SCIENTIFIC PRODUCTION OF PATIENT NURSING CARE SPINAL CORD INJURY: A BIBLIOMETRIC ANALYSIS

Produção científica dos cuidados de enfermagem ao paciente com traumatismo da medula espinhal: uma análise bibliométrica

Producción científica del cuidado de enfermería del paciente lesión de la médula espinal: un análisis bibliométrico

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SUMMARY

Objective: To describe the distribution of scientific production of nursing care to patients with spinal cord trauma and to verify which themes are most addressed. **Method:** Bibliometric analysis through the Bradford Law, Zipf Law and textual statistics made with publications in Portuguese, English and Spanish, from 1978 to 2018. **Results:** Sample composed of 33 articles distributed in 13 journals, most of them original and of quantitative approach. Brazil has published the largest number of articles, presenting the third position of the journals in the Bradford nucleus. An average Bradford multiplier value (XmB) = 2.1 was identified. The terms with the highest semantics were: spinal cord injury, patient, nursing, nurse and care. **Conclusion:** The bibliometric indicators showed a scientific production with low productivity, but with a tendency to growth in the last decades. Further studies on the subject are needed to improve the care offered to patients with spinal cord injury.
DESCRIPTORS: Patient Care; Nursing care; Nursing; Nursing professionals; Spinal Cord Injuries.

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RESUMO

Objetivo: Descrever a distribuição da produção científica dos cuidados de enfermagem ao paciente com traumatismo da medula espinhal e verificar quais as temáticas mais abordadas. **Método:** Análise bibliométrica através da Lei de *Bradford*, Lei de *Zipf* e estatística textual realizada com publicações em português, inglês e espanhol, no período de 1978 a 2018. **Resultados:** Amostra composta por 33 artigos distribuídos em 13 periódicos, sendo a maioria originais e de abordagem quantitativa. O Brasil publicou o maior número de artigos, apresentando a terceira colocação dos periódicos no núcleo de *Bradford*. Foi identificado um valor médio do multiplicador de *Bradford* (XmB) = 2,1. Os termos com maior semântica foram: lesão medular, paciente, enfermagem, enfermeiro e cuidado. **Conclusão:** Os indicadores bibliométricos demonstraram uma produção científica com pouca produtividade, porém com tendência a crescimento nas últimas décadas. Novos estudos acerca da temática são necessários para aprimorar o cuidado ofertado ao paciente com lesão medular.

DESCRITORES: Assistência ao Paciente; Cuidados de Enfermagem; Enfermagem; Profissionais de Enfermagem; Traumatismos da Medula Espinhal.

RESUMEN

Objetivo: Describir la distribución de la producción científica de cuidados de enfermería a pacientes con trauma de la médula espinal y verificar qué temas se abordan más. **Método:** Análisis bibliométrico a través de la Ley Bradford, la Ley Zipf y estadísticas textuales realizadas con publicaciones en portugués, inglés y español, de 1978 a 2018. **Resultados:** Muestra compuesta por 33 artículos distribuidos en 13 revistas, la mayoría originales y de enfoque cuantitativo. Brasil ha publicado la mayor cantidad de artículos, presentando la tercera posición de las revistas en el núcleo de Bradford. Se identificó un valor multiplicador promedio de Bradford (XmB) = 2.1. Los términos con la semántica más alta fueron: lesión de la médula espinal, paciente, enfermería, enfermera y atención. **Conclusión:** Los indicadores bibliométricos mostraron una producción científica con baja productividad, pero con tendencia al crecimiento en las últimas décadas. Se necesitan más estudios sobre el tema para mejorar la atención ofrecida a los pacientes con lesión de la médula espinal.

DESCRIPTORES: Atención al paciente; Cuidado de enfermería; Enfermería; Profesionales de enfermería; Lesiones de la médula espinal.

INTRODUCTION

Spinal cord trauma is a disabling neurological syndrome that can affect people in various segments of their lives, whether physical, psychological and social. It is characterized by any and all aggression caused by the structures that make up the medullary canal (medulla, medullary cone and equine tail), severe manifestations such as motor, sensory, autonomic and psychoaffective alterations.[1]

As Spinal Cord Injuries (SCI), it accommodates its elderly, single and urban residents, being its main traumatic cause.[2] Among the trauma-related injuries highlighted are car accidents, gunshot and stab wounds, falls, sports , accidents at work and shallow water diving.[3]

Being a spinal cord or regulatory center of various functions in the body, an injury to this structure can cause acute and chronic, compromising the exercise of functions of various corporate systems, such as: genitourinary, gastrointestinal, respiratory, respiratory, epithelial, cardiovascular, neuromuscular and psychosocial.[4]

Therefore, inferring that individuals affected by this type of injury need more nursing care from the first moments after the accident to the rehabilitation process[3]. Understanding the essence of the nursing profession as the process of treating the person, it requires a set of actions that involve the holistic and integral way of care, based on relationships of use, respect and empathy.[5]

Given that the care provided to people with spinal cord injury is challenging for the nursing staff due to the complexity and physical and psychological resources of each victim, it is necessary to plan based on the individuality of each patient, using a specific procedure that respects its remaining possibilities and degree of capacity.[4]

Thus, considering that the production of knowledge has been intensified among Nursing researchers and that it is necessary to investigate its distribution, the present study assumes as a scientific characteristic the search in the literature about nursing productivity in relation to SCI. to subsidize discussions around the care of patients with this syndrome, as well as the strengthening of scientific production focused on this social segment.

Therefore, we started from the following guiding question: What is the bibliometric profile of scientific production on nursing care for patients with spinal cord injury? In this sense, the objective was to describe the distribution of the scientific production of nursing care to patients with spinal cord trauma and to verify which themes are most addressed.

METHOD

This is a descriptive, bibliometric study with a quantitative approach. Bibliometrics is characterized as a technique capable of measuring the rates of production and dissemination of scientific knowledge using quantitative and statistical methods. Bibliometrics has as its foundation three laws: Lotka's Law (1926) that measures the productivity of scientists, Bradford's Law (1934) capable of measuring the dispersion of scientific knowledge through journals, and Zipf's Law (1949), model that checks the distribution and frequency of words in the text.[6]

For this purpose, a search of scientific articles published from 1978 to 2018 was performed, by searching the databases Scopus, Pubmed, Scientific Electronic Library Online (Scielo) and Virtual Health Library (VHL) because they are portals. electronic devices with a large number of publications in the nursing area.

To carry out the study, the following steps were performed: searching the database, preparation and bibliometric analysis from the Descriptors in Health Sciences (DeCS) and the Medical Subject Heading Terms (MeSH): Nursing Care, Nursing and Spinal Injuries Spinal. As well as their English correspondents: Spinal Cord Injuries, Nursing and Nursing Care, combined through the Boolean operator "AND".

ISSN 2175-5361
Albuquerque GPM, Coura AS, Fernandes MRCC et al.

DOI: 10.9789/2175-5361.rpcfo.v13.9322
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The articles were selected by two independent reviewers, according to the following inclusion criteria: publications of national and international journals, available in their entirety, which presented research results, experience reports and reflection studies on the theme addressed. The following were excluded: thesis and/or dissertations, author notes, duplicate texts and those that did not answer the study question.

The selection of articles took place in four stages. Firstly, the title was read, excluding those that did not fit the established criteria. In the second stage, the decision for inclusion/exclusion was based on the information contained in their summaries. When they did not provide enough information for decision making, the article was kept for the next step of the review process. In the third stage, the articles selected for full reading had their reference lists checked in order to identify publications that were not found in the initial searches. In the fourth and final stage, all selected articles that met the eligibility criteria after the third stage were analyzed in full.

After reading and rereading the data, a spreadsheet was organized in Microsoft World, containing the following information: manuscript title, authors, database, journal, year of publication, country of preparation of the article, type of study (original, report experience, case report, reflection or review) nature of the research (quantitative or qualitative) and research objective.

The dispersion of scientific journals was verified, identifying their productivity through the Bradford Law, consisting of three zones, containing one third of the total articles. According to this law it is possible to evaluate the degree of relevance of a journal within its specific area of knowledge and this is because a small number of journals have a larger number of scientific articles publication, forming a nucleus (or first zone) that corresponds to higher quality and relevance of publications. The other journals, in larger quantity, are distributed in the second and third zones, reducing their frequency of publication of articles as they disperse in the zones[7].

The analysis of the abstracts was performed descriptively, with presentation in the form of simple and relative frequency distribution through the Zipf Law (keyword frequency), using lexicographic technique from the processing of Iramuteq 3.2 software. Verification of word periodicity in the present study was performed to identify the relationship of terms found in the description of spinal cord trauma and nursing care.[6]

Zipf's Law (1949) presents the relationship between the words in the text and the order of their series that are listed in decreasing order according to the number of times they appear. He concluded that the position of a word in the series in which it is presented, multiplied by its frequency, corresponds to a constant of approximately 26500, thus indicating the equation $rxf = k$, where r is the position of the word, f is its frequency and k is the constant. From this principle was formulated the Law of Zipf, or Law of Least Effort, in which by using a small number of words, these in turn can represent the main theme of the text and suffer little dispersion. It aims to identify the words with the highest semantic content and the highest chances of indexing.

RESULTS

From the established descriptors and inclusion criteria it was possible to identify 273 publications, but with the application of the exclusion criteria, as well as reading and rereading the abstracts, a final sample of 33 studies remained.

It was observed that most articles were published from 2008 to 2018, corresponding to 20 (60.6%) of productivity. On the other hand, two publications were noted between 1978 and 1988, being absent until 1991. However, from 1992 to 2007 a period of stability was observed, but with low productivity, in which about one job was published per year on the theme studied.

As shown in Table 1, the predominant language was English, present in 16 (48.5%) of the articles published, mainly in Pubmed, corresponding to 10 (30.3%). In addition, most publications are original articles 19 (57.6%), quantitative approach 13 (68.4%) and first authors based in Brazil 17 (51.5%).

Table 1 - Distribution of articles by language, database and periodicals - 1978 - 2018. Recife, PE, Brazil, 2019

Language of Articles	Number of Articles (n=33)	%
English	16	48,5
Portuguese	10	30,3
English/ Portuguese	6	18,2
Spanish	1	3,0
Database	**Number of Articles (n=33)**	**%**
Pubmed	10	30,3
Scopus	8	24,2
BVS	8	24,2
Scielo	7	21,3
Modality of Publication	**Number of Articles (n=33)**	**%**
Original Article	19	57,6
Review Article	8	24,2
Experience Report	3	9,1
Reflection	2	6,1
Case Report	1	3,0
Original Articles' Approach	**Número de artigos (n=19)**	**%**
Quantitative	13	68,4
Qualitative	6	31,6

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Country of Publication	Number of Articles (n=33)	%
Brazil	17	51,5
United States	7	21,3
Canada	2	6,1
England	2	6,1
Portugal	1	3,0
Turkey	1	3,0
Spain	1	3,0
Australia	1	3,0
UK	1	3,0

Source: Own elaboration.

Analyzing productivity by authors, it was found that individual production was present in two publications (6.1%). In sequence, seven (21.2%) papers presented two, three and five authors presented the highest percentage, followed by publications composed by six authors (18.2%) and four (12.1%). Difficulties were identified in identifying information about the academic background and title of the authors.

Table 2 shows the most published journals on nursing care for patients with spinal cord trauma. There was a predominance of Paraplegia Magazine, currently incorporated by Spinal Cord Magazine, also present in this study and, therefore, with articles presented separately for better chronological understanding of publications. It was not possible to identify Qualis of Paraplegia Magazine, according to the Coordination of Higher Education Personnel Improvement (CAPES), because this journal no longer exists.

As indicated in Table 2, the journals The Journal of Spinal Cord Medicine and the Journal of the School of Nursing of São Paulo (REEUSP) presented the same number of publications. To list which would be included in the composition of the Bradford Center, together with Paraplegia Magazine, the impact factor was considered. Thus, the nucleus was composed by the Paraplegia Magazine, in second place by The Journal of Spinal Cord Medicine (factor = 1.882) and, thirdly, by REEUSP (factor = 0.743). The serial order (OS) refers to the ordering of journals according to their absolute productivity, column P to the quantity of journals and column A to the quantity of articles produced by them.

Table 2 - Journals in decreasing order of productivity and their respective Qualis Capes. Recife, PE, Brazil, 2019

OS	P	A	Periódico	Qualis Capes
1	1	6	Paraplegia	-
2,5	2	5	*The Journal of Spinal Cord Medicine*	Sem Qualis
			Revista da Escola de Enfermagem da Universidade de São Paulo	A2
4,5	2	3	*Spinal Cord*	Sem Qualis
			Revista de Pesquisa: Cuidado é fundamental	B2
7	3	2	*Ciência y Enfermería*	B1
			Revista Brasileira de Enfermagem	A2
			Online Brazilian Journal of Nursing	B1
12	5	1	Revista Latino Americana de Enfermagem	A1
			Acta Paulista de Enfermagem	A2
			Escola Anna Nery Revista de Enfermagem	B1
			Ciência Cuidado e Saúde	B2
			International Scientific Journal	Sem Qualis

Source: Own elaboration. OS = Serial Order; P = Number of journals; A = Number of articles.

Magazine spread in productivity zones

By analyzing the publications through the Bradford Law, it was observed that each zone was composed of 11 (33.3%) articles, since in its classic form this law states that each zone should contain 1/3 of the total publications. das. It was observed that the number of articles in all zones remained the same 11 (33.3%), however, the number of journals increased from one zone to the other, that is, while zone 3 had eight (24.2 %) journals, the Bradford Center has the same amount of articles published by two (6%) journals (Table 3).

Table 3 - Dispersion of articles according to Bradford Law. Recife, PE, Brazil, 2019

Zones	Theorethical Calculation (Total articles)	Number of Journals	Empirical Calculation (Total articles)	Number of Journals	Mb	On line
1	11	2 (y=2)	11	2	-	SIM
2	11	6 (3y)	11	3	1,5	NÃO
3	11	12 (3y^2)	11	8	2,7	NÃO

Source: Own elaboration. XmB = 2.1; mB = Bradford Multiplier.

Most common words in summaries

After analyzing the word quantity of the abstracts and the relevant information present in the studies, the most frequent terms were: spinal cord injury, patient, nursing, nurse and care, presented in Table 4.

Table 4 - Frequency of words with high semantic content in summaries.

Word frequency on the Abstracts *Zipf Law* (n= 33)	
Word	*F*
Spinal cord injury	136
Patient	81
Nursing	61
Nurse	55
Care	53

F = Frequency in which the word is repeated in the set of summaries analyzed by language. n = number of abstracts that made up the textual corpus analyzed

DISCUSSION

When analyzing the frequency of publication over a period of 40 years, it was possible to observe a small but constant number of studies that focused on nursing care aimed at patients with spinal cord trauma, which implies that there was interest in researchers on the subject. The significant increase in publications in the last ten years represents the need for further studies considering the severity of the consequences that the LM has on the lives of individuals, besides the small number of studies in the time frame presented points an important limitation of nursing in this study research field.

It is noteworthy that much research carried out in educational institutions through course work and monographs is not encouraged to be published in the form of a scientific article, as with dissertations and theses. A study by Lucena (2018) confirmed this information through a bibliometric analysis in the nursing area, in which it pointed out that this problem hinders the dissemination of knowledge on a given subject.[8]

Regarding the type of study, the publication of a theoretical nature called attention, including reviews, case reports, reflections and reports of experiences. The non-evaluative research points the gap to the frequency of authors who prefer to opine on certain care, when they could present data based on studies in the practice of evaluation.[9] Through these results, we note the need to develop research with original methodological approaches to contribute to the knowledge of nursing care for patients with SCI.

The difficulty in identifying information about the authors' academic background, title and practice area was due to the absence of these data in the publications made by the Paraplegia journal, representing a weakness in older research and, consequently, a limitation of this study. It is believed that by the time since the first publication, the habit of disclosing the authors' metadata has become more habitual and requested in the rules for submission of scientific journals.

The first publication on the subject studied occurred in 1978 in Paraplegia Magazine, entitled Nursing management in relation to beds used within the national spinal injuries center for the prevention of pressure sores. Produced in England, it presents a report on nursing views and care for SCI patients, highlighting the various beds used to assist in the prevention and treatment of pressure injuries. For the authors, the movement of patients with SCI should be strictly limited, aiming at maintaining an alignment and support of the injured area.[10] This result, now surpassed, may be related to the few studies of the time about a method that encompassed care for the individual patients with SCI.

However, with the advancement of health technologies and research, the limitations that were previously imposed on the person with SCI to restrict their daily life activities have undergone modifications, including a care network aimed at their social reintegration. An example of such care is the elaboration of the Guidelines for the Care of People with Spinal Cord Injury, which aims to guide health professionals towards integral and humanized care in the Care Network for People with Disabilities.[11]

Among the Brazilian publications, the first article entitled Pathophysiological and nursing care aspects in the rehabilitation of people with spinal cord injury, published in 2004 by the Nursing Journal of the University of São Paulo, reported the clinical complications of SCI and presented nursing interventions to promote health and improvement in the quality of life of patients with this disease. This study revealed that nursing care when implemented considering the pathophysiological character of the disease and clinical discussions between the caregiving team, which includes students and professionals, are fundamental factors to

ISSN 2175-5361
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DOI: 10.9789/2175-5361.rpcfo.v13.9322
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increase the patient's knowledge about their health condition, possibility of rehabilitation and improvement in quality of life.[12]

A review study evidenced the co-responsibility of the nurse with the multidisciplinary team in direct care to the patient with SCI, so that the pathophysiological characteristics of the individual aiming at their rehabilitation, stimulating self-care and the teaching-learning process towards family members are glimpsed. and caregivers in order to reinsert these patients into society as early as possible.[13]

When analyzing the countries that most published on the theme studied, Brazil stood out with the most publications, the United States, followed by Canada and England. The highlight of Brazilian studies may be related to the increase of postgraduate courses in the country in the last two decades, which favored the increase of nursing in the scientific environment. However, a possible hypothesis for the larger number of studies on the subject can be explained by the fact that Brazil has high numbers of urban violence and traffic accidents, culminating in high rates of mortality and SCI. This information is valuable to assist in the recognition of places that need studies on nursing care for patients with SCI, contributing to increase the interest of researchers in the area.

Regarding the journals included in this study, it was observed that only one of those who composed the Bradford Center has important bibliometric indicators at the international level and for postgraduate nursing programs, which corresponds to REEUSP (Qualis A2), except for Paraplegia Magazine which is currently linked to the journal Spinal Cord (Qualis B1). The Journal of Spinal Cord Medicine has not yet been evaluated for nursing, making it impossible to perform further analysis.

Only the First Zone, corresponding to the Bradford Core presented the empirical data in line, so, according to the theory, the behavior of the distribution of journals in the next two zones was not compatible. This can be explained by the small number of publications found when compared to the number of journals, reflecting the low productivity on nursing care for patients with SCI.

The use of bibliometric laws made it possible to understand the way the theme is distributed in the databases, as well as to identify the frequency of terms most used. For the latter, it was verified by applying the Zipf Law, associated with the use of Iramuteq software, a high frequency of words that made up the central theme of the abstracts. It was found that the terms spinal cord injury, patient, nursing, nurse and care appeared more frequently in the summaries, which intensified the law of least effort brought in the Zipf Law, where there is a tendency to obtain the maximum information using the as few words as possible.

In addition, it should be noted that while the considerable increase in the incidence of SCI in many countries contributes to rapid and effective research on patient promotion and rehabilitation, such knowledge needs to be comprehensive in all areas of health, so that nursing can expand work based on the care of the profession for this clientele.

Another important point concerns the choice of descriptors and titles of articles, because it is not uncommon to find texts that are produced by the nursing professional, report their care and care provided, however do not have the nursing descriptor and do not bring this information in the literature. title. In this context, the attention of nursing researchers is awakened to use this descriptor in articles that address the area, as this way the texts may express greater value in addition to increasing the representativeness of the scientific publication of the profession.

It should also be emphasized that nursing assists clients from promotion to health rehabilitation, performing direct care at all levels of care. A study by Machado in a large hospital in the Zona da Mata Mineira identified that nurses favor the recovery and adaptation of physical conditions imposed by ML, as well as offering psychological, motor and spiritual support to patients and their families.[15]

In this perspective, a review article highlighted that human health care is based on individual needs, reflecting the ideals of nursing theories, which contribute to support the care provided to patients. According to the authors, for nurses to take care of the other, it is essential to identify their human vulnerabilities and to go beyond biologicist practice, because they must incorporate art, ethics, philosophy and scientific knowledge together with theorists to work on the health and inner needs of individuals.

CONCLUSION

Bibliometric indicators have shown a scientific production in the area of nursing with low productivity and tendency to growth in recent decades. The use of Bradford's Law proved to be important for the analysis, as it was possible to identify which high influence journals are publishing on this subject. It was observed that Brazil was responsible for most of the works found and the co-authoring system in almost all publications. Through the analysis of Zipf's Law it was possible to perceive the valorization of the descriptors as words that presented the central idea of the texts. The lack of information on the authors' background and qualifications limited the findings that could have contributed to the characterization of the study.

In general, the study showed that the subject has not yet reached its scientific maturity, requiring further research in the nursing area that works directly with the care of patients with SCI in order to systematically evaluate the conduct and facilitate clinical management for such condition.

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Disclaimer: The authors claim to have no conflict of interest.