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Review Articles

Educational strategies used in standardized language systems by nurses: an integrative review

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ABSTRACT

Aim: to identify educational strategies used in the training of nurses regarding the process of nursing involving standardized language systems. **Method:** this is an integrative review of the relevant literature, performed using the following databases: MEDLINE, via PUBMED; CINAHL; SCOPUS; and LILACS. **Results:** six papers were selected. The main features of such papers were: the use of a practical guide, workshops, study groups, recording using standardized instruments, discussion of studies based on fictitious and real cases, theoretical-practical classes using clinical cases, and guided clinical reasoning. **Discussion:** the knowledge produced regarding the strategies used to train nurses about the nursing process – with or without standardized language systems – reinforced the importance of such strategies to produce clearer recorded information, as seen in four clinical studies and two descriptive ones. **Conclusion:** educational strategies involving standardized language systems in the training of nurses promote development in the implementation of nursing processes.

Descriptors: Nursing; Judgment; Continued Education; Clinical Competence; Classification.

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INTRODUCTION

The nursing system incorporating standardized language systems is described in the literature as a means of generating quality documentation, improving communication among professionals, and facilitating the information used in electronic nursing records[1].

As seen in reviews, studies have focused on the processes of nursing and on the use of standardized language systems in the incorporation of new nursing diagnoses, and in evaluations regarding the quality of nursing records[2-4].

However, the use of the referred systems in professional practice continues to be a challenge for those professionals who work in hospitals. Some researchers have shown that a lack of understanding is a barrier to the implementation of nursing processes, and they have suggested the need for an evaluation of theoretical-practical learning during undergraduate programs, and during continuing educational events[5-8].

One study also demonstrated the need to offer opportunities for reflection regarding the means and the ends of the use of the nursing process, based on the daily practice of nurses[7].

Despite strategic differences being used in the teaching-learning of the nursing process involving standardized language systems in the field, there have been no studies that have synthesized the understanding that has emerged regarding these approaches, in particular with regard to the level of evidence, the method used, and main results that have been observed[9,10].

In this sense, this research aims to identify the educational strategies used to train nurses with regard to the nursing process, involving the use of standardized language systems.

METHOD

An integrated review of the literature was undertaken involving a search of the following databases: MEDLINE via PUBMED; CINAHL; SCOPUS; and LILACS. In terms of such a search, the following guiding question was developed in order to carry out the research: What educational strategies are used to train nurses about the nursing processes involving standardized language systems?

The search was performed in November 2016, and used the following descriptors: *nurse, terminology as topic*, and *education, continuing*. However, they were later switched due to the need to provide adequate descriptors for use in each database. The Boolean operator used in each descriptor was AND, except among descriptors that could be considered as being from the same category. In this case, the Boolean operator was OR. When using this operator, the chance of positive feedback in terms of studies using these descriptors was amplified, once the search engines considered one or another of the descriptors[11,12]. The descriptors found were selected according to the controlled vocabulary of the databases (MEDLINE/Mesh; LILACS/Decs; CINAHL/Cinahl *headings*).

The search for articles adopted specific criteria for inclusion: the articles must be written in Portuguese, Spanish, or English; they must answer the guiding question of the research; they cannot have temporal limitations. In addition, as criteria for exclusion: articles without an abstract, and with a lack of availability in terms of full text in their online version.

Initially, the titles and abstracts of the articles were read in the light of the selection criteria described previously.

After a search, the selected articles were read and analyzed in full by two reviewers (one a post-doctor in nursing, and the other a

PhD student in cardio-vascular sciences). The quality of the selected articles was evaluated independently. Any disagreement between the reviewers were resolved by discussion. There was no need for a third reviewer.

The evaluation of the quality of the selected studies was performed through a classification based on the level of evidence, with the hierarchy of the evidence being considered on seven levels: level Ia, for a systematic review of non-random clinical essays; level IIb, for individual random clinical essays; level III, for a systematic review of studies of correlation/observation; level IV, for studies of correlation/observation, level V, for a systematic review of descriptive/qualitative/philosophical studies; level VI, for individual descriptive/qualitative/philosophical studies; and level VII, for the opinions of authorities and ad hoc committees[13].

The data extracted from the selected articles were: educational strategy used, population/country, method of research, and meaningful results in terms of the research question.

To synthesize the data, a review of each study was produced. These will be presented in a narrative format.

Chart 1 presents the search syntax, the quantity of studies found, and the year of publication of each study.

RESULTS

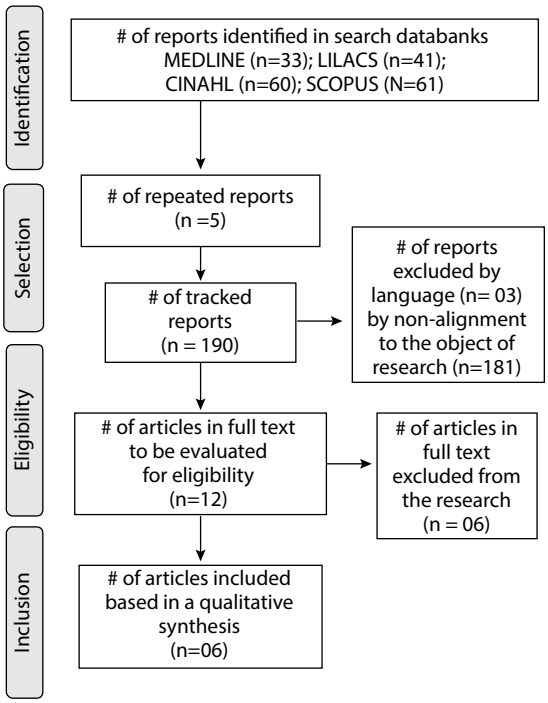
195 articles were found on the MEDLINE, LILACS, CINAHL, SCOPUS databases. These were then considered according to the criteria for exclusion. Based on these, 189 articles were excluded. Three were written in Mandarin and German, 181 were not linked to the guiding question of this research, and five were found more than once in the different databased used, thus repetitions were eliminated. By the end of the selection process, six articles were chosen for the purposes of this study in order for having their full text evaluated, as seen in the following image.

Chart 1. Syntax of the searches on the databases. Niterói 2016.

Database	Synthax	Studies found	Year of publication
MEDLINE	"((“nurses”[MeSH Terms] OR “nurses”[All Fields]) AND (“terminology as topic”[MeSH Terms] OR (“terminology”[All Fields] AND “topic”[All Fields]) OR “terminology as topic”[All Fields])) AND (“education, continuing”[MeSH Terms] OR (“education”[All Fields] AND “continuing”[All Fields]) OR “continuing education”[All Fields] OR (“education”[All Fields] AND “continuing”[All Fields]) OR “education, continuing”[All Fields])"	33 articles	Between 1979-2015
CINAHL	nurse AND standardized nursing language OR taxonomy AND continuing education	60 articles	Between 1986-2015
LILACS	“ENFERMAGEM” or “ENFERMEIRA” [Palavras] and “SISTEMA” or “CLASSIFICACAO” or “PADRONIZADO” or “LINGUAGEM” [Palavras] and “EDUCACAO CONTINUADA EM ENFERMAGEM” [Palavras]	41 articles	Between 1990-2015
SCOPUS	(TITLE-ABS-KEY(NURSE) AND TITLE-ABS-KEY(TERMINOLOGY) OR TITLE-ABS-KEY(STANDARDIZED NURSING LANGUAGE) AND TITLE-ABS-KEY(CONTINUING EDUCATION)) AND SUBJAREA(MULT OR MEDI OR NURS OR VETE OR DENT OR HEAL)	61 articles	Between 1976-2015

Source: Produced by the authors.

Image 1. Explanatory flowchart of the selection of articles according to the educational strategies used in the training of nurses regarding standardized language systems[14]. Niterói, 2016.



Source: Produced by the authors.

The country with the largest number of publications included was Switzerland[15,16]. Other countries were: the United States of America[17], Iceland[18], Pakistan[19], and Sweden[20], with one publication each. All studies included were written in English and related to a nursing team. Among the selected articles, the oldest one is the one published in the USA (2003)[17], while the most recent is one of the Swiss articles (2009)[16].

Chart 2 presents an analysis of the articles in terms of the method used, the types of standardized language systems used, the educational methodology implemented, and the level of evidence of the research[12].

The evaluation of the studies observed the post-intervention stage. This means, after the intervention (training), using instruments designed to measure the dependent variables of the studies such as quality of the records and accuracy of the nursing diagnoses, to check if there was a significant statistical difference between the pre- and post-test scores.

DISCUSSION

This study synthesized the knowledge produced regarding the strategies used to train nurses about the nursing process, with and without standardized language systems, as found in four clinical studies and in two descriptive ones.

The first descriptive study was developed with the aim of creating a practical guide to help nurses to implement the Omaha System. Data were gathered over a nine month period and, based on the most common problems, the guidelines were written to assist the users to perform under the above-mentioned system. The instructions occurred in a short period of time, just before the implementation of the standardized language system chosen. However, time was provided to clear up any doubts afterwards[17].

Because it was a descriptive study, it did not test the effects of the use of the practical guide in terms of the quality of the nursing records, nor outcomes with regard to the patients. This impeded a complete evaluation of the strategy used. However, the authors suggest that the data that came from the use of the practical guide will be able to determine the impact of the nursing care on the outcomes with regard to the patients[17].

Another descriptive study which took place in hospitals and nursing schools in Pakistan, tested the use of ICNP after some two-day long workshops for nurses. The study was recorded manually due to a lack of supporting automated systems. The development of the research was when nurses from different areas such as obstetrics, cardiology, and gerontology, were

Chart 2. Synthesis of the researches included in the review. Niterói, 2016.

Study/Reference	Method	SLS	Educational Strategy	Evidence
Müller-Staub M , Needham I, Odenbreit M, Lavin MA, Van Achterberg T. Implementing nursing diagnostics effectively: Cluster randomized trial. J Adv Nurs. 2008: 63(3): 291-301(15)	Controlled random experimental study	NANDA-I-NIC NOC1	Guided clinical reasoning / Classic case discussion	IIa
Müller-Staub M. Evaluation of the implementation of nursing diagnoses, interventions, and outcomes. Int J Nurs Terminol Classif. 2009; 20(1):9-15(16)	Review study / randomized	NANDA-I NIC NOC1	Study group with real case studies	I
Barton, A.J., Gilbert, L., Erickson, V., Baramee, J., Sowers, D., Robertson, K.J. A guide to assist nurse practitioners with standardized nursing language. Computers, informatics, nursing. 2003; 21(3);128-33(17)	Descriptive study	OMAHA system2	Practical guide	VI
Thoroddsen A, Ehnfors M. Putting policy into practice: Pre- and posttests of implementing standardized languages for nursing documentation. J Clin Nurs. 2007: 16(10): 1826-38(18)	Quasi-experimental study, pre- and post-test	NANDA-I NIC1	Study and support group (Nurses' Committee)	IIb
Rukanuddin RJ. Introduction and development of NCP using ICNP in Pakistan. Int Nurs Rev. 2005;52(4):294-303 (19)	Descriptive study	ICNP3	Workshop	VI
Florin J, Ehrenberg A, Ehnfors M. Quality of nursing diagnoses: evaluation of an educational intervention. Int J Nurs Terminol Classif. 2005; 16(2):33-43(20)	Quasi-experimental study		Theoretical and practical classes, and study of real and fictitious cases	IIb

Source: Produced by the authors.
Key:
[1]NANDA-I (Nursing Diagnosis Association)/NIC (Nursing Intervention Classification)/ NOC (Nursing Outcome Classification);
[2]Taxionomy based on community, multi-disciplinary practice;
[3]International Classification for Nursing Practice

provided with classes about the system, learning its structure, its codification, and its terminology. The model was tested in a systematized way in order to identify failures during the project, leading to its improvement and increasing its adequacy[19].

Despite the worries with regard to finding possible weaknesses in terms of the use of the ICNP after training, the study did not evaluate the strategy used in the workshop and its impact in the quality of the service provided. It did not consider the quality of the nursing records, nor the outcomes with regard to the patients. It only described the issues found in the use of the system, such as redundant terminologies; limited temporal terminologies; rules of language usage, and challenges in the classification of outcomes. It also highlighted as advantages of ICNP, low cost, easy access, and flexibility in the structure in order to collect, store, and recover data for information systems[19].

The strategies of "practical usage guide"[17] and "workshop"[19] were considered positive by their authors with regard to the training for the nursing process involving standardized language systems. In addition, they were inconclusive regarding the methodological aspects used in these studies. It is relevant to mention the use of

different systems, given that one of the studies used the ICNP[19] while the other related to the Omaha System[17]. Therefore, it seems that independent of the standardized language system used, there is a need to train the nurses involved to implement the new nursing process. Besides giving priority to the educational strategies used to achieve the described goals, the studies do not have the same strictness as clinical studies in terms of data collection, as their aim was to observe, register, and analyze the phenomenon. Consequently, they did not manipulate the variable(s) associated with an intervention, they did not compare the results with a group that was not exposed to the intervention, and they did not randomize the selection of subjects involved[13], weakening the subsequent results.

A clinical study that aimed to describe the change in the process of nursing recording in a college hospital in Iceland demonstrated a significant improvement in the use of health functional standards in terms of recording nursing evaluation, NANDA-I nursing diagnoses, and NIC nursing interventions. The study proposed to test the effects of the implementation of a policy for maintaining nursing records through a transversal cohort, with a pre-test sample of 355 nursing records, to establish a database with regard to the state of nursing records before the implementation of the policy - an intervention - and an after test, involving 349 nursing records, to compare nursing records. There was no significant modification regarding the nursing results. The intervention occurred in a year after the first stage of the research, and included study and support groups, conducted by a committee of nurses[18].

The use of an educational strategy throughout the year, included a study group and a support group composed of specialized nurses. They reinforced the teaching provided previously by the application of a policy, improved the nursing records in terms of the use of standardized language systems for diagnoses and interventions in nursing, demonstrating that long-term follow up can involve nurses in clinical reasoning, and can lead to more appropriate choices when it comes to diagnoses and interventions. To test the intervention, there was a pre- and a post-test regarding a database containing nursing diagnoses.

Other clinical studies also were able to demonstrate an improvement with regard to nursing records involving standardized language systems following educational interventions using different strategies, with different outcomes[15, 16, 20].

With the aim of investigating the effects in terms of the quality of nursing diagnoses after training in nursing processes, and the implementation of new formats for recording nursing activities, there was a quasi-experimental study with pre- and post-testing with an experimental group and a control one, relating to nurse training regarding the process of nursing. The post-testing was undertaken in the six months following the training[20]. In this study, during the nursing process, emphasis was placed on the care plan, nursing diagnoses, and the use of discussion strategies in relation to the observation of real and fictitious cases. Then, a form of nursing records was designed. To validate the records, the researchers used two validated instruments. The score achieved in the evaluation of the nursing record forms during the pre-test was higher in the experimental group than in the control one. There was an increase in the score related to the quality of nursing diagnoses, as well as in the total score, and in the subscales observed by the instruments used with regard to the experimental group. There was no change in scores as far as the control group was concerned. Despite the improved result, some issues were found related to the development of nursing

diagnoses/diagnostic accuracy, indicating the need for educational support to develop quality in nursing diagnostics[20].

Another study, developed with the intention of reporting the effects of the use of nursing diagnoses in a professional environment, used two systematic reviews as the methodology, the creation of an instrument, and its testing. This was a randomized study that used a study group of nurses who were exposed to an intervention [16]. It was seen that during the review that the standardized language system that is most studied and used is the NANDA-I. The instrument is built in such a way as to evaluate the quality of nursing diagnoses, interventions, and outcome records, and it has shown to be effective in this respect. In the clinical study, the use of the system led to a significant improvement in the quality of documentation, facilitated diagnostic accuracy, more effective nursing interventions, and better patient outcomes. Over time, the study group (GCR) was demonstrated to be effective as a support for nurses in terms of helping them use the system, and showed the importance of the training provided by the study group with regard to promoting clinical reasoning[16].

However, with regard to this clinical study, there were reports of the effects of clinical reasoning in professional practice, using an interactive learning strategy as the method of choice, with guided clinical reasoning, based on the standardized language NNN (NANDA-I, NIC, and NOC) *versus* the applicability and the discussion of clinical cases in a group of nurses randomly chosen from the wards of a college hospital[15]. The quality of 255 nursing records selected at random, including 444 documented nursing diagnoses, interventions, and corresponding outcomes, were evaluated using 18 items in a Likert type scale 0-4, found in the Quality of Diagnoses, Interventions and Outcomes instrument (Q-DIO). The group of nurses which was taught guided clinical reasoning was tested against a group that discussed classical clinical cases. As a result of this study, it was seen that the average scores in terms of diagnoses, interventions, and outcomes from nursing care increased significantly in the case of the intervention group. The guided clinical reasoning approach produced better documentation in the diagnoses of nursing, with regard to specific etiology interventions, and in terms of improving the outcomes of patients under nursing care. In the control group, the quality of records was not altered in any way[15].

To evaluate the effects of interventions in the performed clinical essays, the researchers used validated questionnaires to measure the quality of nursing records. This provides a uniform pattern when it comes to synthesizing data. However, the questionnaires were different, which prevents, in terms of this research, a meta-analysis. Despite that, the results presented show that the use of an interactive strategy, which encourages clinical reasoning, facilitates the process of the elaboration of nursing records with standardized language systems, and it seems to present better results than a traditional teaching approach, or even the discussion of clinical cases.

The need for professional training for encouraging growth and the strengthening of nursing as a profession, was mentioned in all the studies observed. All defend the idea of a nursing process, and support the use of standardized language systems, as their usage will empower electronic recording. However, not all studies were performed under scenarios that had complete infrastructure support for its implementation.

The educational strategies used to train nurses were varied. However, the largest portion of the research studies defended the use of a clinical discussion approach[15, 18-20]. With regard to the duration of training, in one study, there

was a follow up procedure that was five months long in order to promote the development of the activity[15]; in another study, the training took only one day[17]. Despite this, there were meetings, some informal ones, to improve the instrument under construction, indicating there multiple sessions can be beneficial, both to clear away doubts, and to help setting content.

The most commonly used standardized language systems in the studies were NANDA International, NIC, and NOC[15, 16, 18]. Other review studies demonstrated the same results[1,23]. In addition to the systems, the following taxonomies were used: *Omaha System* [17] and ICNP[19].

A limitation found in the present study was the challenge of comparing the results of the research from a meta-analysis, given that not all the studies analyzed the quality of the nursing records as a result.

As a suggestion for future research, it is suggested that studies be carried out to evaluate the impact of educational strategies in terms of a cost-effectiveness spectrum, patient outcomes such as that measured by the quality indicators seen in care and the safety of the patients, and also the quality of nursing records, through the most commonly used questionnaire in this research, the Q-DIO (Quality of Diagnosis, Interventions and Outcomes).

CONCLUSION

The educational strategies used to train nurses with regard to the use of nursing processes involving standardized language systems are tools that facilitate change, and are fundamental in the process of improving the implementation and quality of nursing records.

On the other hand, it is important to improve the methodological rigor of such studies in order to produce more robust outcomes.

REFERENCES

1. Tastan S, Linch GC, Keenan GM, McKinney D, Fahey L, Lopez KD, et al. Evidence for the existing American Nurses Association-recognized standardized nursing terminologies: A systematic review. Int J Nurs Stud (Online) [internet]. 2014 Aug [Cited 2016 Mar 28] 51 (8). Available from: doi:10.1016/j.ijnurstu.2013.12.004 .
2. Silva VA, Cavalcanti ACD, Souza R, Martins WA, Rosa JMC. Estudio observacional de validación clínica del diagnóstico de enfermeria de disfuncion sexual en pacientes con insuficiencia cardíaca crónica. Av Enferm [Internet]. 2014 July [cited 2016 nov 23]: p. 252-260 Available from:http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0121--45002014000200009&lng=en. http://dx.doi.org/10.15446/av.enferm.v32n2.46229.
3. Herdman TH, Kamitsuru S. Diagnósticos de Enfermagem da NANDA: Definições e classificação 2015-2017. 10th ed. Porto Alegre: Artmed; 2015.
4. Cavalcanti ACD, Pereira JdMV, Santos ROM, Vieira GCA, Santana RF, Correia DMdS, et al. Estudo observacional de validação clínica do diagnóstico de enfermagem ansiedade em pacientes com insuficiência cardíaca crônica. Enferm glob [Internet]. 2013 abr [cited 2016 Nov 23]: p. 28-40. Disponível em: http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1695--61412013002200003&lng=pt.
5. Garcia TR, Nóbrega MML. Processo de Enfermagem: da teoria à prática assistencial e de pesquisa. Rev Enferm Esc Anna Nery. 2009 jan-mar; 13(1): p. 188-193.
6. Takahashi AA, Barros ALBL, Michel JLM, Souza MF. Dificuldades e facilidades apontadas por enfermeiras de um hospital de ensino na execução do processo de enfermagem. Acta Paul Enferm. 2008 21(1):32-38.
7. Amante LN, Anders JC, Meirelles BHS, Padilha MI, Kletemberg DF. A interface entre o ensino do processo de enfermagem e sua palicação na prática assitencial. Rev Eletr Enf (Internet). 2010 12(1):201-207. Available from: http://www.fen.ufg.br/revista/v12/n1/v12n1a24.htm.

8. Trindade LR, Silveira A, Ferreira AM, Ferreira GL. Compreensão do processo de enfermagem por enfermeiros de um hospital geral do sul do Brasil. Revista de Enfermagem da UFSM. 2015 Abr/jun; 5 (2): p. 267-277.
9. Peixoto LS, Gonçalves LC, Costa TD, Tavares CM, Cavalcanti AC, Cortez EA. Educação Permanente, continuada e em serviço, desvendando seus conceitos.Enfermeria Global. [Online].; 2013. v12(29):307-322 [cited 2015 nov 10. Available from: http://scielo.isciii.es/pdf/eg/v12n29/pt_revision1.pdf.
10. Paulino VC, Bezerra AL, Branquinho NS, Paranagua TT. Ações de Educação Permanente no contexto da Estratégia Saúde da Família. Rev Enferm UERJ. Rio de Janeiro. [Online].; 2012; v20(3): 312-316 [cited 2015 set 10. Available from: http://www.e-publicacoes.uerj.br/index.php/enfermagemuerj/article/view/687/2885.
11. Lima DVM. Repercussões oxi-hemodinâmicas do banho no paciente adulto internado em estado crítico: evidências pela revisão sistemática de literatura. São Paulo. Escola de Enfermagem.. [Online].; 2009 [cited 2015 set 10. Available from: http://www.teses.usp.br/teses/disponiveis/7/7139/tde-14052009-111101/.
12. Morrison SM, Symes L. An Integrative Review of Expert Nursing Practice. J Nurs Scholarsh. 2011 Jun: p. 163-170 doi:10.1111/j.1547-5069.2011.01398.x.
13. Burns PB, Rohrich RJ, Chung KC. The levels of Evidence and their role in Evidence-Brased Medicine. Plast Reconstr Surg. 2011; 128(1):305-10. 2011: p. 305-310.
14. Moher D, Liberati A, Tetzlaff J, Altman D. The PRISMA Group (2009) Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. [Online].; 6(7): e1000097 doi:10.1371/journal.pmed.1000097 [cited 2015 set 10. Available from: http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1000097.
15. Müller-Staub M, Needham I, Odenbreit M, Lavin M, Van Achterberg T. Implementing nursing diagnostics effectively: Cluster randomized trial. Journal of Advanced Nursing. [Online].; 2008; 63(3): 291-301 [cited 2015 set 08. Available from: https://www.researchgate.net/publication/23170503_Implementing_nursing_diagnostics_effectively_Cluster_randomized_trial.
16. Müller-Staub M. Evaluation of the implementation of diagnoses, interventions and outcomes. Int J Nurs Terminol Classif. 2009; 20(1 [included in the review]): p. 9-15.
17. Barton AJ, Gilbert L, Erickson V, Baramee J, Sowers D, Robertson KJ. A guide to assist nurse practitioners with standardized nursing language. CIN: computers, informatics, nursing. [Online].; 2003; v21(3): 128-133 [cited 2015 set 08. Available from: http://www.ncbi.nlm.nih.gov/pubmed/12792193 [included in the review].
18. Thoroddsen A, Ehnfors M. Putting policy into practice: Pre- and post-tests of implementing standardized languages for nursing documentation. Journal of Clinical Nursing. [Online].; 2007; 16(10):1826-1838 [cited 2015 set 08. Available from: https://www.researchgate.net/publication/5963564_Putting_policy_into_practice_Pre-posttests_of_implementing_standardized_languages_for_nursing_documentation [included in the review]
19. Rukanuddin RJ. Introduction and development of NCP using ICNP in Pakistan.Int Nurs Rev. [Online].; 2005; v52(4):294-303 [cited 2015 set 8. Available from: http://www.scielo.br/scielo.php?script=sci_nlinks&ref=000130&pid=S1983--14472011000100022000013&lng=pt [included in the review].
20. Florin J, Ehrenberg A, Ehnfors M. Quality of nursing diagnoses: evaluation of an educational intervention. International Journal of Nursing Terminology Classification. [Online].; 2005; v16(2): 33-43 [cited 2015 set 08. Available from: http://www.ncbi.nlm.nih.gov/pubmed/16045551 [included in the review].
21. Bittencourt GK, Crossetti MG. Habilidades de pensamento crítico no processo diagnóstico em enfermagem. Rev Esc Enferm USP. 2013; 47(2): 341-7. 2013: p. 341-347.
22. Lunney M. Uso do pensamento crítico para o alcance de resultados positivos de saúde. In Lunney M. Pensamento crítico para o alcance de resultados positivos em saúde: análises e estudos de caso em enfermagem. Porto Alegre: Artmed; 2011. p. 23-39.

23. Linch GFC, Silva ER, Keenan GM, Müller-Staub M. Quality of Diagnosis, Interventions and Outcoimes utilizado como ferramenta para avaliação da qualidade dos registros de enfermagem com ou sem Linguagem Padronizada. In Sistema de Educação a Distância v2, editor. NANDA International Inc.; Herdman TH, Silva VM, Napoleão AA, organizadores. PRONANDA Programa de Atualização em Diagnósticos de Enfermagem: Ciclo 3. Porto Alegre: Artmed Panamericana; 2015. p. 133-156.

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