Is it time for a new descriptor 'pressure injury': a bibliometric analysis

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Abstract

Prediction, prevention and management of pressure injuries are areas that require specific attention from nurses in clinical practice. Moreover, increased awareness that these injuries are preventable is an important precursor to changing nurses' practice and reducing the incidence of pressure injuries. The language and terminology that we use in daily practice can impact on the understanding and approach that nurses take to care delivery. In this area of wound care practice commonly used terminology that emphasises the nature of the wound, rather than its causation, may be a significant factor that limits the level of concern about prevention and responsibility taken by clinicians. This paper argues that the term 'pressure injury' promotes a better understanding of the fact that these wounds are preventable and may refocus the attention of nurses providing care to at-risk patients.

Introduction

A change in attitudes and belief may be influenced through the choice of terminology. This paper focuses on the role of nursing terminology as an influence on nursing care now practised in the prevention of pressure injury.

The International Classification for Nursing Practice (ICNP®) emphasises the need for unifying approaches to promote integration and harmonisation of nursing terminologies across countries and languages [1].

The primary motivation for a unified nursing language system is to be able to communicate and compare nursing practice furthermore underpinning research evidence across settings, countries and languages. This unification of nursing terminology supports the further development of the discipline in areas such as clinical decision-making, evaluation of nursing care, improvement of patient outcomes, development of health policy and generation of knowledge through research.

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Specifically, this paper contributes to the development of international nursing terminology and argues for a review of the terminology used to describe the tissue damage caused by unrelieved external pressure on tissues resulting in damage to the underlying tissues [2]. Emphasis is placed on the definition of this condition by causation; that is as an injury, thus moving the focus of nursing care to prevention. Common nursing terminology used to describe this injury includes pressure ulcer, pressure sore, decubitus ulcer and bedsore, with each term focusing on tissue damage rather than causation. Deliberate choice of language and focus on prevention has the potential to promote early intervention and to significantly improve patient outcomes. This paper reports on the results of a bibliometric analysis of nursing terms used to describe pressure injury in research papers in published journals sourced from CINAHL and MEDLINE databases covering a 5-year period in the English language.

Background

History has shown that pressure injuries are not a modern occurrence, with evidence of treatment as early as the XX1 Dynasty [3]. Whilst debate as to treatment has evolved over the centuries, in the later part of the 20th century the movement towards a focus on prevention of pressure injury has been evident.

The nursing role in pressure injury management is significant as nurses are the prime deliverer of wound care and have the ability to determine and instigate preventative practice measures for those considered to be at risk and coordinate multidisciplinary teams in the management of the wound [4]. To be able to effectively prevent the development of a pressure injury, the clinician must understand the pathophysiology and causes that contribute to the development of the injury

and this fact may be one of the influences that has resulted in the use of different terms to describe this common problem over time.

Current terminology

Tissue damage resulting from abnormally sustained pressure may be referred to as a bed sore, pressure sore, decubitus ulcer, pressure ulcer or pressure injury. All of these terms refer to the same problem encountered by many patients and all are caused by sustained pressure resulting in ischaemia [5]. Latterly, the term pressure ulcer has been promoted as it is thought to more accurately reflect the aetiology of pressure-derived tissue degradation and the characteristics of the resulting lesion [3].

Prevention and management of pressure injuries is now the focus of international debate [5]. The strategy for prevention includes recognising the level of risk, decreasing the effects of pressure, assessing and improving nutritional status, avoiding excessive bed rest and prolonged sitting and preserving the integrity of the skin. The principles of management include assessing severity, reducing pressure, friction and shear forces, optimising local wound care and management, removing necrotic debris, managing bacterial contamination and correcting nutritional deficits. Scientific research addressing both prevention and management has been extensive and noted in the literature over the past 4 decades [6].

Guidelines have been established by international professional bodies for the classification of severity of the injury according to characteristics of the wound and/or surrounding tissue. Both the European Pressure Ulcer Advisory Panel (EPUAP) and the American National Pressure Ulcer Advisory Panel (NPUAP) have published clinical practice guidelines over the past 20 years. In 2001 the Australian Wound Management Association published clinical practice guidelines for the prediction and prevention of pressure ulcers [2].

These national and international bodies have focused on the prevention of pressure injury in an attempt to curb the incidence and prevalence of pressure injuries among at-risk patients. There is now a move in pressure injury management focus away from treatment and toward early risk assessment and preventative management. Consequently it is timely to consider the terminology employed by nurses and specialists in wound management in describing this form of injury and to encourage the use of terminology, which underlines the fact that the problem is preventable and should be understood as an injury, frequently associated with inadequate preventative care.

Method

This project utilised aspects of classic bibliometric analysis technique in a pilot investigation to determine patterns in the usage of common terminology for pressure injury. The study was unfunded and set out to trial the potential value of bibliometrics in informing our understanding of the nursing terminology used in this field of wound care. Terminology currently and consistently used throughout the international academic discourse to describe pressure injury includes the following terms: bedsores, decubitus ulcers, pressure sores, pressure ulcers, pressure necrosis, ischemic ulcer, pressure wound and pressure injury.

The bibliometric method uses empiric data and quantitative analysis to trace formal communications in published literature and to study the patterns of publications within a field [7]. The pilot used several elements of the bibliometric approach. Publication counts, a basic tool in bibliometric analysis, provided a descriptive and quantitative indicator of the prevalence of common pressure injury terms. The study mapped the development of descriptive language used by health clinicians to describe pressure injury over time.

Bibliometric analyses use objective publication data and do not attempt to interpret or assess the content or quality of publications or the motivations of the researchers [7].

Data

The bibliometric data was obtained by searching two international literature databases: the Cumulative Index to Nursing and Allied Health (CINAHL) and MEDLINE (OVID). The following search terms were utilised to gather the data:

- Pressure sore.
- Bed sore.
- Pressure ulcer.
- Decubitus ulcer.
- Pressure injury.
- Pressure necrosis.
- Isch(a)emic ulcer.
- Pressure wounds.

Each database was utilised to search for the eight terms used to describe pressure injury. Findings of the two database searches were combined and duplicate journal articles were deleted from the search.

Papers published in the academic literature that met the following inclusion criteria were accepted:

- Published in the English language.
- Academic journal articles only.
- Published in the years between 2001 and 2006.
- Have one of the eight search terms in either the title, keywords listed for the article or in the abstract.

Papers excluded from the data set were:

- Commentary and editorial papers.
- Papers where none of the eight search terms were listed in the title, keywords or the abstract.

- Papers where the abstract indicated no relevance to the pressure injury topic.

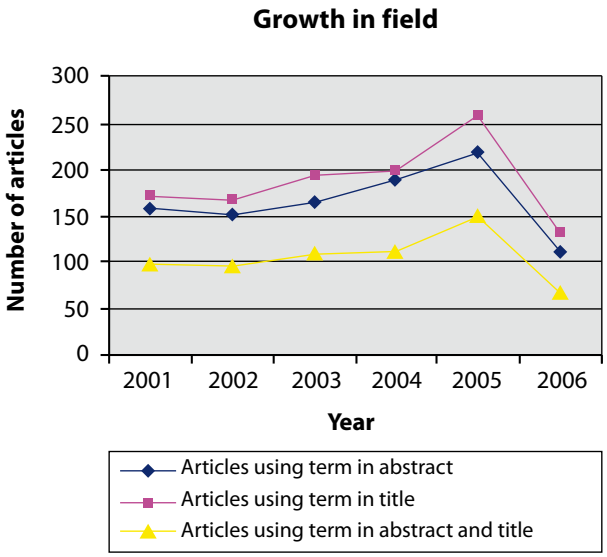
The final search resulted in more than 3400 articles, which were then screened to remove any duplication and assessed against the inclusion and exclusion criteria. Once all articles were reviewed, a total of 1756 articles obtained from 398 journals remained in the data set and were retained for analysis. Database searches were undertaken in mid-2007. Author citation patterns and journal impact factors were evaluated using the Web of Science citation index.

Results

The results presented here arise from a relatively simple descriptive analysis of the data using several typical bibliometric techniques. The relative prevalence of each of the eight terms in the final (cleaned) data set was roughly equal across the two electronic literature databases. For example, the most commonly used (prevalent) term recovered from articles cited in MEDLINE was also the most commonly used term in articles listed in CINAHL.

Growth in the field

Over all terms the results showed an increase in publication volume until 2005 (Graph 1). However, 2006 showed a considerable decline in publication across all categories. It is unlikely that this result is due to a lag in recording papers within the databases because both databases are updated regularly. Results also show that authors seem to be using one of the eight key terms in the title more frequently than in the abstract or in both the abstract and title.



Graph 1. Growth in field.

Journal patterns

The 1756 articles included in this analysis were published in 398 different journals. Analysis of the journal patterns included comparison of the number of articles focused on pressure injury (and other terms) for each journal title. The top ten journals with the most publications are listed in Table 1.

Bradford's Law provides a general guideline for describing the distribution of academic papers across journals in a field of study. The characteristic pattern of distribution of articles was first described by Samuel C Bradford in 1934 and demonstrates the exponentially diminishing returns arising from extending a search for references in the scientific literature [8]. According to Bradford's Law, about one third of all journals publishing in a field will contain most articles, a second third of the journals publishing in the area (middle group) will contain a smaller number of articles and the remaining one third will contain only one or two articles in each journal. For librarians, students and researchers, the underlying message is that extending a literature search beyond the top one third of journals that dominate publication in that field results in little additional return. The law can be expressed as a ratio of $1:n:n^2$. In this project the top eight journals with the highest number of articles published accounted for 34% (n=608) of all articles published over the 5-year period. The middle group accounting for 45 journals captured a further 32% (n=567) of all articles and, finally, the 345 journals with low publication rates for this field of study accounted for 33% (n=581) of articles. While Bradford's Law is not intended to be a precise measure, it does provide a good estimation of the typical distribution of papers across scientific journals and fields of study. In this pilot study the best fit formula ratio is $1:6:6^2$ ($1:n:n^2$ – where n= the Bradford Multiplier).

Table 1. Top ten journal details.

Journal name	No of articles	Discipline
Ostomy Wound Management	127	Multidisciplinary
Advances in Skin and Wound Management	113	Multidisciplinary
Journal of Wound Care	89	Multidisciplinary
British Journal of Nursing	79	Nursing
Journal of WOCN	67	Nursing
Journal of Tissue Viability	53	Medicine
Nursing Times	46	Nursing
Nursing Standard	34	Nursing
Primary Intention *(renamed Wound Practice and Research)*	31	Multidisciplinary
Wounds: A Compendium of Clinical Research and Practice	30	Multidisciplinary

Author patterns

Eleven key authors were identified from the 1756 articles. Prolific authors were defined as authors with four or more articles published during the 5-year study period following the example of Estabrooks, Winther & Derksen [10]. Table 2 shows the top 11 authors and the number of articles published by each over the study period.

Table 2. Author patterns.

Author name	Number of articles	Number of pressure injury-related citations in 2004–2005
Hampton S	22	2/ 3
Ayello EA	17	9/2
Collins F	17	1/0
Thomas D	11	0/5
Collins N	9	2/0
Clark M	8	3/2
DeFloor T	8	16/15
Lyder CH	8	0/0
Moore Z	8	2/7
Russell L	8	2/0

Lotka's Law [9] describes the typical frequency of publication of authors in a field of study. The number of authors making n contributions is about $1/n^a$ of those making one contribution, where 'a' is often nearly two. In other words, the number of authors publishing a set number of articles is a fixed ratio to the number of authors publishing a single article and as the number of articles published by an author increases, authors producing that many publications become less frequent. For example, there may be 1/4 as many authors publishing two articles within a specified time period as there are single-publication authors, 1/9 as many publishing three articles, 1/16 as many publishing four articles and so on

Citation analysis provides a technique helpful in understanding the impact of an author on the field of study and involves assessment of the frequency and pattern of citations in articles. Table 2 shows the total number of citations accrued for papers by each of the top ten authors

over a 2-year period. A limitation of this result is that it refers to citations for all of the authors' papers for that year and may include papers in other topic areas. While these authors are quite focused in their field of study, more detailed analysis may have altered the result reported here.

Rate of use of key words

The most common key word utilised across all three categories, including title, abstract and abstract and title, was pressure ulcer (Graph 2). When individually assessed, pressure ulcer remained the most commonly used term for every year from 2001 to 2006 inclusive. Pressure sore was second in its frequency of use across all three categories, followed by decubitus ulcer then pressure wound.

Identifying the structure of the scientific field

Disciplinary basis

Analysis of the data set showed a strong nursing and medical disciplinary focus for journals publishing in this field of study.

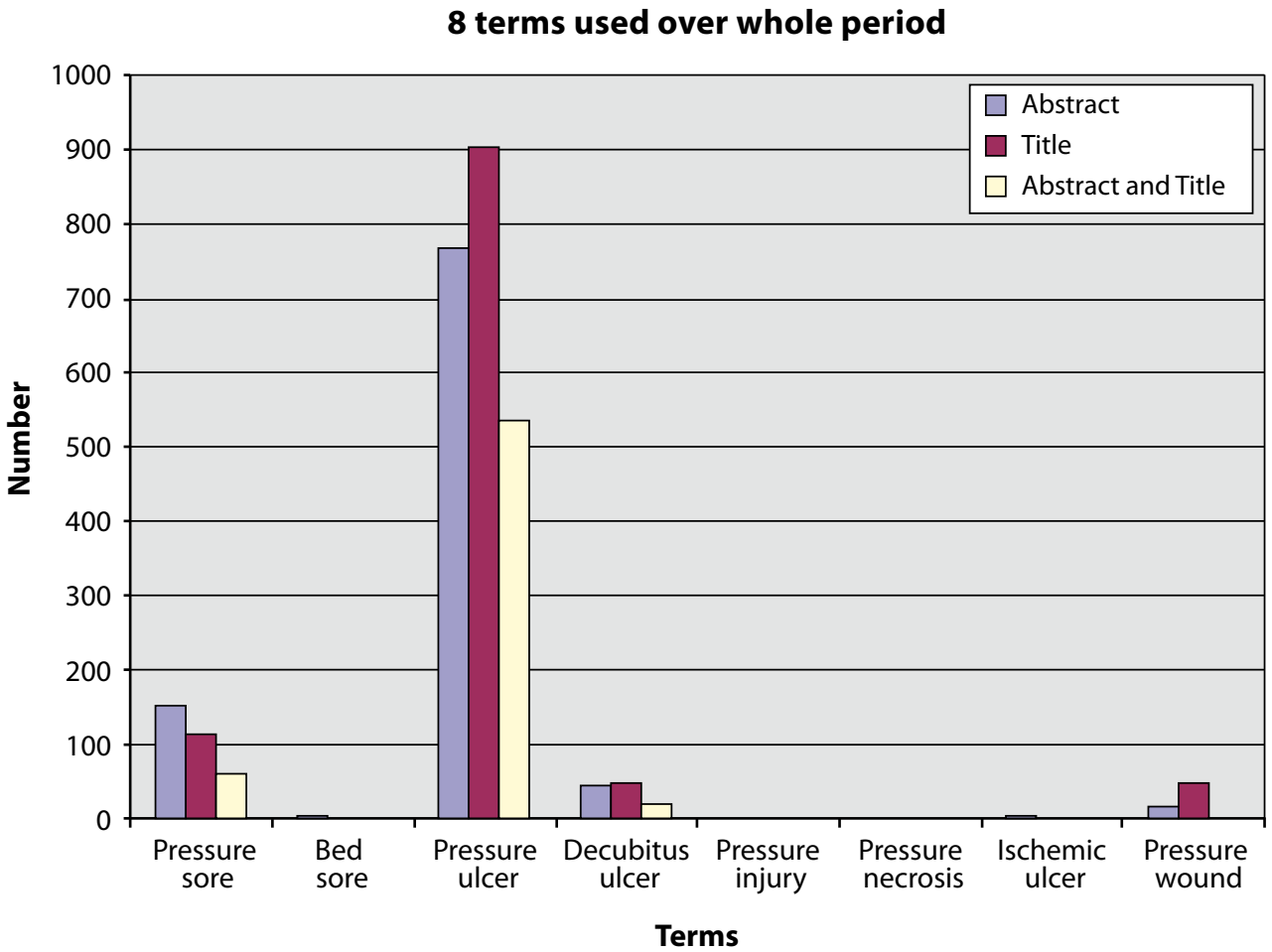
Table 3

Interdisciplinary category	No of journals listed under category	Per cent
Medical	119	29.8
Nursing	109	27.3
Multidisciplinary	88	22.0
Allied health	30	7.5
Management	16	4.1
Other	13	3.3
Unknown	23	6.0
Total	398	100

Discussion

With the growth of knowledge on the cause and effects of pressure injury, it is timely to consider the potential influence of language and terminology on practice in the field of prevention and management of pressure injury.

Several terms are consistently used in the literature to describe a pressure injury. These include pressure ulcer,



Graph 2. Key words used over the whole period.

pressure sore, decubitus ulcer, bedsore, pressure necrosis and ischaemic ulcer. These terms are used to describe any lesion caused by unrelieved pressure that results in damage to underlying tissue [2].

The most commonly used descriptor is *pressure ulcer*. The *Oxford Dictionary* [10] defines ulcer as "the defect of continuity of the epithelium covering a surface, when forming a defined crater". More recently the EPUAP and NPUAP pressure ulcer prevention and treatment clinical practice guidelines in 2009 [11], defined pressure ulcer as "an area of localised injury to skin and/or underlying tissue usually over a bony prominence, as a result of pressure or pressure associated with shear".

The second most prevalent term, *pressure sore*, is described in the *Oxford Dictionary* [10] as a sore produced by continued pressure on a part of the body. We now know, however, that there are other contributing factors associated with the development of a pressure injury.

The third favoured term, *decubitus ulcer*, refers to wounds developed over bony prominences while in the recumbent position; especially the sacrum, heel or occiput; *decumbere* means "to lie down" in Latin [8]. The term *bedsore* means an ulceration of the buttocks or heels, developed by a constant pressure on a mattress on the invalid's skin [10].

Whilst the past 5 years have seen growth in the use of the term pressure ulcer in favour of other terms, there has also been a steady increase in the use of decubitus ulcer as a descriptive term.

Prevalence studies have shown that pressure injuries do develop in many other parts of the body, not only affecting invalids and it can be argued that these three most commonly used terms fail to provide a satisfactory 'generic' term that adequately describes the injury on most occasions. This is especially relevant to the production of wound care texts and teaching materials.

The *Oxford Dictionary* [10] describes injury as "a wrongful action or treatment especially to the body". The term *pressure injury* differs from all other common terms in that it draws attention to causation rather than to the description of the wound itself.

It may be useful to review the use of terminology in this field and to emphasise that these injuries are preventable. A focus on causation may influence clinical practice and broaden the range of clinicians involved in the prevention and management of the wound beyond wound care specialists.

This paper has reviewed the terminology most commonly used to describe the wounds arising from prolonged pressure on the tissues published in academic journals over a 5-year period. It identifies that there are numerous descriptors used in clinical practice to describe this singular aetiology and argues that the prevalent terms in the literature have severe limitations. A move forward to a standard descriptor for pressure injury is considered to have long-term benefits in education, clinical decision-making and may help to focus the clinician's attention on their role in early assessment and prevention of the injury commonly caused by prolonged pressure on the tissues, rather than the management of the 'end point' injury itself.

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