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ABSTRACT

A citation analysis of three American nursing journals published in the United States was conducted in each of the sample journals for the first 7 months of 1996. Any attempt to cite a reference source was considered a citation. Each citation was coded for type and placement in relation to the text of the sample journals. The content of each citation was coded for format, date, place of publication, author type, and completeness. Subjects of referenced citations were determined whenever possible from titles. Findings show that most citations were to publications with dates within the past 5 years printed in the United States. Tabulations regarding format reveal 78% of citations were to journals and 20% to books. Collectively, the three sample journals had 40% of the subjects of the citations classed under the general heading: patient care, procedures, and protocols. The three sample journals had differing percentages of their total citations located after full-length articles; the lowest of these was 66% and the highest 77%. Among the sample journals, citations which qualified as complete for the purpose of this study ranged from 33% to 72%. Concluding remarks consider the need for consistency of referencing style among nursing journals and the need to evaluate bibliographic instruction among nurses. Five tables present results. The coding sheet is appended. (Contains 17 references.) (Author/AEF)

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IR

ED 413 933

KENT STATE UNIVERSITY

A CITATION ANALYSIS OF THREE
AMERICAN NURSING JOURNALS

A RESEARCH PAPER SUBMITTED
TO THE FACULTY
OF THE SCHOOL OF LIBRARY AND INFORMATION SCIENCE
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE MASTER OF LIBRARY SCIENCE DEGREE

BY

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KENT, OHIO

APRIL 15, 1997

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A citation analysis of three American nursing journals published in the United States was conducted in each of the sample journals for the first seven months of 1996. Any attempt to cite a reference source was considered a citation. Each citation was coded for type and placement in relation to the text of the sample journals. The content of each citation was coded for format, date, place of publication, author type, and completeness. Subjects of referenced citations were determined whenever possible from titles.

Findings show that most citations were to publications with dates within the past five years printed in the United States.

Tabulations regarding format reveal 78% of citations were to journals and 20% to books. Collectively, the three sample journals had 40% of the subjects of the citations classed under the general heading: patient care, procedures, and protocols. The three sample journals had differing percentages of their total citations located after full-length articles; the lowest of these was 66% and the highest 77%. Among the sample journals, citations which qualified as complete for the purpose of this study ranged from 33% to 72%.

Concluding remarks consider the need for consistency of referencing style among nursing journals and the need to evaluate bibliographic instruction among nurses.

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CHAPTER 1

INTRODUCTION

In nursing as well as other disciplines, recorded, finely processed, and printed information produced by exacting knowledgeable individuals has spiraled to contribute to the general information explosion and overload. Much of this information is in print periodical format. Shirley H. Fondiller (1994) mentions in *Nursing and Health Care* that the first American nursing journal dates from 1886. In the mid 1970s, nurses were advised to specialize by completing credentialing requirements for a specialty of practice. As moneys became available for research in the sciences, nursing research was reflected in its literature, notably in the specialties. Presently there are at least 310 nursing journals of many focuses, including research and specialties, in publication internationally. Meanwhile, libraries faced with diminished budgets have been conducting usage studies to determine which journals to select or deselect because in medicine and science, where currency of information is the hallmark, journals supersede textbooks for timeliness of information. Much of the focus in collection development in relation to budget constraints in library literature is directed to journal deselection. Many operational research usage studies reported in the literature have been conducted to determine journal use in institutions and via interlibrary loan.

Studies concerning nursing and other journals have been conducted using content analysis and citation analysis to examine citation and cocitation. These focus on whether authors include references at all, and if so, in what numbers, whether they cite others within the discipline, cite other outside journals, and sometimes, whether there is a need for a new journal for a nursing specialty which has no representative one. Citation analysis is frequently found as the method used in theses and dissertations to evaluate the spread of knowledge within a discipline or a branch of that discipline. Cited sources are tracked to determine how much self-citation, cocitation and citation outside the particular realm occurs.

In an article addressing the role of nursing journals in the advancement of nursing as a profession, James P. Smith, editor of the British publication, *Journal of Advanced Nursing*, separates them into three types: "popular," "special interest," and "scholarly." He attributes many clinical management articles in specialty medical areas to "special interest" journals, and research and nursing education articles to the "scholarly" publications. Smith uses the *American Journal of Nursing* as one example of a "popular" journal with the goal of keeping readers informed of topical professional trends in clinical care and related politics. These "popular" nursing journals have a low percentage of research articles; usually the content covers practice standards and areas of liability. Smith concludes that the main role of nursing journals in advancing the nursing discipline is to promote professional identity among nurses. Nursing journals accomplish this by helping nurses develop writing and communication skills, contribute to continuing education, provide forums for sharing ideas, innovations and

debate, foster internationalism and political consciousness, encourage interprofessional collaboration and document the body of nursing literature (Smith 1994).

Usually the citations to be analyzed are those found at the end of full length articles having to do with research, education, or management. As Smith mentions above, "popular" nursing journals have few of these types of articles.

In the Bulletin of the Medical Library Association, an article on the reading behavior of acute care nurses states that 92% of survey respondents in two hospitals indicated reading "up to three professional journals regularly." Of these, 45% had a reading time of "hours" per month (Spath and Buttlar 1996). Studies conducted on various samples of nursing literature for content and citation analysis reveal findings unrelated to the amount of reading nurses claim to do.

Many studies of nursing journals have been completed but none has focused on American "popular" nursing journals and few studies apply citation analysis to formats beyond periodicals.

Purpose of the Study

To discover what kinds of information sources from three "popular" American professional nursing journals as represented by citing authors as well as cited information found anywhere in the journals is the purpose of this study. Also, it attempts to delineate sources in addition to periodicals which are cited. Hopefully, the scope of the references tabulated in this citation analysis will reveal any obvious information gaps among the three "popular" nursing journals so their readership can be

served more thoroughly in future publications. In combination with other research, results of this study may also influence collection development to accommodate proclivities for utilizing research resources among nursing journal authors, or suggest changes in citing behavior.

Limitations

Broad generalizations cannot be made from a study limited to only three nursing journals. This paper reports on a classification study to discover what the citations reveal during a seven month sample of all citations found throughout the *American Journal of Nursing, Nursing, and RN*. Though random sampling is a preferred method of study, this paper reports on a limited sample.

Although the data was coded to obtain subjects of cited references from titles, an in-depth study of subjects is too daunting for this research paper.

Likewise with cocitation. Author and date of citations were coded whenever available from the citations analyzed. In addition to the prohibitive nature of the time constraints required to map cocitation, observing for cocitation was not a stated aim of this study.

Definitions

1. citation-a reference to an information source used by the author or authors in preparing a separate work of intellectual content. A citation usually includes enough information to locate it by date, title of work , volume and pages if printed, author name, web address, report number, etc., in order to check the claim of the new work which is utilizing the content of the cited information source in its own preparation or to add to its understanding.

2. cocitation-a reference to an author or information source by more than one work or document. Usually cocitation is discovered by citation analysis of more than one citing source. it can also be performed with the aid of citation indexes.

3. complete citation-for this paper, a printed reference which includes author name, page numbers, date, title of work, as well as title of article if a periodical.

4. incomplete citation-for this paper a printed reference which is missing some part of the citation data which would aid in finding the work.

- 5 AJN- refers to the *American Journal of Nursing*.

CHAPTER 2

LITERATURE REVIEW

Using the search terms “citation analysis research nursing” citations for previous studies conducted on this research topic were found in the following electronic databases: CINAHL, Dissertation Abstracts, ERIC, Library Literature, Medline, Periodical Abstracts and Kent State University School of Library and Information Science Database of Student Research Papers. LISA on CD-ROM through 1992 and LISA in print index from 1993-96 revealed no relevant articles.

Found works reveal that citation analysis is a method with almost a unique application for every study employing it as a tool. “Consistency in Referencing” is an article which argues for precision in citing rather than present methods which the author claims are based on inferred motivations (Langham 1995). He proposes more specificity in the use of “citation signalers” within a work, regardless of style. A number for a footnote, parenthetical author-date notation, or inclusion of the whole reference within a sentence should single out a specific page, chapter number, or precise text element to enable the reader to locate the reference efficiently. Langham claims the purpose of citations is to encourage the reader to consult the cited text to enhance understanding of the idea being presented. He claims any other reasons for inserting

citation references into a work casts suspicions on the authors. So, since aiding reader comprehension is the goal of citation inclusion, references to whole books is a dubious practice; the elements of the citation should point more explicitly toward the idea being presented.

He sees two possible effects from imposing a stricter methodology for reference citations: first, a reduction in citing and second, an improved quality of academic papers and greater accessibility of comprehension for their readers. Although the main thrust of the paper is proposing greater precision in citing, the author concludes that the major benefit over time would be the consistency of recorded citations which could influence greater effectiveness in citation analysis because citations would be prepared more carefully and pointedly and studies of citations would be more significant.

Paralleling Langham's proposal is the article, "On the Objectives of Citation Analysis: Problems of Theory and Method." This opinion paper states, similarly to Langham, that works are cited in order to make a point that is relevant to the subject being discussed. The author continues that "citation analysis as it is practiced today is, historically, a byproduct of the creation of citation indexes" and that in science, especially, publication of a research paper is a type of reward system and subsequent citations to it are token recognitions (Peritz 1992, p. 448).

Suggestions within the article regarding effective citation analysis include running the same design of a study in a set of similar "matched" or "comparison" publications. Additionally, a suggestion for a study design using the number of citations as a dependent variable coupled with a content analysis to determine how the

citations are utilized within the citing work is purported. For any study design to be effective, the author concludes that "an unambiguous definition of the objective" of the study is necessary along with clear ideas about the numbers of dependent variables to include and how to arrange them in relation to independent variables (Peritz 1992, p. 449).

These design ideas follow the statement explaining that frequently the users of citations are from a different discipline or community than the producers of the works cited.

Exemplifying the statement by Peritz regarding users of citations is an article entitled, "Core Journal Networks and Cocitation Maps: New Bibliometric Tools for Serials Research and Management" (McCain 1991). The discipline of genetics lacks a unified core literature but utilizes articles from a number of research specialties adjacent to genetics in focus. This paper explains a study of the journal networks from which genetics chooses literature. Two methods are used. First, data taken from the *Journal Citation Reports for Science Citation Index* is examined on spreadsheet software to ascertain which journals are linked by intercitation to genetics; thirty-three are identified. In the second step, use of SCISEARCH online gathers data on cocitation by these thirty-three journals. Cocitation frequencies and z-scores determine the journal titles comprising the list of core network journals for genetics.

A report of another quantitative research effort to identify "neighbors" of the journal, *Human Relations*, used citation analysis as a method. In this study, those journals which in 1988 had a minimum of ten citations in *Human Relations*, or at least

ten citations from *Human Relations*, qualified as one of the twenty-three “neighbors.” Using *Journal of Citation Reports* and *Social Science Citation Index*, the author compiled citation matrices for each of the five years in the study. He then conducted loglinear analysis for the period 1986-90 to compose an asymmetric matrix of the interrelationships of these twenty-three qualifying journals. He concluded that *Human Relations* was in an intermediary range between management, psychology and sociology journals (Everett 1994).

A research paper submitted to Kent State University School of Library and Information Science in April 1994 explains the use of citation analysis and its evaluation to deselect journals from the library at Northeast Ohio University College of Medicine (Hanrahan 1994). In this study, considerations of publishing researchers was a major factor. From a total of one hundred sixty items published by the faculty in a two year period, only sixty-nine actually qualified for the hand count of frequencies. Journals in which the faculty had published were listed. All the citations from the articles published were hand counted and compared with a *SCISEARCH* count of the same. Some comparisons but many discrepancies were noted, especially *SCISEARCH* omissions. Hanrahan concludes that *SCISEARCH* should not be used alone for decisions regarding journal deselection and that citation analysis as a method is not adequate in deciding the fate of a journal.

Citation analysis was the tool used to evaluate for “author inflation” in a study reported in the article, “Multiple Authorship in Biomedical Papers: A South African Case Study” (Steynberg and Rossouw 1994). In the sciences, multiple authorship is an

accepted phenomenon but editors involved in scientific publishing are concerned with unrealistic numbers of authors per document. The problem of the need for proof of publication for professional advancement as it relates to competition among peers is acknowledged. The thrust of the effort reported on in this article is to determine if South African biomedical researchers claim multiple authorship in larger percentages than international peers. Two sets of articles published by South African biomedical researchers are evaluated quantitatively for source publications cited by the publishing authors as well as length of article and number of authors of the article they published. Steynberg and Rossouw conclude that South African biomedical authors “fit the international picture” in their publishing practices (Steynberg and Rossouw 1994, p. 471).

As evidenced by the articles mentioned above, citation analysis has been employed as a tool in a variety of research designs among many disciplines. Since the focus of this paper is on nursing journals, the following article summaries cover efforts to evaluate nursing literature.

Various aspects of nursing journals have been studied. An unpublished thesis uses bibliometric analysis to explore patterns of scholarly activity and relationships among citations in nursing research in maternal and child health nursing published from 1976-1990 (D’Auria 1992). The author studied research articles for a three year period from four nursing research journals in the US and abroad; these she paired. Her results showed that the majority of the total number of citations were to journals. The median age of the citations in the data sets was less than ten years. Over 60% of the citations

to journal literature were under the subject classification of Medical Sciences. D'Auria states that cocitation patterns show an increasing number of nurse authors publishing research in the specialty area of maternal and child health. She contends the citation patterns show no evident consensus. She recommends further bibliometric analyses in the general and specialty fields of nursing to balance the qualitative analyses in the discipline and its fields.

A recent dissertation recounts a study performed and reported on in "Information Transfer in Professions: A Citation Analysis of Nursing Literature" (O'Neill 1996). The purpose of this study was to investigate the formal communication process in nursing. The design entailed studying 1,446 bibliographic references from nursing research and practice articles published in 1989 for citing and cited relationships. O'Neill's study also sought to discover how education and institutional affiliation affected authors' contributions to the formal nursing literature and, also, whether communication occurs between the research and practice components of nursing. The author concludes that citation does occur between the components but citations are more likely within components. Likewise, authors with research degrees and affiliated with education or research tended to publish research articles and authors with clinical or undergraduate degrees tended to publish practice articles. Also, research articles cited other research articles for information on methodology and practice articles cited research articles for conceptual information.

The article, "Changes in Nursing's Periodical Literature: 1975-1985," which appeared in *Nursing Outlook* in 1991 examined 1,852 articles from twelve journals in

1975 and 1985 which published high proportions of research. Five content analysis questions were asked of each article including nurse/nonnurse authorship, academic credentials of authors, and additionally, number and types of references cited by each article (Selby et al 1990). Much of the focus of this article was in regard to the increasing number of advanced degrees attained by the nurse authors writing in nursing journals . One lesser criterion used to evaluate improvements in the field's publishing was the use of citation analysis to note that the number of bibliographic references attached to nursing articles increased from 7.3 to 11.2 per article over the time period covered by the study. Also, more nursing articles were cited by others according to statistics from the *Social Sciences Citation Index* over that time period. Selby et al. found the most significant finding of the citation analysis to be that nursing references to validate nursing articles increased 91% from 1975-1985.

In another study, Selby-Harrington et al. report on instrument validity and reliability in nursing research (1994). Sampling methods in research reports published in selected clinical nursing journals is the subject of an article by Selby et al. (1990). These two articles have no relation to this study of "popular" American nursing journals using citation analysis as a tool except that both of these cite Swanson and McCloskey and Bodenstein, whose works follow.

In the handout accompanying her presentation at the MC/MLA conference in Columbus, Ohio in the Fall of 1996, Margaret (Peg) Allen, a health sciences library consultant who is a CINAHL representative and researcher, refers to four studies by McCloskey and McCloskey et al., which report on surveys taken of 65, 100, 139, and

92 nursing journals regarding their publishing practices. She states the authors' purpose was to assist nurses to choose appropriate journals for their professional reading interests and to improve the manuscript quality of submitted articles (Allen 1996). Her handout was used as a quick reference to foreign or US place of publication as well as correct spelling of a journal titles included in the present study. Of the four McCloskey articles, which were not discovered when running the literature search for the study on which this paper reports, the last of the series is included; its summary follows immediately.

"Publishing Opportunities for Nurses: A comparison of 92 U.S. Journals" is the fourth of a series reporting on the publishing practices of US and foreign nursing journals. The three "popular" American journals of focus in this paper were among the journals queried in this study regarding guidelines for publication, including style format. Of the eighty-three journals responding, forty-one preferred American Psychological Association format, fifteen preferred the American Medical Association format, nine preferred the Chicago Manual of Style format and two preferred Turabian format, seven journals preferred their own individual styles, and one journal stated that any style is acceptable for review (Swanson and McCloskey and Bodensteiner 1991). The significance of this information to this paper is to contribute to the understanding of how citation styles can vary within and among nursing journals and consequently affect citation analysis.

A report on a survey of nursing journals regarding the preparation of referees for reviewing article submissions examines the peer review problem (Fondiller 1994).

Shirley Fondiller conducted a survey of referees for nursing journals because she feared excellence in publishing in the discipline was at risk due to practices of peer reviewers. Since specialization became common in the late 1970s, the medical journals began routing articles to peer reviewers as well as agreeing to establish guidelines for manuscript format via the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals*. Nursing journals are welcome to participate in using this format and participate in its updating. Peer review among nursing journals evolved beginning from the late 1970s. Results of Fondiller's survey of peer reviewers showed that 32.% had previous experience as professional editors and 13.% as journalists. Editors are appointed based on content and editorial expertise as well as administrative ability.

Fondiller was motivated to conduct the study of editors and peer reviewers because she knew and heard of nurses trying to publish and encountering delays and multiple revisions. Her recommendations for journal editors to consider include having written policies for the process of handling a submitted manuscript, standardizing practices in peer review selection such as pretesting and performance evaluation, increasing the size of the referee pool by recruiting and training more qualified nurses, strengthening author guidelines, and providing continuing education and monetary compensation to referees. The significance of Fondiller's article to this paper is to reveal the lack of uniform publishing standards among nursing journals and apply this information to citation analysis.

A combination of evaluative techniques, including citation analysis, was used to evaluate journals for collection development in a British nursing college (Moorbath 1993). Moorbath used citation analysis in different ways and in combination with other methods of collection evaluation. His purpose was to determine which titles to keep or add for the coming century of nursing students. He obtained a list of citations listed in the *Citation Index* published in the *International Nursing Index* published in the quarter previous to his undertaking. He also included four frequently used medical journals. He then chose a journal to represent each of the four branches of the nursing curriculum. The citations were counted in each of these four journals for the whole of a preceding year. Then each list was ranked from highest to lowest and the top forty journals chosen. All the lists were combined and compared with lists of journals obtained by a usage study conducted near the copy machine, and a list of recommended titles from nursing instructors. The intersection of all of these lists comprised Moorbath's collection development list. The application of citation analysis is the significant factor to note from Moorbath's article.

Citation analysis was used to examine bibliographies from a random sample of 310 nursing doctoral dissertations having a clinical practice focus. The purpose was to observe for a paradigm of knowledge development in nursing. Highly cited references were analyzed to discern patterns which might indicate a paradigm. Only forty-three of 26,744 references were cited frequently enough to be statistically significant. Of these forty-three most highly cited references, most were to a nursing theory book from 1972, next highest were to a nursing theory book from 1980, then to a research methodology

book. Publications by nurse researchers numbered only three in the top forty-two most highly cited references.

The author of this study states that this pattern is contrary to other disciplines with well-developed research paradigms. What emerged as a common component in 40% of the studied bibliographies was repeated reference to social support. This construct may indicate the beginning of paradigm development in nursing (Wilford 1996). The significance of this study to this paper is the way citation analysis was used as a tool to determine cocitation; also, that the aim of the study was not focused on periodicals.

CHAPTER 3

METHODOLOGY

This research paper is a citation analysis limited to three general nursing journals published in the United States, *American Journal of Nursing (AJN)*, *Nursing '96*, and *Registered Nurse (RN)*. They were chosen because they have annual subscription circulations above 200,000 and contain less than 10% of research articles. These criteria should place them in the class of "popular" nursing journals as defined by Smith 1994. Also, according to Margaret Allen, they are indexed by *CINAHL* and *RNdex*, an index of the top 100 nursing journals. They are on the *Selected List of Nursing Books and Journals* by Brandon and Hill with an indication as first choice for basic collections.

"All citations" within the three journals named above were manually coded for the first seven months, January through July, of 1996. Any attempt to identify a source was considered a citation. "All citations" encompasses the following definitions of "citations within text," "citations at end of short commentary not exceeding one page length," and "citations following full length articles exceeding one page length."

Each type and the total number of all citations were evaluated. This differs from many studies which analyze only those citations which appear at the end of full length articles. This study is a mere look at what kinds of citations are contained throughout

these three popular works and how they are displayed. Though periodical deselection is a current trend in library literature, is it the answer for all medical professionals? Do nurse authors and editors of nursing periodicals rely solely on current periodicals for their reference work? This paper tries to discover some data to address that question and perhaps apply it to collection development awareness.

The study is done for uncertain utility. It is more of a discovery of citation content. The results may have some useful application once interpreted.

Coding fields include : name of each sample journal, title of work, format of work, last/name and first initial of first cited author only, date of publication, place of publication, completeness of citation, and type of citation (within text, following short commentary, following full-length article). Particular attention was paid to format. Periodical titles were identified by separate ID# and books were identified by one shared ID# and author/date. All cited references were further evaluated for subject of article as determined from the title of the item or article. One of five general headings was assigned to each record of the 1,067 obtained . These are: 1.)patient care, procedures, protocol, 2.) drugs, 3.) career, credentials, law, 4.) public health, epidemiology, 5.) etiology, pathophysiology.

Although the coding sheet will contain all possible fields, incomplete citations were only evaluated for the information they held. A sample of the proposed coding sheet is attached (Appendix A)

CHAPTER 4

ANALYSIS OF DATA

Results from the citation analysis of the three “popular” American nursing journals, *American Journal of Nursing*, *Nursing*, and *RN* for the months January through July of 1996 follow.

Sample Journal Number Breakdown

This study counted all citations from each of the above three sample journals for seven consecutive months ranging from January through July of 1996. During that period, the *American Journal of Nursing* (AJN) published a May supplement which was included in this seven month count of citations. Three libraries, two academic and one public, bound all these supplements with the regular monthly journals. This may account for its having the highest number of citations, 543 out of the 1,067. *RN* had 374 during this time period, and *Nursing* had 150 citations.

Sample Journal Distribution Under General Heading

A subject from title was assigned each citation as it was entered into the study. These assigned subjects numbered over one hundred among the 1,067 citations analyzed. Examples are: abuse, drug therapy, valvuloplasty, nurse empowerment, and wound management. Time constraints do not allow for percentages of similar subject coverage among the three journals. Instead, a general heading was assigned to each observed citation. The headings are 1.) patient care, procedures, protocol, 2.) drugs, 3.) career, credentials, law, 4.) public health, epidemiology, 5.) etiology, pathophysiology. Distribution is shown in table 1, below.

Table 1. Citation Distribution by General Headings and Sample Journals

GENERAL HEADINGS	SAMPLE JOURNALS			
	freq	row %	col %	
	AJN	Nursing	RN	Total
Patient Care, Procedures, Protocols	193	70	163	426
	45.3%	16.4%	38.3%	
	35.4%	46.7%	43.8%	40%
Drugs	81	12	53	146
	55.5%	8.2%	36.3%	
	14.9%	8.0%	14.2%	14%
Career, Law, Credentials	64	39	49	152
	42.1%	25.7%	32.2%	
	11.7%	26.0%	13.2%	14%
Public Health, Epidemiology	125	23	77	225
	55.6%	10.2%	34.2%	
	22.9%	15.3%	20.7%	21%
Etiology, Patho- physiology	82	6	30	118
	69.5%	5.1%	25.4%	
	15.1%	4.0%	8.1%	11%
Total	545	150	372	1067
	51%	14%	35%	

Tabulations reveal that the three sample journals of this study together had 40% of all citations under the first general heading, patient care, procedures, protocol. The breakdown of this figure assigns 45% to the *American Journal of Nursing*, 44% to *RN*, and 17% to *Nursing*. This general heading is also assigned the highest percentage of all of the citations of the three sample journals. The *American Journal of Nursing* and *RN* had their next highest percentages of overall references, 23% and 20%, respectively, assigned to the fourth general heading, public health and epidemiology. *Nursing* had its second highest percentage of citations, 26%, from sources under the third general heading, career and law (see table 1).

Place of Publication

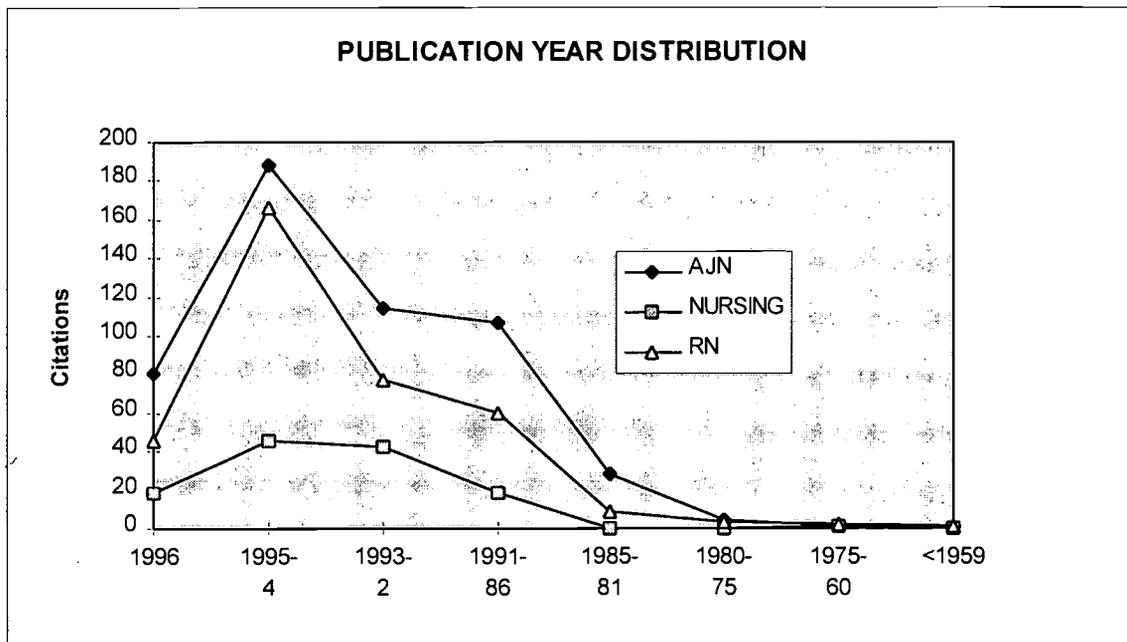
Place of publication could be determined from 1,008 of the 1,067 citations. The place of the greatest number of publications to which the citations refer was in the US with 94%, followed by Britain with 40%, Canada with .6%, Scandinavia with .3%, Australia with .2%, and South Africa, Singapore, Italy, Amsterdam, Netherlands, and New Zealand, each with less than .1%.

Publication Year

Number of citations from the journal format was coded for all of the sample journals, *AJN*, *Nursing*, and *RN*. These figures were related to the distribution by time periods of publication year of the citations as shown in table 2, below.

Findings reveal that 77% of the citations were to journals within the past five years, 1996-1991. Citations from publications that were five to ten years old were tabulated at 18%. The breakdown for the individual sample journals for publication year of journal citations is displayed below in figure 1.

Figure 1. Publication Year Distribution Among the Sample Journals



Format

From a total sample size of 1,067 citations, 68% were references to 250 journal titles, 18% were to books, and 7% were to the next highest format classification coding, "other," included reports, letters, advisories, guidelines, etc. Websites were cited 2% of the time. The remaining percentages seem statistically insignificant as they were for percentages less than 1%. These follow: newspapers, conference presentations, government documents, published conference proceedings, dissertations, and court cases (see table 2).

Table 2. Formats in Percentages Ranked Highest to Lowest from Total Sample

Formats	%	Formats	%
journal	68%	newspapers	.7%
book	18%	court case	.4%
other	7%	conference presentation	.4%
government document	2.5%	conference proceedings	.1%
website	1.8%	dissertation	.1%

Periodical and Book Distribution

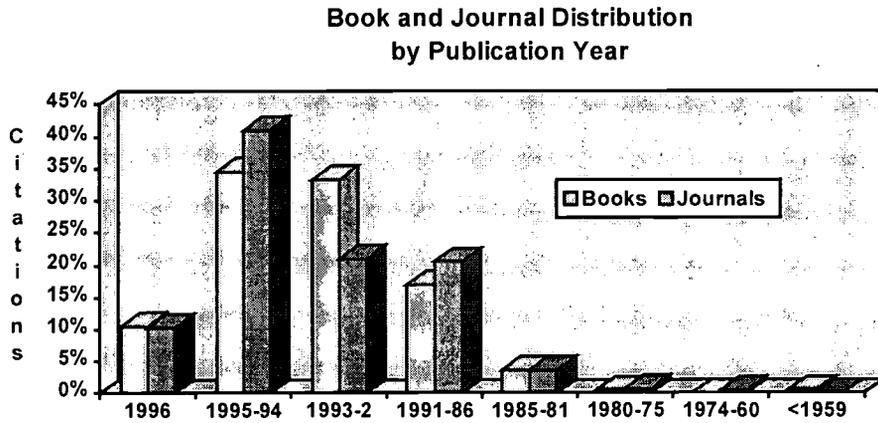
Focusing the distribution on books and periodicals over eight time periods ranging from 1996-before 1960, a sample size of 900 citations showed 21% of the citations were referenced to books and 79% referenced to journals. Of these books, 78% were published within the last five years, 17% were published five to ten years ago, 4% were published ten to fifteen years ago, and 1% after that. Dates of publication for the journals cited showed 75% within the past five years, 21% five to ten years ago, 4% ten to fifteen years ago, and 1% after that (see table 3, figure 1).

Table 3. Book and Journal Distribution Over Range of Dates by Time Periods

	1996	1995-94	1993-2	1991-86	1985-81	1980-59	Totals
	<5 yrs			5-10 yrs	10-15 yrs	>15 yrs	
Books	11%	34%	33%	17%	4%	1%	189/21%
	78%						
Journals	13%	41%	21%	21%	4%	1%	711/79%
	75%						
Totals	112/12%	356/40%	212/24%	178/20%	33/4%	8/1%	900/100 %

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Figure 2. Book and Journal Distribution by Publication Year



The above figure shows a graphical presentation of the book and journal distribution. Columns representing books are on the left and columns representing journals are on the right.

Chi Square Results for Periodical and Book Distribution

The chi square results show that the journals have significant differences in the types of sources to which the citations refer. A chi square tabulation for distributions of citations to books and journals among the three sample journals studied for this paper produced a probability of less than .0001 which indicates the chances are 1:100 that this is a random pattern (see table 4).

Table 4. Chi Square Results for Book and Journal Citations by the Sample Journals

Sample Journal	Books		Journals		Totals
	Observed	Expected	Observed	Expected	
AJN	212	224.5	319	306.5	531
Nursing	108	63.0	41	86.0	149
RN	123	155.6	245	212.4	368
Totals	443	443	605	605	1048

Chi-Square = 62.6
DF = 2
Probability < .001

Citation Quality

The coding sheet for this study also noted completeness of citation as citation quality. Among the three journals, *AJN* had 40% complete and 60% incomplete citations. *Nursing* had 72% complete and 28% incomplete citations. *RN* had 33% complete citations and 67% incomplete citations. The conditions whereby a citation is complete or incomplete for the purpose of this study were defined earlier in this paper.

Citation Type

The number of incomplete citations may be related to the inclusion of any attempt to cite a source within text, after short commentary or after a full length article. These variations in citation type were coded during the study. The findings reveal that *AJN* cited 9% of its total citations within text, 28% after short commentary, and 63% after full-length articles. *Nursing* cited less than 1% of its references within text, 28% after short informational commentary, and 71% after full-length articles. *RN* also had less than 1% of its citation within text, 23% after short commentary, and 77% after full-length articles.

Author Type

The coding sheet for this study noted four author types: individual, multiple, corporate and none. The tabulations were performed for the totals of author type from the three journals combined. Findings reveal 36% of the citations with individual authors cited, 34% of the citations with multiple authors cited, 14% of the citations with corporate authors cited, and 16% citations with no author cited from a recorded total of 1,059 of the 1,067 citations, revealing a missing count of 8 citations (see table 5).

Table 5. Author Type Totals Combined from the Sample Journals

AUTHOR TYPE	FREQUENCY	PERCENT
Individual	376	36%
Multiple	362	34%
Corporate	155	14%
None	166	16%
Totals	1059	100%

CHAPTER 5

SUMMARY AND CONCLUSIONS

The citation analysis for all the citations for the first seven months of 1996 from the three sample journals, the *American Journal of Nursing*, *Nursing*, and *RN* show that 1,067 citations to reference sources could be ascertained. Of these, the *American Journal of Nursing* had the highest number, followed by *RN*, and then *Nursing*.

Analysis shows that most of the references cited by the three sample journals were related to a general heading of patient care, procedures, and protocol. Public health and legal aspects of career followed next in citation counts for general heading.

Regarding place of publication, citation counts reveal that 1,008 of the 1,067 citations noted from the three sample journals were from reference sources printed in the United States. Examination of publication year of the citations shows that 77% are from the past five years. This is significant because in the sciences, information is frequently considered outdated after five years. These findings concur with those of D'Auria in her study of nursing journals from the US and abroad.

Also comparing with the conclusions of D'Auria is the finding of this paper that approximately 80% of citations refer to journals and 20% to books. The book figure could be significant for libraries serving nurse authors because it tends to suggest that texts are consulted one fifth of the time. Also contributing to the idea of the significance of these findings is the result of the chi square of observed and expected citations to books and journals.

Citation type observations from this paper are not very revealing because no similar studies could be found by this author with which to compare them. Perhaps a parallel study will be run at some future time on the informational value of including all citations in a citation analysis.

Citation quality and author type results are related as they manifest the completeness or incompleteness of the citations analyzed here.

From the literature review required prior to beginning this study, many different approaches to citation analysis and the study of nursing literature were discovered. Few of the studies compare in design although some of the results from among them overlap. The proposal by Langham that citation practices be standardized or uniform becomes more convincing with the possibility of what uniformity of citations might hold for future studies utilizing citation analysis as a tool. Imagine the improved accuracy of the citation indexes! Langham's argument deserves some respectful consideration.

Juggling the considerations of other studies and conclusions considered in the literature review: the thought of uniform standards of publication of nursing articles similar to the standards adopted by the medical profession coupled with the notion of

improved requirements for editors and peer reviewers of nursing articles added to the long-awaited development of a paradigm for nursing scholarship leads one to many questions about what should be done, if anything.

A question which occurred to this author is whether studies of nurses have been conducted to assess their need for bibliographic instruction.

Hopefully, the results of this study reveal some interesting data regarding the citations from the three "popular" American nursing journals for the first seven months of 1996.

APPENDIX A

Observation #	General Heading	
Title of work cited (full name of publication to which citation refers)		
Sample Journal AJN= A Nursing '96= N RN=R	A	N
Subject of article (subject headings from MARC record)		
Place of publication: USA=u Canada=c England=e Australia=a South Africa=s other=o	Author type: individual=1 multiple=2 corporate=3 none=4	Citation Quality: incomplete=1 complete=2
Format of work (book= k period= p film= f conference=c Website=w	citation type: within text=1 at end of short commentary=2 at end of full-length article=3	
Date of Publication: 1996=6 1995=5 1994=4 1993=3 1992=2 1991=1 1990=0 1989=9 1988=8 1987=7	Date Distribution: ,1996=1 1995-94=2 1993-92=3 1991-86=4 1985-01=5 1980-75=6 1974-60=7 <1959=86	

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