Mapping the literature of pediatric nursing

By Mary K. Taylor, RN, MLIS, AHIP mtaylor@lib.siu.edu Associate Professor and Medical and Distance Learning Librarian

Library Affairs Southern Illinois University Carbondale Morris Library 605 Agriculture Drive Carbondale, Illinois 62901

Background: Pediatric nurses work in an interdisciplinary field and face ever-increasing demands on their time and knowledge. Selection tools for librarians serving this group are available, but only one bibliometric analysis has examined citations to aid collection development.

Method: The "Mapping the Literature of Nursing Project" protocol was used. Three source journals were selected, and a citation analysis of articles from 1998 to 2000 was conducted.

Results: The frequency of journal citation was tabulated, and a list of the most frequently cited journals was created. Just over 1% of the cited journals produced 33% of the citations. PubMed/MEDLINE, Science Citation Index, and Social Sciences Citation Index provided the most complete indexing coverage of all types of the journals, while CINAHL providing the most complete coverage of nursing journals. Books were the second-most frequently cited format.

Conclusions: Citation analysis of journal articles from pediatric nursing journals may be helpful in selecting journals for libraries serving pediatric nurses and those who conduct pediatric nursing research. Librarians should consider adding indexes to their collection in addition to PubMed/MEDLINE to access the broad range of journals useful to this specialty.

INTRODUCTION

This study is part of Phase I of a project to map the literature of nursing, sponsored by the Nursing and Allied Health Resources Section (NAHRS) of the Medical Library Association (MLA) [1]. It uses a common project methodology, described in detail in the general overview article [2]. The purpose of the study is to identify the most frequently cited journals in representative source journals serving pediatric nurses and to examine indexing services' depth of coverage of those cited titles. This study will aid librarians and researchers who wish to access this literature efficiently and suggest to providers of indexing services titles and subject areas to include.

Pediatric nursing is "the practice of nursing with children, youth, and their families across the health continuum, including health promotion, illness management, and health restoration" [3]. Although the pediatric nurse must be knowledgeable about a wide range of medical conditions and treatment options, pediatric nursing is "not 'med-surg nursing' on little people" [4]. It requires knowledge of both child development and of the physiological differences between children and adults. It also is family centered, recognizing both the vital role that families play in children's lives, growth, and development and that this must be reflected in children's care when they are ill [4, 5]. Family-centered care involves collaborative partnerships between families and health care professionals, built on respect for diversity and grounded in the family's strengths, choices, and values [5]. In addition to family-centered care, pediatric nurses attempt to provide atraumatic care, that is, therapeutic care that utilizes "interventions that eliminate or minimize the psychologic [*sic*] and physical distress experienced by children and their families in the health care system" [6].

A pediatric nurse may function in many roles, including "direct caregiver, educator, counselor, consultant, advocate, care coordinator, or health systems manager" [3]. They may work as researchers or at the advanced practice level as pediatric clinical nurse specialists. Pediatric nurses may practice in many locations, including the home, hospitals, clinics, long-term care facilities, and schools.

HISTORY OF PEDIATRIC NURSING

Like the medical field of pediatrics, pediatric nursing did not develop as a specialty in the United States until the second half of the nineteenth century. In colonial America, most children were delivered with the help of midwives and cared for by their families, using folk medicine. Only the wealthy were attended by physicians, who were limited in what they could actually do for their patients.

The founding of The Children's Hospital, the first hospital in the United States specifically for the care of children, in Philadelphia, Pennsylvania, in 1855 [7] is generally regarded as the event that marks the beginning of pediatric nursing as a specialty. The hospital also had a dispensary and provided home care. Its purpose was both to provide excellent care for its patients and to decrease childhood mortality in the United States through research [8]. Other hospitals were opened for children in major US cities during the second half of the nineteenth century, including Boston (1869), the District of Columbia and New York (1970), San Francisco and Albany, New York (1875), Detroit (1877), and St. Louis (1879) [8].

Ironically, hospitals during this period usually did not admit children with communicable diseases because of high mortality rates [9]. The rise of hospital schools of nursing in the late nineteenth century may be partly responsible for the change in this policy. Walton and Connolly believe that it is no accident that the Children's Hospital of Philadelphia began admitting children suffering communicable diseases in 1895, the same year it opened its own school of nursing [9]. The hospital then had enough staff with the knowledge to provide the level of care, observation, assessment, and education that these children and their families needed.

In addition to hospital nurses, some private-duty nurses specialized in care of children. Nurses also were involved in providing care to children and health promotion through the public and private community health initiatives of the late nineteenth and early twentieth centuries. An in-depth discussion of their activities is beyond the scope of this paper, but a few examples will be presented.

Nurses played a major role in the "child-saving movement" in early twentieth century [7]. Many health practitioners focused on improving the artificial feeding of infants and children to decrease their mortality rates [10–12]. Publicly and privately funded milk depots, which provided pasteurized milk at low prices to those who could afford to pay and at no cost to the indigent, often employed nurses to educate mothers about proper handling and storage [11]. Eventually home visitation services were added, and the depots became child health stations stressing illness prevention [11, 12].

Lillian Wald and Mary M. Brewster began living and working as visiting nurses in New York's Lower East Side in 1893. In 1895, Wald opened the Nurse's Settlement House on Henry Street, and, by 1909, thirty-seven nurses were employed. Additional services included nurses' training, obstetrical services, first aid homes throughout the community where nurses treated minor injuries and illnesses, educational programs for the community, and social clubs for children. A demonstration project that Wald initiated in 1902 at a New York school was the start of school nursing [13, 14].

Nurses also were involved in federal programs to improve the health of children. The Sheppard-Towner Act of 1921, which provided money for states to improve maternal-child health, resulted in the employment of many nurses in infant welfare centers, maternity centers, and educational classes for mothers, midwives, and mothers' helpers. The act was renewed in 1927 but was allowed to expire in 1929 [14, 15].

The move to improve nursing education during this era, especially that of the public health nurse, also benefited pediatric nursing in general. The section on pediatric nursing in the 1917 *Standard Curriculum for Schools of Nursing (Standard Curriculum)* stated that classes on pediatric nursing were to include lectures on social issues and psychology, infectious diseases, orthopedic and surgical conditions, and information about infant feeding and child development "to give a good sound basis for later work in connection with milk depots, baby welfare, school-nursing and other fields of work where knowledge and skill in children's nursing are of essential importance" [16].

In 1923, the Committee for the Study of Nursing Education, commissioned by the Rockefeller Foundation, published their recommendations in Nursing and Nursing Education in the United States, a document commonly known as the Goldmark Report. It had some harsh words for the state of nursing education in general and its inability to provide adequate education for public health nurses in particular. A major problem was that hospital training schools existed to serve the needs of particular hospitals; at times, education in some areas would be shorted if a particular institution did not need it. For example, of the twenty-three schools surveyed, seven gave no training in communicable diseases, one of the biggest causes of mortality in young children, while five gave no training in pediatrics. One conclusion of the report was that because hospital training schools had an inherent conflict of interest, university nursing programs at the time needed to be strengthened and more should be developed to provide an alternative source of education for those desiring to become nurses [17].

Later in the century, pediatric nursing would be directly involved in the move toward advanced degrees and advanced practice. For example, the first nurse practitioners were pediatric nurse practitioners [18].

The pediatric nursing curriculum has also reflected changing attitudes and research on many issues, including the involvement of families in the care of children. While those involved in public health nursing, including Wald, thought that mothers were essential for the survival of their children, many nurses in acute care settings in the late nineteenth and the first half of the twentieth century "viewed mothers as unnecessary, bothersome, and at times, even harmful in the care of hospitalized children" [18]. In addition, the hospitalization period was viewed as a chance to educate poor children about good health habits and inculcate the values of the middle class into them without the interference of their parents [7]. The effects of maternal deprivation were little understood. As a result, hospital visitation policies greatly restricted the frequency and amount of parental visits. In contrast, the second revision of the *Standard Curriculum*, published in 1937, emphasized that to promote normal child development, "The hospital routine visiting schedule should assist in maintaining home contacts through visiting of children by their parents" [19].

However, it took the cumulative effect of research in the 1940s, 1950s, and 1960s on the effects of maternal deprivation to bring about real change in attitudes and policies [20]. Many nurses were involved in this effort, including researcher and educator Florence Blake, who demonstrated the positive effects of involving families in the care of children in her text, *The Child, His Parents and the Nurse* [21]. The push toward true family-centered care began in the 1980s and was spurred on by then Surgeon General C. Everett Koop's 1987 report on children with health care needs, which called for community-based, family-centered care [22]. A consequence of practicing family-centered care for pediatric nurses is that they must now learn theories of multicultural care and family theory [23].

PROFESSIONAL ORGANIZATIONS

The development of generalist pediatric nursing continued in the second half of the last century with the availability of certification, formation of pediatric nursing professional organizations, and development of standards. Pediatric nurse practitioners were first certified in 1977 by what is now the Pediatric Nursing Certification Board [24]. The first certification examination in general pediatric nursing was conducted by the same organization in 1989 [25].

While several organizations already existed for pediatric specialty nurses and nurse practitioners-including the Association for the Care of Children's Health (1965), the National Association of School Nurses (1969), the Association of Child and Adolescent Psychiatric Nurses (1971), the Association of Pediatric Oncology Nurses (1973), the Association of Pediatric Nurse Associates and Practitioners (1973), and the National Association of Neonatal Nurses (1984) [23]-the first organization specifically for generalists in pediatric nursing, the Society of Pediatric Nurses, was not formed until 1990. Miles attributes this delay to the fact that pediatric nurses had affiliated themselves with the American Nurses' Association's (ANA) Council on Maternal-Child Nursing; however, when ANA started to reorganize in the late 1980s, many of these nurses felt the need for a separate specialty organization [26]. The Society of Pediatric Nurses has worked closely with ANA and other organizations in developing standards for general and advanced practice pediatric nursing. The *Statement on the Scope and Standards of Pediatric Clinical Nursing Practice* was published in 1996 [27] and revised in 2003 [5]. The Society of Pediatric Nurses and ANA have published *Family-Centered Care: Putting It into Action,* a clinical practice guide with evidence-based recommendations for pediatric nurses [28].

PEDIATRIC NURSING AT PRESENT

At present, pediatric nurses face several challenges. Decreased staffing and resources are preventing the full adoption of family-centered and atraumatic care [23]. The attempt to decrease costs is driving other measures, including the adoption of the case management model and shortened hospital stays. Bowden thinks that nursing schools need to do more to prepare students to work in pediatric outpatient settings [23], but Feeg points out that many nursing schools no longer have pediatric rotations or pediatric nursing faculty [4]. Pediatric nursing is also adopting evidencebased nursing practice, but its implementation is still under discussion [29]. Considering the other challenges that they face and the lack of time due to lack of staff, it is not surprising that a recent study of pediatric nurses in the United States and Canada revealed that they considered incorporating research findings into their practice among the least important activities of their jobs [3].

Librarians also must be aware of the trends and challenges facing pediatric nurses to effectively meet their information needs and to enable them to perform research efficiently. However, decreasing budgets are also affecting libraries, causing librarians to scrutinize each potential purchase and to make hard choices about journal and database subscriptions. Several qualitative collection development guides exist. The quantitative evidence produced by a bibliometric study, however, can provide additional useful information for collection developers.

Moorbath performed a bibliometric analysis of the references in the 1990 issues of a British pediatric nursing journal, *Paediatric Nursing*, for the purpose of identifying core journals supporting the Project 2000 nursing course in the United Kingdom [30]. Four journals with a focus on the nursing of children made his list of the most frequently cited journals: *Paediatric Nursing* (ranked second), *Pediatric Nursing* (ranked fourth), *MCN: The American Journal of Maternal Child Nursing* (ranked eleventh), and *Journal of Pediatric Nursing* (ranked fourteenth). He also asked British instructors to rank the journals they thought were most important in all fields of nursing. *Paediatric Nursing* was the only pediatric nursing journal among their top twenty-five.

METHOD

Three general pediatric nursing journals were chosen for this study: the *Journal of Pediatric Nursing: Nursing Care of Children and Families (Journal of Pediatric Nurs-*

 Table 1

 Cited format types by source journal and frequency of citations

	No. cit	ations in	Citations			
Cited format type	JSPN	journals PN	Total	Frequency %		
Journal articles	966	2.944	3,106	7.016	71.8%	
Books	263	875	938	2.076	21.3%	
Government documents	50	119	123	292	3.0%	
Internet resources	28	56	37	121	1.2%	
Miscellaneous	22	119	123	264	2.7%	
Total	1,329	4,113	4,327	9,769	100.0%	

JSPN = Journal for Specialists in Pediatric Nursing.

PN = Pediatric Nursing. JPN = Journal of Pediatric Nursing.

ing), Journal for Specialists in Pediatric Nursing, and Pediatric Nursing. All three journals are indexed in CIN-AHL and PubMed/MEDLINE. Forty-two percent of the articles in Journal of Pediatric Nursing are research articles [31]. The Journal for Specialists in Pediatric Nursing was called the Journal of the Society of Pediatric Nurses (its title during the period of this study) and, before that, Maternal-Child Nursing Journal. It is the official journal of the Society of Pediatric Nurses. Research articles make up 32% of its output [31]. Fifteen percent of the articles in *Pediatric Nursing* are research articles [29]. Pediatric Nursing is included in the Brandon/Hill list for nursing [32]. The Journal for Specialists in Pediatric Nursing (as Maternal-Child Nursing Journal) and the Journal of Pediatric Nursing are both on Murphy's list of nursing journals [33]. Pediatric Nursing and the Journal of Pediatric Nursing are among the more frequently cited titles in Moorbath's analysis of the citations in Paediatric Nursing [30]. The common methodology is described in detail in the overview article [1].

RESULTS AND LIMITATIONS

Pediatric Nursing and the *Journal of Pediatric Nursing* each provided over 40% of the citations; only 13.6% of the citations came from the *Journal for Specialists in Pediatric Nursing* (Table 1). Same journal citation practices might have skewed the results: approximately 55% of the citations to *Pediatric Nursing* came from articles in

Table 3
Distribution by zone of cited journals and references

			Cited journal references							
_	Cited	journals			Cumulative					
Zone	No.	%	No.	%	total					
Zone 1	18	1.4%	2,318	33.0%	2,318					
Zone 2	105	8.2%	2,353	33.5%	4,671					
Zone 3	1,150	90.3%	2,345	33.4%	7,016					
Total	1,273	99.9%*	7,016	99.9%*						
* Does no	ot equal 100	0.0% due to ro	unding.							

Pediatric Nursing, and almost 49% of the citations to the *Journal of Pediatric Nursing* came from articles in that journal, but only 25% of the citations to the *Journal for Specialists in Pediatric Nursing* came from articles published in that journal.

One known limitation of citation analysis is the possibility of inaccuracies in citations causing inaccurate results. This might be true for this study, based on the results of research by Oermann, Cummings, and Wilmes [34], who examined the accuracy of citations in four pediatric nursing journals, including *Journal of Pediatric Nursing* and *Pediatric Nursing*. Their study period, September/October 1999 through January/February 2000, overlapped with part of this study's time frame. Errors occurred in 39.0% of the references for *Journal of Pediatric Nursing* and 42.9% of the references in *Pediatric Nursing*. Just over 35.0% of the incorrect citations had errors in the titles of articles, chapters, and books. Errors in journal titles occurred in 17.7% of the incorrect citations.

Journal articles were the most frequently cited format, constituting just over 70% of the cited resources, followed by books (approximately 20% of the citations), government documents, miscellaneous materials, and Internet resources (Table 1). Overall, almost 50% of all citations referenced publications from 1992 to 1997, the 6 years preceding the beginning of the study period. However, almost 60% of the citations to Internet materials were more recent, dating from 1998 forward (Table 2).

A total of 1,273 different journal titles were cited. Bradford's Law of Scattering was borne out: repre-

Table 2				
Cited format types	bv	publication	vear	periods

Publication	Books		Government documents		Internet		Journal articles		Miscellaneous		Total citations	
year	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1998–year*	167	8.0%	42	14.4%	71	58.7%	564	8.0%	42	15.9%	886	9.1%
1992–1997	912	43.9%	177	60.6%	46	38.0%	3,460	49.3%	124	47.0%	4,719	48.3%
1982–1991	648	31.2%	58	19.9%	3	2.5%	2,575	36.7%	74	28.0%	3,358	34.4%
1972–1981	209	10.1%	14	4.8%	0	0	299	4.3%	15	5.7%	537	5.5%
1962–1971	100	4.8%	1	0.3%	0	0	75	1.1%	4	1.5%	180	1.8%
Pre-1962	39	1.9%	0	0	0	0	43	0.6%	4	1.5%	86	0.9%
Not available	1	< 0.1%	0	0	1	0.8%	0	0	1	0.4%	3	< 0.1%
	2,076	100.0%	292	100.0%	121	100.0%	7,016	100.0%	264	100.0%	9,769	100.1%†

* Includes in press materials.

† Does not equal 100.0% due to rounding.

Table 4Distribution and database coverage of cited journals in Zones 1 and 2

					Bibli	ographic da	tabases			
Cited journal	Total citations	CINAHL	PubMed	EBSCO NAH Comp.	EMBASE	Health Ref. Center	PsycINFO	SCI	SSCI	OCLC ArticleFirst
Zone 1										
1. Pediatrics	402	1	2	2	2	2	0	5	1	х
2. Pediatr Nurs	245	5	4	0	0	4	0	0	0	X
3. J Pediatr Nurs	224	5	5	0	0	0	0	0	0	Х
4. J Pediatr	144	1	4	0	5	0	0	4	1	Х
5. J Pediatr Psychol	138	0	4	0	4	0	4	0	5	X
7 JAMA	104	4	4	3	3	5	1	4	5 1	x
8. Child Health Care	100	0	3	2	0	0	3	5	5	X
9. N Engl J Med	100	1	4	0	3	3	1	5	1	Х
10. Pain	100	1	5	0	5	0	3	5	1	Х
11. Arch Pedatr Adolesc Med (1994–); con-	97	1	4	3	4	4	0	5	1	Х
tinues Am J Dis Child	97	2	2	0	2	0	2	5	5	×
13 Adv Nurs	86	2	2	3	2	0	2	0	5	×
14. Res Nurs Health	78	5	4	Ő	Ő	0	3	5	5	X
15. Am J Public Health	73	4	4	4	4	4	1	5	5	Х
16. J Dev Behav Pediatr	70	0	2	0	0	0	1	5	5	Х
17. Issues Compr Pediatr Nurs	68	4	5	0	0	0	3	0	0	Х
18. Child Dev	67	0	4	0	0	0	5	0	5	X
Zone 1 average database coverage		2.11	3.67	0.94	1.78	1.22	1.67	3.22	2.83	18
Zone 2										
 MMWR Morb Mortal Wkly Rep J Spec Pediatr Nurs (2002–); continues J Soc Pediatr Nurs, formerly Matern Child Nurs. I 	62 60	3 5	3 4	5 0	0 0	3 4	0 2	0 0	0 0	X X
21. J Pain Symptom Manage	58	2	5	0	5	0	3	5	1	х
22. J Sch Health	56	5	4	5	Ő	4	Õ	5	5	X
23. Neonatal Netw	56	5	3	0	0	0	0	0	0	Х
24. J Consult Clin Psychol	55	0	5	0	5	1	5	0	5	Х
25. J Pediatr Health Care	51	5	4	0	0	0	0	0	0	Х
26. Pediatr Clin North Am	51	1	4	0	4	0	0	5	2	X
27. MCN AM J Matern Child Nurs	48	5	4	0	0	0	0	0	1	X
20. Diabeles Cale 29. Pediatr Infect Dis	45	2	4	0	4 4	0	0	5 4	0	×
30. J Obstet Gynecol Neonatal Nurs	43	5	5	0	0	0	0	0	0	X
31. J Pediatr Surg	42	0	4	0	4	0	0	5	1	X
32. Lancet	41	1	3	3	3	2	0	5	1	Х
33. Heart Lung	40	5	5	0	0	0	0	5	1	Х
34. Health Educ Behav	38	4	4	0	0	0	3	0	5	X
35. BMJ	37	0	4	3	2	2	0	5	1	X
30. Realin Psychol 37. Clin Pediatr	36	0	э 4	5	5 4	4	5 1	4	ວ 1	×
38. Child Abuse Negl	33	0	4	0	4	1	3	0	5	X
39. J Pediatr Oncol Nurs (July 1989–); con-	33	5	4	0	0	0	0	0	0	X
tinues Assoc Pediatr Oncol Nurses										
40. J Nurs Scholarsh (2000-); continues Im-	32	5	4	0	0	4	1	0	0	Х
age J Nurs Sch	00	-		0	0	0	0	0	-	X
41. Nurs Clin North Am	32	2	4	3	0	0	0	0	5	X
42. West 5 Nurs Kes 43 ANS Adv Nurs Sci	31	5	4	0	0	4	3	0	5	X
44. J Am Acad Child Adolesc Psychiatry	31	0	3	0	3	1	3	5	5	X
45. Soc Sci Med	30	2	3	0	3	1	2	0	5	X
46. Arch Dis Child	29	0	3	0	4	0	0	5	1	Х
47. Adolescence	27	0	2	3	0	5	0	0	3	Х
48. Am J Orthopsychiatry	26	0	4	0	3	1	4	5	5	X
49. J Child Psychol Psychiatry	26	0	5	0	5	0	5	0	1	X
50. J Perinal Neonal Nurs	20 25	4	3	0	0	4	0	0	0	×
52 Public Health Rep	25	3	4	4	2	3	0	5	5	X
53. J Infect Dis	24	1	5	0 0	5	0	õ	5	0	X
54. Cancer Nurs	22	5	5	0	5	0	0	5	5	Х
55. Am J Clin Nutr	21	2	4	0	3	3	0	5	1	Х
56. J Clin Child Adolesc Psychol (2002–);	21	0	5	0	0	0	5	0	0	Х
continues J Clin Child Psychol	<i>c</i> ·	_			0	0	0			
57. Nurs Limes	21	5	4	U	0	3	0	0	0	v
59. Diabetes Educ	20 20	4 5	4 4	0	4	0	0	5 5	2	X
60 Pediatr Ann	20	0	4	0	4	0	0	5	<u>-</u> 1	x
61. Public Health Nurs	20	5	5	5	0	Õ	3	õ	5	X
62. Perspect Sex Reprod Health (2002-);	19	2	1	4	3	1	0	0	4	Х
continues Fam Plann Perspect		_		_			_	_		
63. Am J Nurs	18	5	3	U	0	3	U	0	4	Х

Table 4 ed

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64. Chest Chest C S 4 0 5 4 0 5 0 1 X 66. Appl.Nurs Res 17 5 4 0 0 0 0 5 X 76. Prutue Chald 17 5 4 0 2 0 0 5 X 66. Appl.Nurs Res 17 5 4 0 2 0 0 5 1 X 67. Anxethesiology 16 0 2 0 0 5 1 X 7. Annethesiology 16 0 2 0 0 0 X 7. Souther Preliait 16 0 5 0 0 0 0 0 0 0 0 X 7. Nurs Preliait 16 0 3 0 0 0 0 0 0 0 0 0 X X 7. Stappic Carle 16	Cited journal	Total citations	CINAHL	PubMed	EBSCO NAH Comp.	EMBASE	Health Ref Center	PsycINFO	SCI	SSCI	OCLC ArticleFirst
65. Jeps Soc Psychal 16 0 3 5 0 1 5 0 0 0 0 5 X 67. Polytic Child 16 0 1 0 0 0 0 5 X 67. Marker Child 16 0 1 0 0 0 5 1 X 70. Anstabhasiology 16 0 2 0 0 5 1 X 71. Ann Intam Med 1948-3; contin- 16 5 0 0 0 0 7 72. Child Probatic asgue Am Buil 6 0 0 0 0 0 0 X 73. Jaram Fract 16 5 0 0 0 0 0 X X 74. Formar Rev 16 0 4 0 0 0 0 X X 75. Robit Rev 16 0 0 0 0 0 0 X X 76. Obster Cynecol 16 0 0 0 0 0	64. Chest	18	1	4	0	5	4	0	5	1	Х
66. App. Nurs. Res 17 5 4 0 0 0 0 5 X 67. Future Child 16 1 0 2 0 0 5 X 69. Am Psychol 16 1 4 3 4 3 0 5 1 X 71. Ann Intern. Med 16 1 4 3 4 3 0 5 1 X 72. Child Welfare Loque Am Bull 16 5 0 0 0 0 0 0 0 X 73. Varia Prot 16 5 4 0 0 0 0 0 0 X 75. Varia Prot 16 0 6 0 0 0 0 0 0 X 76. Obsitel (Syneol) 16 0 0 0 5 0 5 1 X X 77. Pediat Rev 16 0 0 0 5 0 5 1 X X 78. Prev Med 16 0	65. J Pers Soc Psychol	18	0	3	5	0	1	5	0	5	Х
67. Hunc Child 17 3 4 0 2 0 0 5 X 06. Am Epication 16 0 2 0 2 0 5 1 X 70. Anesthesiology 16 0 2 0 2 0 5 1 X 71. An Intern Med 16 1 4 3 4 0 3 2 0 5 1 X ves Chal Walfane League Am Bull 6 0 0 0 0 0 0 0 X 72. Lisam Pract 16 5 0	66. Appl Nurs Res	17	5	4	0	0	0	0	0	5	Х
Bb. An. Epidemiol 10 1 2 0 2 1 0 5 1 X 71. Ann Intern Med 0 0 2 0 0 5 1 X 71. Ann Intern Med 16 1 4 3 4 3 0 5 1 X 71. Ann Intern Med 16 3 3 4 0 3 2 0 5 1 X 72. Child Welfare League Arn Bull 7 X Starspectroper Child Welfare League Arn Bull 7 X 7 Netroper Child Welfare League Arn Bull 7 X 7 Netroper Child Welfare League Arn Bull 7 Netroper Child Welfare League Arn Bull X X 75. Debite Grander 16 0 5 0 0 0 0 0 1 X 76. Debite Grander 16 0 0 0 5 0 0 0 0 0 1 X 77. Betries Med	67. Future Child	17	3	4	0	2	0	0	0	5	X
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	Average Zones 1 and 2		2.13	3.57	0.84	1.88	1.23	1.16	2.43	2.28	95.1%

Based on database coverage score: 5 (95%–100%); 4 (75%–94%); 3 (50%–74%); 2 (25%–49%); 1 (1%–24%); 0 (< 1%). EBSCO NAH Comp. = EBSCO Nursing & Allied Health Collection Comprehensive Edition. SCI = Science Citation Index. SSCI = Social Sciences Citation Index.

senting 1.4% of the total number of titles (Table 3), the top 18 most frequently cited journals (Table 4) produced 1/3 of the citations. *Pediatrics*, the journal of the American Academy of Pediatrics, was the most frequently cited journal. Although a non-nursing title, it is a prestigious source of research in all aspects affecting children's health. Two of the source titles, *Pediatric Nursing* and *Journal of Pediatric Nursing*, ranked 2nd and 3rd, respectively. *Issues in Comprehensive Pediatric Nursing*, another pediatric nursing journal, was also in Zone 1. The 3rd source journal, the *Journal for Specialists in Pediatric Nursing*, ranked near the top of Zone 2.

When the various indexing and abstracting services were analyzed to see which indexed the journal titles in Zones 1 and 2 and what their depth of coverage was, PubMed/MEDLINE ranked first, with the highest average coverage score of 3.67 out of 5 for Zone 1 and 3.57 overall. Science Citation Index and Social Sciences Citation Index were 2nd and 3rd, respectively. However, if only nursing titles are considered, CIN-AHL performed the best, averaging 4.16 for Zone 1 titles and 4.6 for coverage of both zones. PubMed/ MEDLINE was second in coverage of nursing titles alone, with an average total of 4.0 for Zone 1 journals and 3.92 for both zones. Depth of coverage scores were not calculated for OCLC ArticleFirst because it was discovered that article counts for this database were inflated due to the presence of duplicate citations. However, many journals in the project were not indexed by any other database, so the mapping team decided to include it in Table 4 with the fact of coverage noted with an X [2]. OCLC ArticleFirst indexed 100% of the journals in Zone 1 and 95% of all of the journals in Zones 1 and 2. Most of the indexes provided better coverage for the Zone 1 journals than for Zone 2.

At the bottom range were four indexes that scored less than an average of 1.0: ERIC, Sociological Abstracts, EBSCO's Health Business Source, and EBSCO Nursing & Allied Health Collection Comprehensive Edition. Only the results for the last-named index are included in Table 4, because the index specifically focused on the nursing and allied health literature and the results might interest librarians developing collections for nurses. It had a higher average coverage score overall for Zone 1 (0.94) than it did for just the nursing journals in Zone 2 (0.88) was slightly better than its coverage overall for Zone 2 titles (0.82). None of the source journals for the study were indexed by this database.

DISCUSSION

It was not surprising that the six years immediately preceding the study period produced the most journal citations or that citations to journals made up the just over 70% of the citations. Currency of information is important to nursing care and research, and journal articles usually contain the most up-to-date information. Diffusion of research results, however, takes time; this may account for the fact that only approximately 9% of all citations were from the period studied, 1998 to 2000. In contrast, the majority of Internet citations came from the source period of 1998 to 2000. This is no doubt because it was not until the early 1990s that consumer-friendly Web browsers were produced, and it was not until the latter half of the 1990s that the number of Websites greatly increased.

Thirteen of the twenty journals on Moorbath's list of most frequently cited journals in *Paediatric Nursing* [30] are in either Zone 1 or Zone 2 (Table 4). Six of the thirteen are nursing journals. Five titles from Moorbath's list (*Journal of Pediatric Nursing, New England Journal of Medicine, Nursing Research, Pain, Pediatric Nursing,* and *Pediatrics*) are in Zone 1.

The cited journals in Zones 1 and 2 (Table 4) represent the breadth and depth of the topics of interest to pediatric nurses during the three years studied. Covered topics include pain control, mental health, child development, school nursing, maternal-child nursing, public health, and various diseases and health conditions. The list of cited journals also shows that the pediatric nursing literature relies heavily on biomedical and social sciences journals in addition to nursing titles for accessing results of pediatric research: only 33% of the journals in Zone 1 are nursing journals, while just over 30% of all the cited journals in Zones 1 and 2 are nursing titles.

It was therefore not surprising that PubMed/MED-LINE, with its strong biomedical and nursing subsets, provided the most in-depth coverage of all of the indexes or that Social Sciences Citation Index, with its coverage of several nursing journals in addition to the social sciences literature, and Science Citation Index, with its broad coverage of the scientific and biomedical literature, also made strong showings. Nor was it surprising that CINAHL, with its primary focus on nursing titles and other allied health journals, had the best coverage of nursing titles.

Book titles ran a gamut of topics, including child development, cultural differences, pain and management of other symptoms, nursing theory, standard nursing and medical textbooks, specific conditions and diseases, research methods, and care of children with chronic conditions. Almost all of the books (98.5%) were cited only once, and the most frequently cited work, Sickle Cell Disease: Basic Principles and Clinical Practice [35], accounted for just over 1% of all titles. Frequency of citation alone, in any case, might not be the best indicator of whether a particular book would be useful for a specific collection. Citation analysis presents a snapshot of a field at one moment in time, and, unlike journals that publish articles on a wide variety of subjects over time, books published in response to a hot topic during a particular period may not be useful in the long term.

CONCLUSIONS

Pediatric nursing is a complex field, requiring an interdisciplinary literature to meet its needs. Those making journal selection or retention decisions will find the results of this study useful. It should be emphasized that more than one index is required to adequately cover the depth of journal literature serving this specialty. In addition to PubMed/MEDLINE, librarians should consider subscribing to CINAHL, Science Citation Index, and Social Sciences Citation Index to increase access to the information required by pediatric nurses.

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