

Current Comments®

Journal Citation Studies. 44. Citation Patterns in Nursing Journals, and Their Most-Cited Articles

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Current Contents® (CC®) readers are by now familiar with ISI®'s series of journal citation studies. In these analyses, groups of journals publishing research in various fields or disciplines are examined to determine what they cite and, in turn, what cites them. Most recently, we've analyzed citation patterns in astrosociences,¹ analytical chemistry,² and entomology³ journals. This essay focuses on the journal literature of nursing, a profession that comprises the largest single group of health-care workers in the world.^{4,5}

The origins of nursing are as old as those of medicine and can be traced to ancient civilizations in China, Egypt, Greece, and India. But it wasn't until the late nineteenth century that schools were established to educate nurses as professionals. Florence Nightingale, the renowned British nurse, is credited as the founder of the movement to professionalize nursing. In 1860, she established the Nightingale School for Nursing at St. Thomas' Hospital, London, the first nursing school of its type in the world.⁶ Today, there are more than 3,000 programs in the US alone covering a wide spectrum of nursing education, from practical nursing diplomas to advanced doctoral degrees.^{7,8} The Rockefeller Archive Center, North Tarrytown, New York, has published two useful sources on the history of nursing and nursing education—*A Survey of Manu-*

*script Sources for the History of Nursing and Nursing Education in the Rockefeller Archive Center, 1984*⁹ and the proceedings of the center's conference on *Nursing History: New Perspectives, New Possibilities*.¹⁰

The great majority of nurses are engaged in providing nursing care to patients in hospitals, extended-care facilities, and home-health and primary-care settings. Only a very small fraction of the nursing population are researchers. In 1979 and 1980, just 0.2 percent of employed nurses had doctoral degrees. Pauline F. Brimmer, American Nurses' Association (ANA), Kansas City, Missouri, and colleagues recently surveyed about 2,000 nurses with doctorates.¹¹ They found that just 6 to 8 percent were primarily engaged in research. The rest were involved in administration, teaching, clinical practice, and other activities.

We'll now examine a set of nursing journals to determine what the nursing literature cites, and what journals cite it. We'll also identify the most-cited nursing articles. These articles will enable us to determine what current topics are of interest to the profession and those who publish in the nursing literature.

Table 1 lists seven nursing journals indexed in *Social Sciences Citation Index*® (SSCI®). These journals make up the "core" list included in this study. Also shown is the year each journal be-

Table 1: Core nursing journals indexed in the 1983 *SSCI*[®] and the year each began publication.

*American Journal of Nursing—1900
International Journal of Nursing Studies—1964
Journal of Advanced Nursing—1976
Journal of Nurse-Midwifery—1955
Journal of Nursing Administration—1971
*Nursing Research—1952
Research in Nursing & Health—1978

*Also covered in *SCI*[®]

gan publication. *American Journal of Nursing* is the oldest on the list, having been in publication since 1900. It is the official publication of the ANA, which was founded in 1896. Except for the *International Journal of Nursing Studies* and *Journal of Advanced Nursing*, which are UK publications, all of the core journals are published in the US.

When this study was begun, we did not select *Heart & Lung—the Journal of Critical Care* for the core list. This journal is published by the American Association of Critical-Care Nurses and has been indexed in both *SSCI* and *Science Citation Index*[®] (*SCI*[®]) since 1980. Had we included *Heart & Lung* in the core, it would have ranked 12th in terms of the number of core citations it received (Table 2). It ranks eighth in terms of the number of its citations to the core nursing journals (Table 3). The 1983 impact factor for *Heart & Lung* is 0.4, equal to the core journals *Nursing Research* and *Research in Nursing & Health* (see column G in Tables 2 and 3). Impact measures how often articles published in the previous two years were cited in the year studied, in this case 1983. The calculation of impact factors will be discussed later in more detail.

However, the papers appearing in *Heart & Lung* undoubtedly concentrate more on cardiovascular research than do the general nursing journals. With hindsight, we would now treat it as a core nursing journal for *CC* selection purposes. What is more important is that the journal citation procedure identifies

a relevant journal regardless of its title or language. Just as citation indexing overcomes the terminological barriers to accessing articles, journal citation analyses cluster journals on the basis of their actual subject content and not on what their possibly obsolete titles might imply. For example, you would not know from its title that the *Philosophical Magazine* reports research on the physics of condensed matter. But by determining what journals it cites and, in turn, what journals cite it, the subject content of *Philosophical Magazine* becomes obvious.

Following the convention we use in all our journal citation studies, the core journals analyzed here are treated as if they were a single "Macro Journal of Nursing." We'll provide details on what this macro journal cites, and what cites it. We usually base our analyses on a single publication year for the journals in these citation studies. However, since just seven journals are included in this study, we found that it was necessary to use three years of data because one year of data seemed inconclusive. Data are taken from the 1981-1983 *Journal Citation Reports*[®] (*JCR*[™]) for *SSCI*. Keep in mind, however, that the *SSCI JCR* also covers several journals indexed in *SCI*.

The core nursing journals published 1,204 articles from 1981 to 1983. This accounts for just less than 1 percent of the 150,000 articles included in the 1981-1983 *SSCI JCR*. The core journals cited 16,205 references during this three-year period, or 0.5 percent of the three million references processed in the *SSCI JCR*. Thus, the average nursing article cited about 14 references, compared with 20 for the average *SSCI JCR* article.

Articles in the core journals received 3,300 citations in 1981-1983. This represents just 0.1 percent of the total references processed in the *SSCI JCR* during this three-year period. *American Jour-*

Table 2: The 51 journals most cited by core nursing journals from 1981 to 1983. An asterisk (*) indicates a core journal. A=citations received from core journals. B=citations received from all journals. C=self-citations. D=percent of citations from all journals that are core journal citations (A/B). E=percent of citations from all journals that are self-citations (self-cited rate, C/B). F=percent of core citations that are self-citations (C/A). G=1983 impact factor (1983 citations to 1981 and 1982 articles of a particular journal divided by the number of articles published in that journal in 1981 and 1982). H=total 1981-1983 source items.

Journal	A	B	C	D	E	F	G	H
*Nurs. Res.	608	1246	292	48.8	23.4	48.0	.40	205
*Amer. J. Nurs.	466	1189	195	39.2	16.4	41.8	.24	476
*J. Nurs. Admin.	240	339	142	70.8	41.9	59.2	—	125
N. Engl. J. Med.	201	157,678	—	.1	—	—	16.47	1149
Nurs. Outlook	194	512	—	37.9	—	—	—	—
Lancet	160	170,462	—	.1	—	—	12.25	1514
Brit. Med. J.	151	90,310	—	.2	—	—	2.77	2796
JAMA—J. Am. Med. Assn.	150	68,986	—	.2	—	—	3.38	1668
Nurs. Times	139	375	—	37.1	—	—	—	—
*J. Adv. Nurs.	127	175	97	72.6	55.4	76.4	.25	176
Amer. J. Obstet. Gynecol.	109	43,603	—	.2	—	—	1.89	1690
Pediatrics	94	34,284	—	.3	—	—	2.56	950
Hospitals—J. Amer. Hosp. Ass.	88	1218	—	7.2	—	—	.23	484
J. Personal. Soc. Psychol.	84	20,236	—	.4	—	—	1.86	680
Psychol. Bull.	82	16,388	—	.5	—	—	3.61	228
J. Health Soc. Behavior	81	3559	—	2.3	—	—	3.39	94
Obstet. Gynecol.	81	19,599	—	.4	—	—	1.66	1016
*J. Nurse-Midwifery	78	113	70	69.0	61.9	89.7	.27	90
Psychosom. Med.	78	7036	—	1.1	—	—	2.24	123
Arch. Gen. Psychiat.	75	29,825	—	.3	—	—	6.11	443
Nurs. Clin. N. Amer.	74	239	—	31.0	—	—	.07	190
Child Develop.	73	13,515	—	.5	—	—	1.58	503
Amer. J. Psychiat.	70	27,523	—	.3	—	—	3.21	980
*Int. J. Nurs. Stud.	70	144	33	48.6	22.9	47.1	.16	69
Amer. J. Public Health	69	7750	—	.9	—	—	1.67	487
J. Pediat.	67	42,934	—	.2	—	—	2.67	1335
*Res. Nurs. Health	63	111	26	56.8	23.4	41.3	.35	63
Amer. J. Orthopsychiat.	60	4201	—	1.4	—	—	.96	193
J. Appl. Psychol.	56	8398	—	.7	—	—	1.55	282
Med. Care	54	3303	—	1.6	—	—	1.15	299
Ann. Intern. Med.	53	58,372	—	.1	—	—	7.00	866
Nurs. Mirror	48	110	—	43.6	—	—	—	—
Science	48	209,576	—	0	—	—	7.41	3032
J. Consult. Clin. Psychol.	47	14,269	—	.3	—	—	2.13	406
J. Nurs. Educ.	47	128	—	36.7	—	—	—	—
Superv. Nurs.	47	72	—	65.3	—	—	—	—
Nurs. Forum	45	119	—	37.8	—	—	—	—
J. Psychosom. Res.	43	4025	—	1.1	—	—	.79	203
Cancer	42	81,994	—	.1	—	—	2.65	2572
Birth Fam. J.	40	178	—	22.5	—	—	.30	23
J. Abnormal Psychol.	40	12,656	—	.3	—	—	2.46	181
J. Marriage Fam.	40	4758	—	.8	—	—	.98	252
Arch. Intern. Med.	39	24,616	—	.2	—	—	1.82	976
Brit. J. Psychiat.	38	15,442	—	.2	—	—	2.39	552
Heart Lung	38	561	—	6.8	—	—	.36	268
J. Chronic Dis.	38	7543	—	.5	—	—	1.37	237
Psychol. Rep.	38	6865	—	.6	—	—	.25	1387
Amer. Sociol. Rev.	37	13,008	—	.3	—	—	2.66	181
Circulation	37	90,721	—	0	—	—	6.90	1359
RN Mag.	36	154	—	23.4	—	—	—	—
Soc. Sci. Med.	36	1985	—	1.8	—	—	.58	440

Table 3: The 48 journals that most frequently cited core nursing journals from 1981 to 1983. An asterisk (*) indicates a core journal. A=citations to core journals. B=citations to all journals. C=self-citations. D=percent of total citations that are core journal citations (A/B). E=percent of total citations that are self-citations (self-citing rate, C/B). F=percent of citations to core journals that are self-citations (C/A). G=1983 impact factor. H=total 1981-1983 source items.

Journal	A	B	C	D	E	F	G	H
*Nurs. Res.	445	4258	292	10.5	6.9	65.6	.40	205
*J. Adv. Nurs.	257	3140	97	8.2	3.1	37.7	.25	176
*Amer. J. Nurs.	225	3084	195	7.3	6.3	86.7	.24	476
*J. Nurs. Admin.	221	1122	142	19.7	12.7	64.3	—	125
*Int. J. Nurs. Stud.	177	1494	33	11.8	2.2	18.6	.16	69
*Res. Nurs. Health	139	1647	26	8.4	1.6	18.7	.35	63
*J. Nurse-Midwifery	106	1460	70	7.3	4.8	66.0	.27	90
Heart Lung	84	4993	—	1.7	—	—	.36	268
J. Nurs. Educ.	50	709	—	7.1	—	—	—	—
Soc. Sci. Med.	42	13,582	—	.3	—	—	.58	440
Amer. J. Public Health	41	9271	—	.4	—	—	1.67	487
J. Sch. Health	34	3320	—	1.0	—	—	.18	320
Psychol. Rep.	34	16,290	—	.2	—	—	.25	1387
Med. Care	27	6012	—	.4	—	—	1.15	299
J. Behav. Med.	26	1694	—	1.5	—	—	1.92	90
Soc. Sci. Med.—Med. Soc.	26	2377	—	1.1	—	—	.72	75
Patient Couns. Health Educ.	20	1092	—	1.8	—	—	.20	52
Pain	18	8377	—	.2	—	—	3.32	250
Gerontologist	17	5100	—	.3	—	—	.96	250
J. Amer. Diet. Assn.	17	7554	—	.2	—	—	.77	376
Nurs. Outlook	17	424	—	4.0	—	—	—	—
Int. J. Psychiat. Med.	15	2237	—	.7	—	—	.81	94
J. Health Polit. Policy Law	15	3426	—	.4	—	—	.59	118
Hospitals—J. Amer. Hosp. Ass.	14	1418	—	1.0	—	—	.23	484
N. Engl. J. Med.	14	53,378	—	0	—	—	16.47	1149
Clin. Psychol. Rev.	13	1958	—	.7	—	—	—	—
Gen. Hosp. Psychiat.	12	3188	—	.4	—	—	.70	111
Brit. J. Clin. Psychol.	11	2649	—	.4	—	—	1.20	129
Death Educ.	11	1454	—	.8	—	—	.12	85
J. Amer. Geriat. Soc.	11	8961	—	.1	—	—	.89	384
Soc. Work Health Care	11	847	—	1.3	—	—	.22	89
Acad. Manage. J.	10	4715	—	.2	—	—	1.40	184
Amer. J. Hosp. Pharm.	10	9018	—	.1	—	—	1.04	621
Amer. J. Occup. Ther.	10	3309	—	.3	—	—	.30	179
NY Univ. Law Rev.	10	3918	—	.3	—	—	3.47	70
Arch. Phys. Med. Rehabil.	9	6082	—	.1	—	—	.67	392
Psychiat. Clin. N. Amer.	9	6367	—	.1	—	—	1.45	130
Birth Fam. J.	8	359	—	2.2	—	—	.30	23
Cancer	8	61,812	—	0	—	—	2.65	2572
J. Amer. Dent. Assn.	8	7347	—	.1	—	—	.62	434
J. Clin. Psychol.	8	7713	—	.1	—	—	.43	501
J. Fam. Pract.	8	3429	—	.2	—	—	.65	558
Pediatrics	8	23,574	—	0	—	—	2.56	950
Psychosomatics	8	5452	—	.1	—	—	.89	261
Soc. Sci. Med.—Med. Psychol.	8	1504	—	.5	—	—	.58	33
Annu. Rev. Public Health	7	4239	—	.2	—	—	1.28	58
Fam. Relat.	7	4236	—	.2	—	—	.45	201
Public Health Rep.	7	2905	—	.2	—	—	.49	246

nal of Nursing and *Nursing Research* together account for 73 percent of the citations to the core group, receiving 1,189 and 1,246 citations, respectively. The same two journals also account for 57 percent of all papers published by the core group in 1981-1983. Previous studies of other journal sets show that a small number of publications accounts for the majority of both citations and published articles. This "concentration effect"¹² is also demonstrated for the nursing literature, even though the present study is limited to seven journals.

The 51 journals most cited by the core nursing journals from 1981 to 1983 are shown in Table 2. They are listed in descending order of the number of *core* 1981-1983 citations they received (column A). For reasons of space, we try to limit these lists to about 50 journals. However, *RN Magazine* and *Social Science and Medicine* were each cited by the core journals 36 times, the cutoff for inclusion in Table 2. Table 2 also shows the number of citations from *all* journals (column B), each journal's self-citations (column C), 1983 impact factor (column G), and the number of source items published in 1981-1983 (column H).

The 51 journals in Table 2 received 4,800 citations from the core group. This represents about 30 percent of all references cited by the core in 1981-1983. All seven core nursing journals appear in Table 2. They are indicated by asterisks. These core journals received 3,300 citations from all journals, of which 1,650 or about 50 percent were *from* the core group.

Table 2 also includes nine nursing journals that are *not* in the core set because they were not indexed in the 1981-1983 *SSCI* or, in the case of *Heart & Lung*, were purposely excluded from the core. Although *Journal of Nursing Education* was added to the 1983 *SSCI*, we didn't have enough data to include it

in the core group. In addition, several more nursing journals are currently being evaluated for coverage in *SSCI* in the near future—*Nursing Times*, *RN Magazine*, and so on. Incidentally, these journal citation patterns are one of the criteria ISI uses to determine whether or not a journal should be covered in our databases.

A brief scan of the journals in Table 2 indicates that the nursing literature cites research in a variety of medical publications. It will come as no surprise to nurses how many psychology journals are listed—*Journal of Personality and Social Psychology*, *Journal of Applied Psychology*, *Psychological Bulletin*, and so on. The connection between psychology and nursing will be discussed later in this essay when we examine the most-cited nursing articles.

Table 3 lists 48 journals that most frequently cited the core group from 1981 to 1983. They are shown in order of the number of their citations to the core. In Table 3, the inclusion threshold was seven or more citations to the core. Had we lowered the minimum to at least six citations, another 15 journals would have been added to the list. So, for reasons of space, only the top 48 journals are listed.

The top seven journals in Table 3 are all members of the core group. That is, the journals that *most* frequently cited the core in 1981-1983 were the core nursing journals themselves. This is not really remarkable since nursing is a rather small and self-contained research area, as was pointed out earlier. But it is remarkable that only three *other* nursing journals appear in Table 3, including *Heart & Lung*. Remember that nine non-core nursing journals were listed in Table 2. Only *Heart & Lung*, *Journal of Nursing Education*, and *Nursing Outlook* cited any of the core journals at least seven times in 1982. But several psychology journals are among those

Table 4: 1983 SSCI® impact factors of selected core nursing journals across various two-year bases. Circles indicate the highest impact factor for each journal. A=1981-1982. B=1980-1981. C=1979-1980. D=1978-1979. E=1977-1978. F=1976-1977.

Journal	A	B	C	D	E	F
Amer. J. Nurs.	⓪.24	.17	.19	.19	.12	.10
Int. J. Nurs. Stud.	.16	.30	.26	.22	.30	⓪.38
J. Adv. Nurs.	⓪.25	.24	.13	.11	—	—
Nurs. Res.	.40	.36	.34	.40	.39	⓪.41
Res. Nurs. Health	.35	.45	.41	⓪.64	—	—

that most frequently cited the core. We'll expand on the "overlap" between psychology and nursing later.

Nursing Research and *Research in Nursing & Health* have virtually the same impact—0.4 (see column G in Tables 2 and 3). This is equal to the median impact of all SSCI journals in the 1983 JCR. *Journal of Advanced Nursing* and *Journal of Nurse-Midwifery* each have an impact of about 0.3, followed by *American Journal of Nursing* and *International Journal of Nursing Studies* at 0.2. Impact data for *Journal of Nursing Administration* are not available because it was added too late to the SSCI database for this information to be tabulated.

Impact is determined by dividing the number of 1983 citations to a journal's 1981 and 1982 articles by the combined number of articles it published in those two years. In recent journal studies, we've recalculated impacts using different two-year bases. Papers in "fast moving" fields are cited very soon after publication—in biochemistry or molecular biology, for example. But the same may not be true in other fields, such as geosciences or mathematics. Thus, by using different two-year bases, we can determine what the "peak" citation years may be and derive higher impact factors.

Table 4 shows 1983 impact factors for five of the core nursing journals, using various two-year bases. The highest impact for each journal is circled. As you

can see, two core nursing journals register the highest impact when 1981-1982 publication years are used. Impacts for *Nursing Research* are relatively constant at 0.4 no matter which two-year base is used. But the largest gains in impact are observed for two journals. The *International Journal of Nursing Studies* has an impact of 0.16 when we consider 1983 citations to its 1981-1982 articles. But its impact increases to 0.38 when 1983 citations to its 1976-1977 articles are used instead. And when 1983 citations to 1978-1979 articles from *Research in Nursing & Health* are used, it has an impact of 0.64, the highest of all the core journals. However, its impact is 0.35 when we consider its 1981-1982 articles. For these and other reasons, this journal probably will be added to the SSCI database in the near future.

In terms of immediacy indexes, that is, how often a journal's articles were cited in the same year they were published, the core journals are ranked as follows: *American Journal of Nursing*, 0.23, *Journal of Nursing Administration*, 0.13, *International Journal of Nursing Studies* and *Nursing Research*, 0.08 each, *Journal of Advanced Nursing*, 0.05, and *Research in Nursing & Health*, 0.04. Immediacy for 1983 is calculated by dividing the number of citations a journal's 1983 articles received by the number of articles it published that year. None of the 1983 articles in *Journal of Nurse-Midwifery* were cited that year, so its immediacy index is zero. The median

immediacy for all 1983 *SSCI* journals was 0.08.

The *JCR* also gives information on a journal's "half-life"—that is, the median age for a given field's cited and citing literature. Table 5 presents half-lives for the core nursing journals. (Half-life data for *Journal of Nursing Administration* are not available because it was added too late to the *SSCI* for this information to be processed.) Each journal's cited half-life is given in column A. This indicates the median age of articles from each journal that were cited in 1983. For example, the cited half-life for *Nursing Research* is nine years. Half of the citations this journal received in 1983 were to articles it published over the past nine years, from 1975 to 1983. Keep in mind that cited half-life can be affected by the year when a journal began publication. For example, *Research in Nursing & Health* was first published in 1978. Clearly, it cannot have a cited half-life longer than six years. Also, the size of a journal can influence cited half-lives—many journals are now much larger than they were even a decade ago. Thus, one has to be careful in interpreting half-life.

Column B in Table 5 gives each journal's citing half-life, that is, the median age of the literature cited by each journal in 1983. *American Journal of Nursing* and *Journal of Nurse-Midwifery* have the shortest citing half-lives of the core group. Half of their 1983 references were to articles published between 1979 and 1983.

Table 5: 1983 *SSCI*[®] cited and citing half-lives of core nursing journals. A=cited half-life. B=citing half-life. C=core nursing journal.

A	B	C
6.4	4.5	Amer. J. Nurs.
6.2	7.0	Int. J. Nurs. Stud.
2.8	6.6	J. Adv. Nurs.
3.5	4.8	J. Nurse-Midwifery
9.0	8.1	Nurs. Res.
4.2	8.2	Res. Nurs. Health

In analyzing journal citation patterns, it is important to examine the "superstar" articles they publish. Table 6 lists the 18 most-cited articles from the core nursing journals, in alphabetic order by first author. Also shown are the number of citations they received from 1966 to 1983 in *SSCI* and from 1963 to 1983 in *SCI*. Only those articles from the core journals that were cited 20 times or more are shown in Table 6. Three core journals met or exceeded this threshold. *Nursing Research* clearly dominates the list, accounting for 14 of the 18 papers shown. *American Journal of Nursing* accounts for three of the most-cited papers, and one was published in *Research in Nursing & Health*.

The most-cited paper, by Mary-Vesta Marston, Frances Payne Bolton School of Nursing, Case Western Reserve University, Cleveland, Ohio, is a review article published in 1970 in *Nursing Research*. It discussed the literature on compliance, or the extent to which patients follow instructions to take medications. The review has been cited about 180 times. Earlier this year,¹³ Marston gave her personal recollections and background information on this paper in a *Citation Classic*[™] 14 commentary.

Two papers are tied as the second-most-cited publications. Ben F. Feingold, Kaiser-Permanente Medical Center, San Francisco, California, reported a link between artificial food additives and hyperkinesis and learning disabilities in children. This paper was cited more than 50 times in *SSCI* and *SCI* since its publication in 1975 in *American Journal of Nursing*.

Carol A. Lindeman, director of nursing research, and Betty Van Aernam, Luther Hospital, Eau Claire, Wisconsin, collaborated on the other second-most-cited nursing article. They studied the effectiveness of preoperative deep breathing and coughing exercises on re-

Table 6: Most-cited articles from core nursing journals according to 1966-1983 *SSCT*[®] and 1963-1983 *SCT*[®], in alphabetic order by first author. A = total citations. B = bibliographic data. C = total number of papers from that journal cited 20 or more times.

A	B	C
24	Campbell M E. Study of the attitudes of nursing personnel toward the geriatric patient. <i>Nurs. Res.</i> 20:147-51, 1971.	14
43	Dumas R G & Leonard R C. The effect of nursing on the incidence of postoperative vomiting. <i>Nurs. Res.</i> 12:12-5, 1963.	14
54	Feingold B F. Hyperkinesia and learning disabilities linked to artificial food flavors and colors. <i>Amer. J. Nurs.</i> 75:797-803, 1975.	3
48	Healy K M. Does preoperative instruction make a difference? <i>Amer. J. Nurs.</i> 68:62-7, 1968.	3
32	Johnson J E & Dabbs J M. Enumeration of active sweat glands: a simple physiological indicator of psychological changes. <i>Nurs. Res.</i> 16:273-6, 1967.	14
41	Johnson J E, Dabbs J M & Leventhal H. Psychosocial factors in the welfare of surgical patients. <i>Nurs. Res.</i> 19:18-29, 1970.	14
31	Johnson J E, Kirchhoff K T & Endress M P. Altering children's distress behavior during orthopedic cast removal. <i>Nurs. Res.</i> 24:404-10, 1975.	14
34	Johnson J E & Rice V H. Sensory and distress components of pain. <i>Nurs. Res.</i> 23:203-9, 1974.	14
23	Johnson J E, Rice V H, Fuller S S & Endress M P. Sensory information, instruction in a coping strategy, and recovery from surgery. <i>Res. Nurs. Health</i> 1:4-17, 1978.	1
26	Katz V. Auditory stimulation and developmental behavior of the premature infant. <i>Nurs. Res.</i> 20:196-201, 1971.	14
35	Lindeman C A. Nursing intervention with the presurgical patient. <i>Nurs. Res.</i> 21:196-209, 1972.	14
54	Lindeman C A & Van Aernam B. Nursing intervention with the presurgical patient—the effects of structured and unstructured preoperative teaching. <i>Nurs. Res.</i> 20:319-32, 1971.	14
183	Marston M-V. Compliance with medical regimens: a review of the literature. <i>Nurs. Res.</i> 19:312-23, 1970.	14
40	Neely E & Patrick M L. Problems of aged persons taking medications at home. <i>Nurs. Res.</i> 17:52-5, 1968.	14
27	Quint J C. The impact of mastectomy. <i>Amer. J. Nurs.</i> 63(11):88-92, 1963.	3
37	Schmitt F E & Wooldridge P J. Psychological preparation of surgical patients. <i>Nurs. Res.</i> 22:108-16, 1973.	14
40	Wolfer J A & Davis C E. Assessment of surgical patients' preoperative emotional condition and postoperative welfare. <i>Nurs. Res.</i> 19:402-14, 1970.	14
31	Wolfer J A & Vhintalner M A. Pediatric surgical patients' and parents' stress responses and adjustment. <i>Nurs. Res.</i> 24:244-55, 1975.	14

ducing pulmonary and respiratory complications following surgery. The paper was published in 1971 in *Nursing Research*. In 1972, Lindeman published a follow-up study on this topic in *Nursing Research*, showing that group instruction in these exercises was as effective and more efficient than individual teaching. Both of these papers combined received about 90 citations in 67 articles.

Jean E. Johnson, currently at the School of Nursing, University of Rochester, New York, authored 5 of the 18 most-cited nursing articles with several of her colleagues. All 5 articles deal with various aspects of distress—how it can be measured by sweat glands in the palm, how it can be reduced through cognitive and behavioral training, how it affects the sense of pain, and so on.

In fact, the majority of the most-cited nursing articles deal with the *psychological* preparation of patients facing medical or surgical procedures. By carefully instructing patients about what to expect prior to and following surgery, their stress and pain can be significantly reduced. Many of these studies also show that psychological preparation can reduce postoperative time spent in the hospital. The economic benefits from this type of research are obvious—less time in the hospital means lower health-care costs for the patient, hospital, and insurers. Several other psychological topics are discussed in papers listed in Table 6—nurses' attitudes toward geriatric patients, the social readjustments and self-images of patients with mastectomies, the effect of the maternal voice

Table 7: Sample of highly cited nursing articles published in non-nursing journals, in alphabetic order by first author. A=1966-1983 *SSCI*[®] and 1964-1983 *SCI*[®] citations. B=bibliographic data.

A	B
367	Cobb S. Social support as a moderator of life stress. <i>Psychosom. Med.</i> 38:300-14, 1976.
275	Egbert L D, Battit G E, Welch C E & Bartlett M K. Reduction of postoperative pain by encouragement and instruction of patients. <i>N. Engl. J. Med.</i> 270:825-7, 1964.
15	Fuller S S, Endress M P & Johnson J E. The effects of cognitive and behavioral control on coping with an aversive health examination. <i>J. Hum. Stress</i> 4(4):18-25, 1978.
10	Gatewood T S & Stewart R B. Obstetricians and nurse-midwives: the team approach in private practice. <i>Amer. J. Obstet. Gynecol.</i> 123:35-40, 1975.
76	Greenberg M & Morris N. Engrossment: the newborn's impact upon the father. <i>Amer. J. Orthopsychiat.</i> 44:520-31, 1974.
1375	Holmes T H & Rahe R H. The social readjustment rating scale. <i>J. Psychosom. Res.</i> 11:213-8, 1967.
92	Johnson J E. Effects of accurate expectations about sensations on the sensory and distress components of pain. <i>J. Personal. Soc. Psychol.</i> 27:261-75, 1973.
96	Johnson J E & Leventhal H. Effects of accurate expectations and behavioral instructions on reactions during a noxious medical examination. <i>J. Personal. Soc. Psychol.</i> 29:710-8, 1974.
112	Kaplan B H, Cassel J C & Gore S. Social support and health. <i>Med. Care</i> 15(Suppl.):47-58, 1977.
103	Moos R H. The development of a menstrual distress questionnaire. <i>Psychosom. Med.</i> 30:853-67, 1968.
11	Peterson G H, Mehl L E & Lelderman P H. The role of some birth-related variables in father attachment. <i>Amer. J. Orthopsychiat.</i> 49:330-8, 1979.
244	Rizzo J R, House R J & Lirtzman S I. Role conflict and ambiguity in complex organizations. <i>Admin. Sci. Quart.</i> 15:150-63, 1970.
3550	Rotter J B. Generalized expectancies for internal versus external control of reinforcement. <i>Psychol. Monogr.</i> 80:1-28, 1966.
56	Wallston K A, Wallston B S & DeVellis R. Development of the Multidimensional Health Locus of Control (MHLC) scales. <i>Health Educ. Monogr.</i> 6:160-70, 1978.

on the developmental behavior of pre-mature infants, and so on.

The link between psychology and nursing is also evident in the sample of articles published in non-nursing journals that were highly cited by the core. These articles were selected as follows. We processed all the references cited in the 1982 editions of the core nursing journals. From these data we created a mini citation index. Then we ranked all the cited papers in order of their frequency of citation by the core. Finally, we tabulated the combined number of their citations in the 1966-1983 *SSCI* and 1964-1983 *SCI* and selected those that were cited at least 10 times.

The 14 articles published in non-nursing journals that were identified in this manner are shown in Table 7, in alphabetic order by first author. Almost all of them deal with psychological topics—stress, effects of cognitive and behavioral training on coping with pain, vari-

ous psychological rating scales, role conflicts, father attachment in newborns, and so on. Johnson again appears as the most prolific nurse-researcher on the list, having contributed three papers as a primary or secondary author. It's interesting to note that, following her nursing education, Johnson earned a doctoral degree in social psychology.

Comparing Tables 2 and 3, we see that all seven core nursing journals appear in both tables. Three appear among the top five on both lists. They are *American Journal of Nursing*, *Journal of Nursing Administration*, and *Nursing Research*. These three journals rank highest both in terms of their references to the core group and in the number of citations from the core. *Nursing Research* was also dominant in terms of impact and the number of "classic" articles published.

Tables 2 and 3 also show that a number of psychology journals were among both those that most frequently cited

and those that were most frequently cited by the core nursing journals. The close ties between nursing and psychology are also apparent in a list of the most-cited articles from the core journals. Research topics in psychology also dominated the list of highly cited articles published in non-nursing journals. The reduction of stress in medical and surgical patients through cognitive and behavioral training was the most common psychological topic addressed by the authors.

This concludes our study of the nursing literature. In the near future, we will analyze citation patterns in surgery, physical chemistry, and philosophy journals.

* * * * *

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