

# THE PORTFOLIO IN THE EVALUATION OF THE UNDERGRADUATE STUDENT IN THE HEALTH AREA: A BIBLIOMETRIC STUDY

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**ABSTRACT:** This bibliometric study aimed to characterize Brazilian and international publications on the use of the portfolio in the evaluation of the undergraduate student in the area of health. Abstracts were selected of articles in Portuguese, English and Spanish, without using a filter for the year, from four databases and one virtual library, in June and July 2013. As a result, 167 articles were captured, from 1992 and 2013, the majority in English, originating from original research, from the United States, available on the Medical Literature Analysis and Retrieval System Online database and from the Nurse Education Today journal. The use of the portfolio is shown to be a current theme, being worked upon continuously and increasingly in various countries by researchers from distinct professional categories, a fact which is relevant to the transformation of education in the area of health and nursing.

**DESCRIPTORS:** Higher education; Educational evaluation; Bibliometrics.

## PORTFÓLIO NA AVALIAÇÃO DO ESTUDANTE DE GRADUAÇÃO NA ÁREA DA SAÚDE: ESTUDO BIBLIOMÉTRICO

**RESUMO:** Estudo bibliométrico com objetivo de caracterizar as publicações nacionais e internacionais sobre a utilização do portfólio na avaliação do estudante de graduação na área da saúde. Foram selecionados resumos de artigos em português, inglês e espanhol, sem uso de filtro para o ano, de quatro bases de dados e uma biblioteca virtual, em junho e julho de 2013. Como resultado, 167 artigos foram capturados, de 1992 e 2013, a maioria em inglês, oriundos de pesquisas originais, dos Estados Unidos, disponíveis na base de dados *Medical Literature Analysis and Retrieval System Online* e no periódico *Nurse Education Today*. A utilização do portfólio mostra-se como tema atual, que está sendo trabalhado de maneira contínua e crescente em diversos países e por pesquisadores de distintas categorias profissionais, fato relevante à transformação da educação na área da saúde e enfermagem.

**DESCRIPTORES:** Educação superior; Avaliação educacional; Bibliometria.

## PORTFOLIO EN LA EVALUACIÓN DEL ESTUDIANTE DE GRADUACIÓN EN EL ÁREA DE LA SALUD: ESTUDIO BIBLIOMÉTRICO

**RESUMEN:** Estudio bibliométrico cuyo objetivo fue caracterizar las publicaciones nacionales e internacionales acerca de la utilización del portfolio en la evaluación del estudiante de graduación en el área de la salud. Fueron seleccionados resúmenes de artículos en portugués, inglés y español, sin uso de filtro para el año, de cuatro bases de datos y una biblioteca virtual, en junio y julio de 2013. Como resultado, 167 artículos fueron obtenidos, de 1992 y 2013; la mayoría en inglés, que surgieron de investigaciones originales, de Estados Unidos, disponibles en la base de datos *Medical Literature Analysis and Retrieval System Online* y en el periódico *Nurse Education Today*. La utilización del portfolio se muestra un tema actual, que está siendo trabajado de modo continuo y creciente en diversos países y por investigaciones de distintas categorías profesionales, hecho relevante a la transformación de la educación en el área de la salud y enfermería.

**DESCRIPTORES:** Educación superior; Evaluación educacional; Bibliometria.

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## INTRODUCTION

In the field of professional training in health, the issue of evaluating the student is considered to be of great importance, not only due to its complexity, but also due to the theoretical conflicts to which this practice gives rise. What it is to evaluate, how one should evaluate, and who is to do the evaluating are critical questions in the educational routine, involving professors and students. Furthermore, evaluating the student is a challenge, given that the reality and the scientific knowledge are constantly transformed, requiring a professional who is capable of developing within himself or herself (and constantly) the multiple competences necessary for coping with this scenario. As much as the way of teaching (and of learning), the process of evaluating the student is guided by the beliefs and values integral to the pedagogical process, that is, by the pedagogical line of thought.

In Brazil, the evaluation of the student in the health area became a still greater challenge, following the Law of Directives and Bases of National Education (LDB), approved in 1996, and the National Curricular Guidelines (DCN) for the undergraduate courses, in 2001, which points to the training of a critical, creative and reflexive professional, a situation one finds also in the international scenario. This entails an educational process capable of promoting in the student the development of multiple competencies: learning to be, learning to know, learning to coexist, and learning to do – the four pillars of education of The United Nations Educational, Scientific and Cultural Organization (UNESCO)<sup>(1)</sup>. One can perceive, however, regardless of the fact that movements exist directed towards the transformation of this process, that, in practice, traditional forms of education remain, and that consequently so too do traditional evaluative processes.

In this scenario of searching for instruments and examples of evaluative processes which adhere to the new pedagogical model which is desired – the protagonism and autonomy of the student, and her responsabilization for her process of learning – one finds the portfolio, whose use in this educational context seems still to be incipient.

The portfolio is characterized as an evaluative procedure which makes it possible to turn the student into an active participant in the evaluation, as it allows the same to become

involved in the elaboration of the objectives of her own learning, as well as to evaluate her progress<sup>(2)</sup>. It is a tool which viabilizes the acquisition and the development of competences, and which gives visibility and relevance to the educational process<sup>(3)</sup>.

The portfolio is an instrument both of evaluation and of training, capable of demonstrating how the student is building her learning, such that it is the student herself who selects the information, pointing to experiences and evidence which she considers the most relevant and representative<sup>(4)</sup>.

Generally speaking, the positive aspects are geared towards the development of the student's critical, reflexive and analytical capacity, as she has the possibility of seeking new knowledge and proposing solutions to the problems identified, while the negative aspects stand out through the strangeness of the tool, the difficulty of undertaking self-evaluation, and the probability of repetition of portfolios which have already been presented by other students<sup>(5)</sup>.

In the light of this, this study's objective is to characterize the Brazilian and international publications on the use of the portfolio in the evaluation of the undergraduate student in the area of health.

## METHOD

This is a descriptive, retrospective and bibliometric study, with a quantitative approach, undertaken through a review of the literature. Characterized by complexity, this type of study goes beyond statistical surveying pure and simple, standing out through its complex and diversified analyses<sup>(6)</sup>. The central point of bibliometry consists of the use of quantitative methods which allow an objective evaluation of the scientific production<sup>(7)</sup>. This being the case, the choice of this type of study occurs due to the relevance of the organization of data, which are capable of generating information regarding what is being produced, as a means of generating further knowledge, capable of informing and guiding further studies on the area of interest.

The search for articles was undertaken in June and July 2013, in four databases and one virtual library, namely: the Bibliographic database specialized in the area of Nursing (BDENF); the Cumulative Index to Nursing and Allied Health Literature (CINAHL); Editorial Resources

Information Center (ERIC); Medical Literature Analysis and Retrieval System Online (MEDLINE); and the Latin-American and Caribbean Center on Health Sciences Information (LILACS).

The search strategies were distinct, meeting the specific characteristics of each database, it being the case that the terms used were based on the MeSH (Medical Subject Headings) and DeCS (Health Science Descriptors) dictionary of keywords, with the application of Boolean operators (Figure 1). All the abstracts of the articles were captured, independent of year of publication, that is, without time limitation, due to this being a relatively new theme in this scenario. The following were established as inclusion criteria: texts of the research, reflection, experience report and review type; in the following languages: Portuguese, English and Spanish. And as exclusion criteria: texts which did not encompass the scope of this bibliometry or which were duplicated.

All the references captured were transferred to the EndNote Web® citation manager, and organized in files by database. A total of 1,160 articles was obtained, from which 384 articles were selected, based on reading of the titles and abstracts available online (1st reading), with those which did not correspond to the research objective being excluded. All documents were saved to files in the PDF (Portable Document Format) format on both the computer and a USB memory stick. It is noteworthy that during the searches, the VPN (Virtual Private Network) of the Federal University of Santa Catarina (UFSC) was used, such that a greater number of articles could be included.

Of the 384 articles, 182 were selected based on a second reading (2nd reading) of the titles and abstracts, given that there were productions which related to the use of portfolios in postgraduate education. Afterwards, the productions captured in more than one database were reunited in accordance with the databases in which they were published, such that the final corpus of this study totaled 167 articles.

Using an instrument elaborated in Microsoft Excel®, the data, extracted only from the abstracts, were organized in a spreadsheet, which included the following variables: authors, database, journal, year of publication, language, professional category of the health area, country in which the article was prepared, terms, type of publication (original research/article, experience

report, reflection or review), nature of the research (quantitative, qualitative or mixed) and type of study/research.

For analysis of the data, descriptive statistics was used, considering that the elaboration of bibliometric indicators is relevant for guiding the conducts of the researcher in relation to the organization, publishing, evaluation and management of the information and of the knowledge developed<sup>(8)</sup>. The results are presented descriptively in the format of figures.

## RESULTS

Starting in 1992, through to the first semester of 2013, 167 articles were published on the use of the portfolio in the evaluation of undergraduate students in the area of health (Figure 1).

According to Figure 2, the number of publications has grown since 1992, with peaks in 2003, with 10 articles (6%), in 2008 with 16 (9%), in 2009 with 20 (12%) and in 2010, with 23 (14%). Furthermore, it is worth emphasizing that the first article was published in England, in 1992, and the second in the United States in 1993, these countries being among the three which have published most on the issue, as presented.

In relation to the language of the publication of the journal, 136 articles (81%) are in English, 28 (17%) in Portuguese, and three (2%) in Spanish. Emphasis is therefore placed on the significant publication in Portuguese, given that, of the 28 articles in Portuguese, only five are limited to periodicals of regional circulation and determined by the use of the BDENF database, which covers Brazilian publications.

Of the 167 articles, 152 articles (91%) were found only in one database, and 15 (9%) were published in journals indexed in two distinct databases, such that the database responsible for the higher number of publications was MEDLINE/PUBMED, with 120 articles (72%) (Figure 1).

Regarding the countries of origin of the publications' authors, the United States stands out with 38 articles (22.7%), followed by Brazil with 29 (17.4%), England with 28 (16.7%) and Australia with 13 (7.8%). Authors from other countries published fewer than 10 articles, it being the case that in seven publications (4.2%) it was not possible to identify their origin (Figure 3).

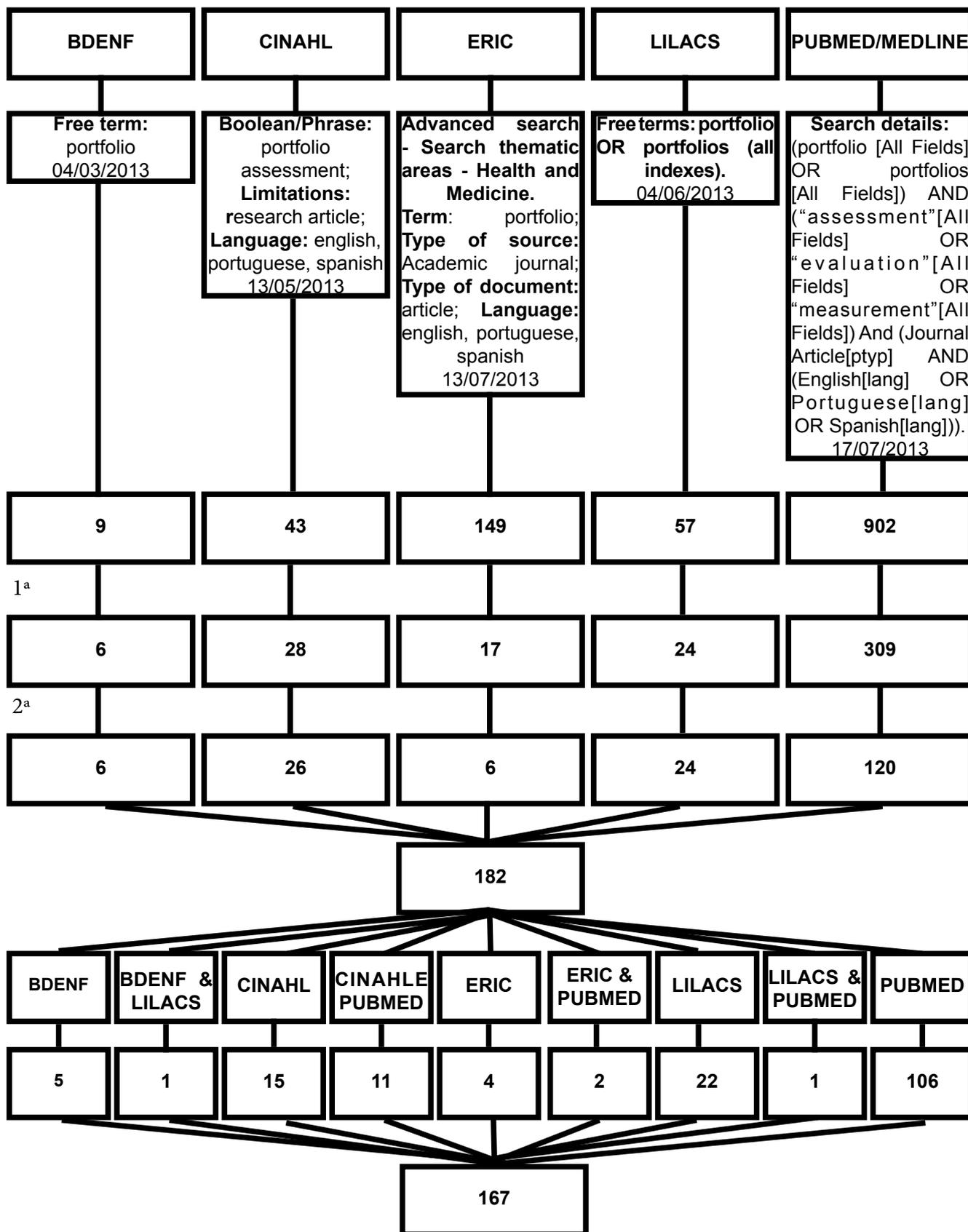


Figure 1 - Strategies and results in the searches, undertaken in the articles' databases, regarding the use of the portfolio in the evaluation of the undergraduate student in the area of health. Florianópolis-SC, 2013.

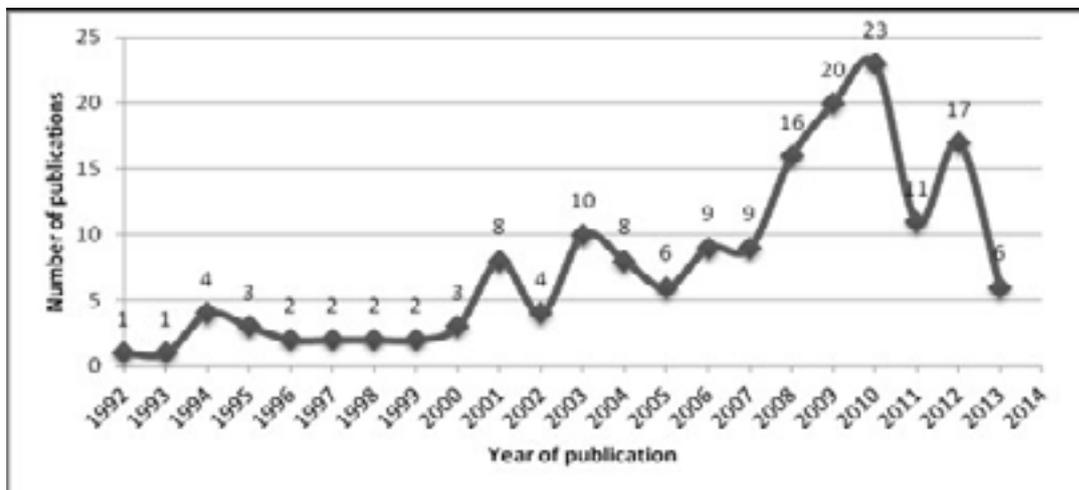


Figure 2 - Number of articles published per year on the use of the portfolio in evaluating the undergraduate student in the area of health. Florianópolis-SC, 1992-2013.

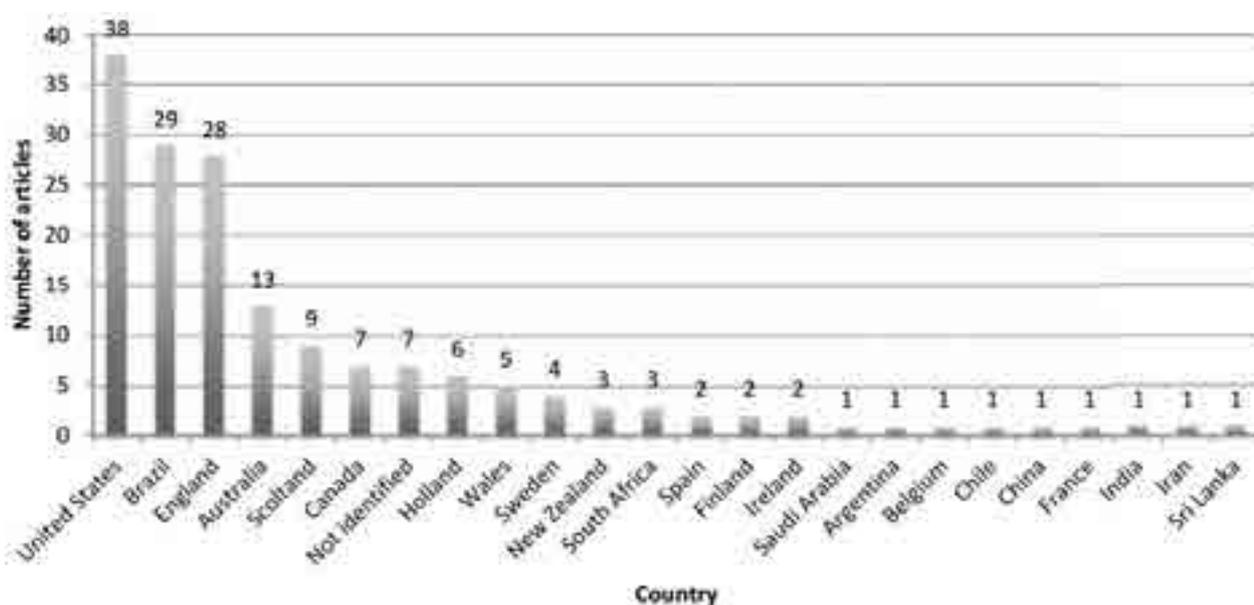


Figure 3 - Number of articles published regarding the use of the portfolio in the evaluation of the undergraduate student in the health area, by country of origin of the authors. Florianópolis-SC, 1992-2013.

Although Brazil published its first article on the portfolio in the health area only in 2002, practically a decade after the United States and England, one can note that this issue, in Brazil, made an impact after 2007, when the second article was published. It was after this year that there was a significant increase in publications, such that, in 2010 nine articles were published, a significant number, and one which demonstrates an advance related to studies on the issue in Brazil.

In relation to the authors who published on this issue, 467 different names were observed, of which 413 authors (88%) published only one

article, while 54 authors published two or more articles. In order to organize these data, a list with the surnames and initials of all the authors was prepared in alphabetical order, such that the names of the authors who published only one (413 authors) or two articles (37 authors) were brought together and identified as different authors (Table 1).

A total of 68 different journals was identified. Among these, 10 published four or more articles on the portfolio, representing 94 articles (56.2%), more than half of the total. The journals which stand out most are: Nurse Education Today, Medical Teacher and Medical Education, which together published 55 articles (32.9%) (Figure 4).

Table 1 – Number of articles published per author. Florianópolis-SC, 1992-2013

Number of articles published	Author	Total of authors
7	Driessen EW	1
6	Dannefer EF; Van Tartwijk J	2
5	Van der Vleuten CPM; McMullan M	2
4	Jasper M; Davisi MH; Vermunt JD	3
3	Kellett SEM; Endacott R; Gray MA; Ker JS; Scholes J; Webb C; Bierer SB; Bogossian FE; Cotta RMM	9
2	Diferentes autores	37
1	Diferentes autores	413
Total of authors		467

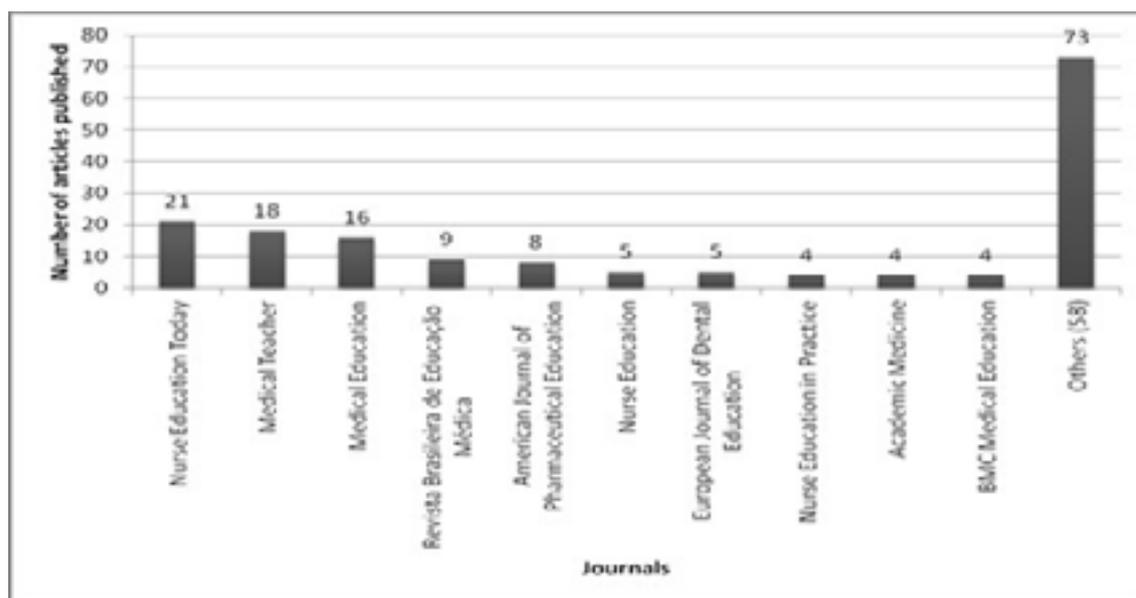


Figure 4 - Number of articles published regarding the use of the portfolio in the evaluation of the undergraduate student in the area of health, by journal. Florianópolis-SC, 1992-2013.

Nursing (37.12%) and Medicine (35.92%) stand out in the publications. Dentistry obtains a percentage of 5.98%, Pharmacy 4.79%, Physical Education 2.39% and Psychology 1.19%, while Physiotherapy, Speech Therapy and Nutrition obtain 0.59% each, and in three productions (1.79%), it was not possible to identify the professional category.

In relation to the free terms/ key words/ descriptors used in the articles published, four stand out: Portfolio; Methods; Evaluation; and Education, which in a simple format were identified in more than 20 articles, and in conjunction, were found in various specialities, such as, for example: Portfolio of bioethics, Methods, Reflective Clinical Evaluation, and e-learning in Nursing.

In relation to the type of publication, of the 167 abstracts analyzed, 93 original studies/

articles were identified, as were 51 non-identified, 13 experience reports, eight reviews and two reflection articles.

Of the 93 original studies/articles, 35 do not describe their nature (38%), while 26 were identified as qualitative (28%), 20 were quantitative (21%) and 12 were mixed (quantitative-qualitative) (13%). Of the 26 qualitative studies, 16 lack descriptions regarding the type of study (61%), three state that they are documental (11%), two are exploratory-descriptive (8%), one is descriptive (4%), one is a case study (4%), one is exploratory (4%), one is referent to a focus group (4%), and one is of the perspective type (4%).

Among the 20 quantitative studies, 11 have no description (55%), two are evaluative studies (10%), two are randomized controlled studies (10%), one used the Delphi technique (5%), one is descriptive (5%), one a controlled study (5%),

one a validation study (5%) and one an enquiry by questionnaire (5%).

Of the 12 studies identified as mixed (quantitative), five have no description (42%), two are exploratory (17%), two are action-research (17%), one is a case study (8%), one is exploratory-descriptive (8%) and one is retrospective (8%).

## DISCUSSION

Since 2002, there has been a significant increase in articles published on the use of the portfolio as a method of training and evaluating the undergraduate student in the area of health. It may be noted that the issue is being worked upon continuously and increasingly, in different areas, and by researchers of different professional categories, which makes it relevant for transforming education in the area of health.

Having knowledge about the authors, databases and journals which published most on this issue, as well as data on the year of publication, language, professional category of the area of health, country, terms, type of publication, nature of the research and type of study/research makes it possible to have a notion of who, where, and how studies on this issue are being undertaken and published. Furthermore, it makes it possible to reflect on new possibilities for studies which might complement or innovate in the theoretical and practical ambit of the knowledge.

The use of the portfolio in evaluating the undergraduate students in the area of health is shown to be present in the scientific publications and to be inserted in the movement of transformation of education, which considers the student to be the protagonist of the learning process. The students in the health area interpret the portfolio as an innovative method, which allows learning with autonomy, freedom, reflection, criticality and creativity, which elements return to the training of the being<sup>(9)</sup>.

There are various possibilities for using the portfolio in education, it being the case that the most important element of learning is in its construction, individually or as a group, that is to say, it is perceived by the students as a significant instrument for acquiring competences and making discoveries about oneself, the other, and the social and health reality of the context in which they live<sup>(10)</sup>.

The journals which published most on the portfolio were: Nurse Education Today, Medical Teacher and Medical Education. It is noteworthy that the majority of the authors found in this study published only one work in the time period of the study, denoting the as-yet incipient movement of publications, and the non-polarization of the authors, which may evidence that the issue is being discovered and explored by many academics in the same temporal space.

The massive production of knowledge regarding the use of the portfolio, published in the English language, reflects the number of journals found, indexed in databases in this language, in addition to this language being the most common scientific language at the time of writing<sup>(11)</sup>. As a result of this, one can understand that the wish to be published in international journals, made available in renowned databases, occurs due to researchers' interest in giving visibility to, and socializing, their studies with a higher number of consumers in the academic scenario.

The use of free terms does not always translate their meaning fairly in each database; there are no standards, which limits the undertaking of broader searches. In using the free term portfolio (in English, Portuguese and Spanish), there are no guarantees that the search will capture all the publications, making it necessary to adjust the term in each specific database. If the terms are not in accordance with the database, there is the risk that the articles will not be found, and consequently, not cited – that is, the information is lost<sup>(12)</sup>. This being the case, knowing the most-used terms can help in guiding further searches and also in defining the terms for articles in this area, mainly in this specific issue, as the term 'portfolio' is not found in the MeSH and DeCS.

Regarding the methodology used, there is clarity in the definition of qualitative and quantitative studies, bearing in mind the requirement that any scientific study should have a well-defined methodological trajectory for achieving its objectives<sup>(13)</sup>.

As a result, it is possible to evidence through the increasing number of works socialized in the databases described that the use of the portfolio in the health area is an important element in pedagogical practice, as it allows the protagonism of the student in her learning process, through autonomy, reflective exercise, the sharing of

knowledge, and building relationships with the professors.

## FINAL CONSIDERATIONS

The issue of the Portfolio has appeared in scientific publications since 1992. Since that time onward, it has been increasingly present in the databases, mainly in the English-language journals. Researchers' interest has grown, although there is as yet no evidence of polarization in the publications of one or other author.

The lack of information in the abstracts published, and their non-uniformity, are a limitation in this study, bearing in mind that relevant information on the publications was not found in all the data collected.

The findings evidenced in this study may contribute such that researchers in the areas of health and education may reflect on the use of the portfolio in their pedagogical practice, and undertake further studies on the issue.

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