and physicians from public and private hospitals in Greece formulate the study's sample. The two most common reasons that individuals are using online information systems were for writing scientific manuscripts or filling a knowledge gap. A positive correlation was found between participants with postgraduate studies and information system usage. The majority of them (90,6%) believe that online information systems improves patient care and 67,6% of them had their own experiences on this. More support is needed to nurses and physicians in order to use the online evidence and as a result to improve the provided care and practices.

Keywords. Online evidence, Information retrieval, Use of evidence

1. Introduction

Health professionals have many information needs at the point of care for a variety of issues. The right choice of an appropriate information source is another critical subject on this domain. Six types of information needs has identified: refreshing, confirming, logistics, teaching, idea generating, and personal learning[1]. These information needs seem to be related to the usage of online information sources (MEDLINE, UpToDate) and reveal the necessity of evidence-based practice training. On the other hand, nurses show a preference on human and printed information resources over electronic resources, due to convenience, reliability, and ease of use of the provided information. Findings suggest that insufficient skills, training, and time were some of the top factor-barriers for using electronic resources. Also, work-related factors have a higher impact on the relation between credibility and trust of the information sources, than the personal motivation factors in dissemination of knowledge from the information sources[2,3].Online information retrieval sustain the utilization of research and provide

---

[1]Corresponding Author: Paschalina Lialiou. 123, Papadiamantopoulou Str. Athens, Greece, email: plialiou@nurs.uoa.gr.

answers to clinicians' questions in routine practice[4]. Online evidence systems have been proved to be associated and effective for patient care[5].

For the overall doctoral study, this is the section which investigates healthcare practitioners' awareness of online evidence databases. Utilization of databases in clinical routine practice and the associated factors that affect the exploit of online evidences were exploring too. This survey was conducted in the Greek healthcare sector, filling a research gap about clinicians' retrieval behavior through online evidence information systems, revealing the credibility and trust of information sources.

2. Methods

A cross-sectional study was designed using a 25 items questionnaire which was selected from a South New Wales survey accessing an online evidence portal called Clinical Information Access Program (CIAP)[6]. The instrument was, already, tested about the validity and reliability. The reuse of this instrument was approved by the authors of the above study. Close-ended questions(yes/no), multiple response items and rating scale items were contained in the questionnaire. The study was approved by the Ethics Committee of Faculty of Nursing, University of Athens, Greece and the questionnaire was translated in Greek language by two independent translators using reverse translation method and transformed on electronic form, using Google forms. Furthermore, the instrument was evaluated by a group of experts testing for adequacy and efficacy of question items and finally was pilot tested by a sample of 20 clinicians (Cronbach's alpha coefficient ranged from 0.887 to 0.897). The questionnaire was posed on the website of Greek Nurses Association, and to enhance the sample with more responses, private electronic messages were sent to 350 nurses from all healthcare sectors. Also, an electronic mail was sent to a mailing list of 650 physicians of a Greek Medical Association. In addition, the questionnaire was distributed in one of the largest public hospitals and in one of the largest private hospitals after the approval of their scientific councils. For the statistical analysis, a comparison of ratios was conducted using Pearson's x^2 test or Fisher's exact test. For the comparison of the quantitative variables Student's t-test or nonparametric Mann-Whitney test were used. Logistic regression analysis was used too, to find if the independent factors are related to the awareness and the usage of online evidence systems.

3. Results

The sample included 439 participants. The mean of their age was 38.9 years (SD = 9.5 years).The 67.0% of the participants was women. 54.5% was nurses,42.7% physicians and 40.9% of them had postgraduate studies. The majority of participants worked in a private sector(40.7%) and 35.0% in public hospitals. The average time of work experience was 12.6 years (SD = 9.1 years). 75.8% (N=329) of the sample knows about the electronic evidence systems and 73.3% (N=319) have used them, 76.0% of them have found the information needed after a research on databases.67% of health professionals had used online information databases PubMed/Medline and 22.6% the UpToDate. The 66.9% of participants which use the databases fairly or very much admitted that they have used them at their home and 43.1% of the same group, at the point of care. According to the participants, the main reason for using online

information retrieval systems was writing a scientific manuscript, and the second one was to fill a knowledge gap. 90.6% of the participants, who use the retrieval systems, believe that the systems have the ability to improve patient care but only the 67.6% have had a direct experience of that. Based on the results of the logistic regression, participants with postgraduate and doctorate education were 6.08 times more likely to use online information systems compared those who have technical education.

4. Discussion

To answer correct on a clinical question, it is a high demand issue for all health professionals who want to provide evidence-based practices in healthcare. So, rapid access in online information recourses, maybe is the solution for difficult questions which are posed at the point of care[7]. Reportedly, the majority of clinicians' searches were related to patient issues[8], but in comparison with present survey searches were related with educational reasons and completing a knowledge gap. In both studies, participants agreed that online information systems were rated as useful and appropriate tool for patient care. On present survey, itis concluded that educational level of health professionals is related to the positive attitude towards the online information retrieval, which is agreed with Gosling and Westbrooks' survey who suggest, a general training in computer skills to encourage the usage of online evidence systems[9]. The overall study's outcome suggests that ready access and support in using online evidence information systems, may improve patient care and clinical practices. Finally, future work is needed to design an information retrieval portal, determining the most "comfortable" source of information that will provide evidences for clinical use in routine practice for health professionals regardless qualifications[10].

References

[1] L.A. Maggio, O. Cate, L.L. Moorhead, F. van Stiphout, B.M.R. Kramer, E. TerBraak, K. Posley, D. Irby, and B.C. O'Brien, Characterizing physicians' information needs at the point of care, *Perspect Med Educ***3** (2014), 332–342.
[2] C. Dee, E. Stanley, Nurses' information needs, *Journal of Hospital Librarianship* **5** (2008), 1-13.
[3] P. Kostagiolas, N. Korfiatis, P. Kourouthanassis, G. Alexias., Work-related factors influencing doctors search behaviors and trusttoward medical information resources, *International Journal of Information Management* **34**(2014) 80–88.
[4] W.R. Hersh, M.K. Crabtree, D.H. Hickam, L. Sacherek, L.Rose, and C.P. Friedman, Factors associated with successful answering of clinical questions using an information retrieval system, *Bull Med LibrAssoc* **88** (2000), 323-331.
[5] O. Waloush, Information literacy during entry to practice: Information-seeking behaviors in students, nurses and recent graduates, *Nurse Education Today* **34** (2014).
[6] A.S. Gosling, J. Westbrook, Nurses' use of online clinical evidence, *Journal of Advanced Nursing* **47** (2004), 201-211.
[7] M.A. Graber, B.D. Randles, J.W. Ely, J. Monnahan, Answering clinical questions in the ED, *American Journal of Emergency Medicine* **26**(2008), 144-147.
[8] F. Magrabi, J. Westbrook, E. Coeira, S. Gosling, Clinicians assessments of the usefulness of online evidence to answer clinical questions *MEDINFO*(2004).
[9] S. Gosling, J. Westbrook, Allied health professionals' use of online evidence: a survey of 790 staff working in the Australian public hospital system, *International Journal of Medical Informatics* **73** (2004), 391-401.
[10] N.H. Tannery, C.B. Wessel, B.A. Epstein, C.S. Gadd, Hospital nurses' use of knowledge-based information resources, *Nurse Outlook* **55** (2007), 15-19.