Nurse Education Today 38 (2016) 138–143

Contents lists available at ScienceDirect

Nurse Education Today

journal homepage: www.elsevier.com/nedt

Number of papers published in English from the nursing departments of 42 national universities in Japan in the past ten years

Junichi Kameoka [a,*], Junya Iwazaki [a], Fumie Takahashi [a], Fumiko Sato [b], Kazuki Sato [b], Atsuko Taguchi [b], Yasuka Nakamura [b], Seiichi Ishii [a], Yutaka Kagaya [a]

[a] Office of Medical Education, Tohoku University Graduate School of Medicine, Sendai, Japan
[b] Department of Health Sciences, Tohoku University Graduate School of Medicine, Sendai, Japan

ARTICLE INFO

Article history:
Accepted 27 November 2015

Keywords:
Research paper
Nursing teacher
National universities
Education
Japan

SUMMARY

Background: In Japan, the departments of nursing were established by 2004, and graduate school programs for master's degree were established by 2008, in 42 national universities. With these changes, a more academic mission has been pursued, and the need for writing papers in English has increased.
Aim: To investigate the numbers of papers published in English from the nursing departments of national universities in Japan over the past ten years.
Methods: The lists of teachers who have nursing licenses in the departments of nursing in the 42 national universities (n = 2292) were obtained from the Japan Association of Nursing Programs in Universities. The number of papers published in English by these teachers from 2004 to 2013 was counted using the SCOPUS database.
Results: The average number of total papers, in which at least one of the authors was a nursing teacher, and first-authored papers, in which the first author was a nursing teacher, were 211.4 and 69.9 per year, respectively; both increased approximately two-fold during the past ten years. The means and standard deviations of the number of total papers and first-authored papers were 50.3 ± 63.8 (range: 1–382) and 18.3 ± 23.4 (range: 0–147) according to universities, and 1.39 ± 5.84 (range: 0–140) and 0.33 ± 1.28 (range: 0–21) according to teachers, respectively. When journals with the highest number of papers were analyzed, 12 of the top 20 (total papers) and 12 of the top 16 (first-authored papers) were in journals whose editorial offices are in Japan.
Conclusion: The number of papers published in English has increased over the past ten years, varied markedly depending on the universities and teachers, and many papers were published in Japanese journals. To our knowledge, this is the first report anywhere to determine the average number of nursing papers "per teacher" in a specific population.

Introduction

In Japan, nursing education was mainly provided at three-year junior colleges or three-year training schools until the 1990s when the Japanese government began to establish the departments of nursing in national four-year universities. By 2004, the departments of nursing were established in 42 national universities, and graduate school programs for master's degree have been established by 2008 in all these universities, and for doctoral degree in 27 of them (Japanese Nursing Association, 2011). Now, as of 2015, there are 86 national universities in Japan, among which 42 (48.8%) have the departments of nursing as well as master's courses. With changes in the school system, a more academic mission has been pursued in the departments of nursing, and the requirement to publish papers in English has become stronger. However, unlike teachers in medical departments, nursing teachers in Japan, particularly those educated at three-year junior colleges or three-year training schools, were not used to writing papers in English. Over the decades, the importance of English education has been emphasized (Yamanaka, 2000; Miyake and Tremarco, 2005; Anazawa et al., 2012), and various programs in the English language have been developed in each university. However, methods to evaluate the outcome of English education, in terms of writing proficiency, have not yet been established.

One approach to assess writing proficiency in English is to count the number of nursing research papers published in English, which, we know, not only involves proficiency in writing English but also represents nursing research activities. The numbers of papers published in English were reported in other countries including Spain (Pardo et al., 2001), the U.K. (Traynor et al., 2001), Australia (Borbasi et al., 2002), Taiwan (Huang et al., 2006), and China (Peng and Hui, 2011), but the average numbers "per teacher" are unknown in these reports because the total numbers of nursing teachers were not available. One Japanese study reported that the total number of papers in English per year in Japan between 1999 and 2003 was 32, 50, 46, 30, and 32

* Corresponding author at: 2-1 Seiryo-cho, Aoba-ku, Sendai 980-8575, Office of Medical Education, Tohoku University Graduate School of Medicine, Japan. Tel.: +81 22 717 8222.
E-mail address: j-kame@med.tohoku.ac.jp (J. Kameoka).

http://dx.doi.org/10.1016/j.nedt.2015.11.028
0260-6917/

(Onjoji et al., 2006); however, these findings were based on a database restricted to journals published in Japan. A bibliometric analysis of nursing studies published in English worldwide, as a long-term outcome evaluation of English education, has not yet been attempted.

To evaluate the present status of English publications and obtain baseline data for a long-term (20–30 year) evaluation of English education in nursing departments, we investigated the number of papers published in English by the nursing departments of 42 national universities in Japan over the past 10 years. We also analyzed the journals in which these papers were published. The results obtained indicated that the number of papers published has increased, varied markedly depending on the universities and the teachers, and many papers were published in journals whose editorial offices are in Japan.

Methods

This is a descriptive study. This study was approved by the Tohoku University Research Ethics Board (2014-1-117).

Demographics of Universities

We hypothesized that some demographic factors, such as years from the establishment of the graduate schools, may be affecting the number of papers published. Thus, the following demographic data of the 42 national universities as of 2013 were obtained on their websites: 1) number of years the departments of nursing, graduate school programs for master's degrees, and for doctoral degrees had been established, 2) the total number of teachers, and 3) the numbers of students per year.

Listing of Teachers

The lists of teachers in the departments of nursing in the 42 national universities were obtained from the Japan Association of Nursing Programs in Universities; paper-based lists were obtained between 2004 and 2006, and online lists between 2007 and 2013. Among all teachers (n = 2608), only those who had nursing licenses (n = 2292, 87.9%), here defined as "nursing teachers," were included in the analysis.

Counting of Papers

The number of total papers, defined as those in which at least one of the authors was a nursing teacher, published in English between 2004 and 2013, was counted in March 2014 using the SCOPUS database. Specifically, AU-ID (Author Identifier) of each nursing teacher was examined in the Author Search, and the total papers of each university were listed by grouping authors together using "AU-ID (1) or AU-ID (2) or AU-ID (3)..." in the Advanced Search. The papers in which only abstracts were written in English (n = 133) were excluded. The number of first-authored papers, defined as those in which nursing teachers were the first authors, was separately counted.

Analysis of Journals

A list of journals was constructed according to the order of the number of published papers identified. A list of the top 20 nursing journals, established by their impact factors in 2009 (Polit and Northam, 2011), with the number of papers in the current study, was also created.

Statistical Analysis

Statcel (Excel 2010, Microsoft) was used to calculate Spearman's rank correlation coefficients between the number of papers per university and the demographic data of the university.

Table 1
Demographics of 42 national universities in Japan (as of 2013).

	Means	Standard deviations	Ranges
Years from the establishment of			
the department of nursing	17.31	9.67	9–60
the graduate school (master's course)	12.67	8.15	5–49
the graduate school (doctor's course)	9.26	8.82	3–47
Numbers of			
students per year	68.31	11.72	40–80
teachers	27.52	4.93	20–49
teachers per students	0.41	0.09	0.30–0.73

Results

Demographics of Universities

The demographic data are shown in Table 1. As expected, there were large differences in the years from the establishment of the department of nursing (range: 9–60), the graduate schools (master's course) (range: 5–49), and the graduate schools (doctor's course) (range: 3–47), but a variation in the number of teachers among universities (range: 20–49) was more than expected.

Numbers of Papers

The number of total papers and first-authored papers published in English by the 42 universities per year between 2004 and 2013 was 2114 and 699 (33.1% of total papers), respectively (Fig. 1). The average number of total papers and first-authored papers was 211.4 and 69.9 per year, respectively; both increased approximately two-fold during the period studied.

The number of papers according to universities is shown in Fig. 2. The means and standard deviations of the number of total papers and first-authored papers were 50.3 ± 63.8 (range: 1–382) and 18.3 ± 23.4 (range: 0–147), respectively. The number of papers according to teachers is shown in Fig. 3. The means and standard deviations of the number of total papers and first-authored papers were 1.39 ± 5.84 (range: 0–140) and 0.33 ± 1.28 (range: 0–21), respectively. As to the total papers, 75 teachers (3.3%) published 10 or more papers, 320 (13.9%) published 2–9 papers, 263 (11.5%) published one paper, and 1634 teachers (71.3%) published no papers in ten years. As to the first-authored papers, 9 teachers (0.4%) published 10 or more papers, 123 (5.4%) published 2–9 papers, 206 (9.0%) published one paper, and 1954 teachers (85.3%) published no papers in that time.

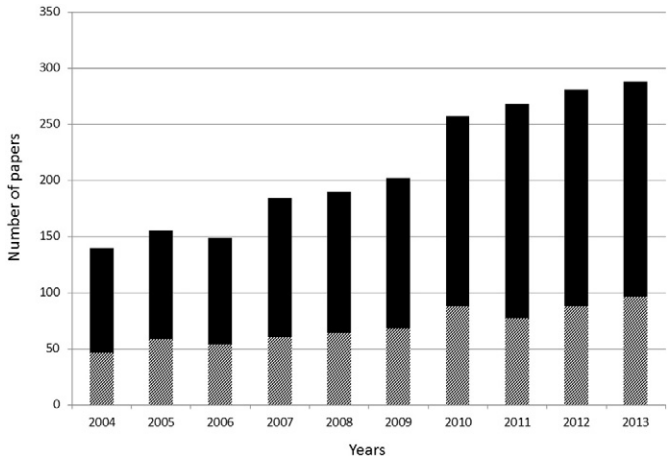

Fig. 1. The total number of papers of 42 universities per year from 2004 to 2013. The striped bars indicate the number of papers in which nursing teachers were the first authors, and the closed bars indicate the number of other papers.

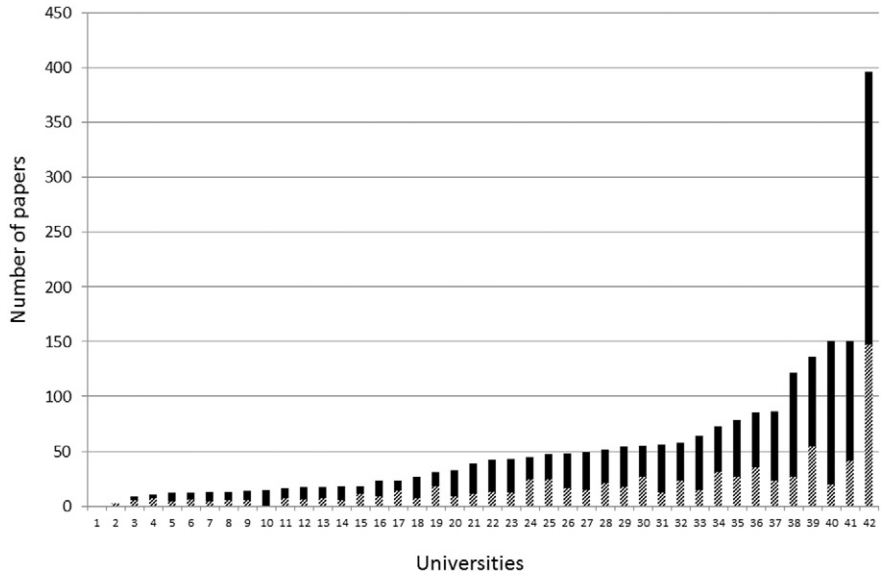

Fig. 2. The number of papers according to universities. The horizontal numbers indicate 42 national universities. The striped bars indicate the number of papers in which nursing teachers were the first authors, and the closed bars indicate the number of other papers.

Correlations Between the Number of Papers per University and the Demographic Data

The Spearman's rank correlation coefficients between the number of papers per university and the demographic data of the university are shown in Table 2. The correlations between the numbers of papers and the numbers of teachers were significantly high. The correlations between the number of papers and the years since the establishment of a doctoral course were also relatively high, although not statistically significant.

Published Journals

The journals in which papers were published showed a considerable variation: 2114 total papers and 699 first-authored papers were published in 740 and 332 journals, respectively; of these, 417 and 113 journals contained only one paper, respectively. Journals with the highest number of papers published in the current analysis are presented in Table 3A (total papers) and 3B (first-authored papers). Twelve out of 21 (57.1%) (total papers) and 11 out of 15 (73.3%) (first-authored papers) were Japanese journals, defined as those with editorial offices located in Japan. Table 4 shows the 20 highest impact factor nursing journals globally (Polit and Northam, 2011). The numbers of papers in the current study in these 20 journals were 72 (3.4%) (total papers) and 43 (6.2%) (first-authored papers).

Notably, the top 75 teachers (who published 10 or more total papers) published less in Japanese journals and more in high impact factor journals. In Table 3A (total papers), they published in 217 of 416 (52.2%) Japanese journals, whereas in 98 of 136 (72.1%) journals of other countries. In Table 3B (first-authored papers), they published in 67 of 181 (37.0%) Japanese journals, whereas in 30 of 34 (88.2%) journals of other countries. In Table 4, they published in 47 of 72 (65.3%) (total papers) and in 28 of 43 (65.1%) (first-authored papers) of the 20 highest impact factor journals. These results suggest that the top 75 teachers performed well not only in quantity but also in quality.

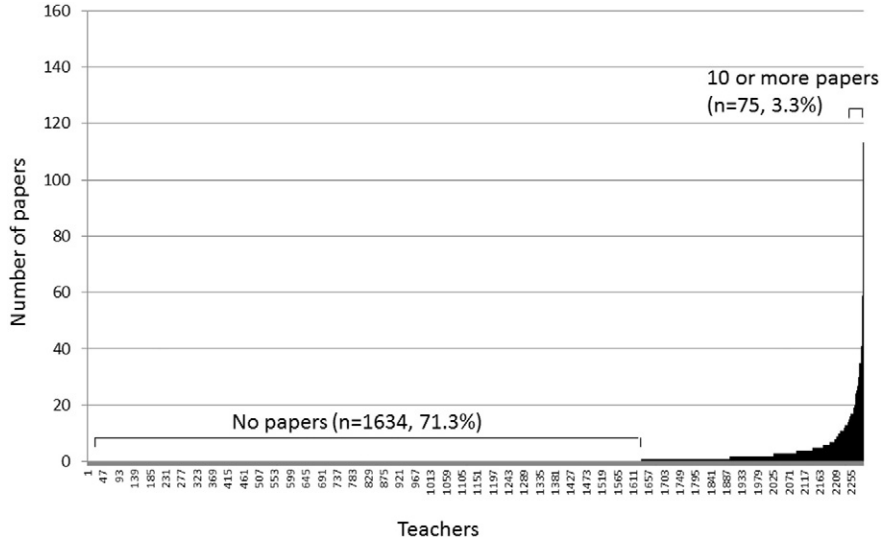

Fig. 3. The number of papers according to teachers. The horizontal numbers indicate 2292 nursing teachers. Only total papers were shown; the number of first-authored papers were not separately shown because they were too small to be detected.

Table 2
Correlation coefficients between the numbers of papers per university and demographic data.

	Total papers		First-authored papers	
	Coefficients	P values	Coefficients	P values
Years from the establishment of				
the department of nursing	0.054	0.729	−0.085	0.588
the graduate school (master's course)	0.049	0.756	−0.088	0.572
the graduate school (doctor's course)	0.379	0.053	0.201	0.305
Numbers of				
students	0.232	0.137	0.265	0.090
teachers	0.477	0.002	0.431	0.006
teachers per students	0.145	0.341	0.125	0.422

Discussion

This study has four key findings: 1) the number of papers published in English increased approximately two-fold during the past ten years; 2) the numbers varied markedly depending on the universities and teachers; 3) the number of papers per university was correlated with the number of teachers per university, and 4) the majority of journals with the highest number of papers were Japanese journals.

The reported numbers of studies in other countries were: 622 between 1985 and 1994 (average: 62.2 per year) in Spain (Pardo et al., 2001), 1198 between 1992 and 1995 (average: 199.5 per year) in the UK (Traynor et al., 2001), 509 between 1985 and 1994 (average: 84.8 per year) in Australia (Borbasi et al., 2002), and 834 between 1991 and 2005 (average: 55.6 per year) in Taiwan (Huang et al., 2006). Since these data were collected mainly from the 1990s, it is difficult to compare these data with the current data. Moreover, the average numbers "per teacher" are unknown in these reports because the total numbers of nursing teachers were not available. To our knowledge, this is the first report anywhere to determine the average number of nursing papers "per teacher" in a specific population.

The current study was initially planned in order to obtain baseline data for a long-term (20–30 year) outcome evaluation of English education, based on the assumption that the number of papers published in English was still low; unexpectedly, however, this number is already increasing. This may be partly because of the increasing number of graduate students, who are required, in some universities, to submit theses in English. In addition, according to the national survey we undertook two years ago, many universities have developed various programs in English education (data not shown), which may have contributed to the increasing number of papers published in English in the past ten years.

There may be several reasons for the sizable variations among the universities and teachers. First, the mission may be different among the 42 national universities in Japan; some are academic-oriented, while some are more vocationally oriented. Second, peer pressure among workplaces may be influencing the productivities, as is pointed out in other fields (Georganas et al., 2013). Third, the need to publish in English may be related to the content of the research, which may differ among researchers and universities; for example, research dealing with community health care programs closely related to local regulations may be better discussed among Japanese readers.

The positive correlation between the number of papers per university and the number of teachers per university was intriguing. This appears natural, but considering that more than 70% of the nursing teachers published no papers, it is not as simple as "the more teachers, the more papers." One of the underlying factors may be peer pressure as described above: teachers in universities with a higher number of teachers may have more opportunities to be inspired by others. Another factor may be the shortage of manpower. Nursing teachers in Japan seem too busy with their work to write and publish (Kondo, 2013), which may be exacerbated in universities with a low number of teachers. Actually, the "University Establishment Standards" from the Japanese Ministry of Education states that the "required number of teachers in the department of nursing is 12, and half of them should be professors," while "that in the department of medicine is 140, and more than 30 of them should be professors (Ministry of Education, Culture, Sports, Science, and Technology in Japan, 1956)."

A great deal of variation in the published journals indicated a wide diversity of specialties among nursing teachers in Japan. Although some papers were published in international journals with high impact factors, many papers were published in Japanese journals, including the in-house journals of each university and those published by each academic organization. This may be because the primary aim of Japanese nursing teachers was still "to write articles in English." However, once

Table 3A
Journals with the highest number of papers (total).

Rank	Journals	Countries	2012 Impact factor	Number of papers
1	Kitakanto Medical Journal	Japan	–	99 (75)
2	Japan Journal of Nursing Science	Japan	0.2	60 (25)
3	Japanese journal of public health	Japan	–	57 (22)
4	Nursing and Health Sciences	Japan	0.684	49 (19)
5	Environmental Health and Preventive Medicine	Japan	–	32 (11)
6	Journal of Pain and Symptom Management	USA	2.601	24 (24)
7	Journal of Medical Investigation	Japan	–	23 (11)
8	Circulation Journal	Japan	3.766	21 (18)
9	Studies in Health Technology and Informatics	Netherlands	–	18 (2)
10	Journal of Clinical Nursing	UK	1.118	17 (10)
11	Tohoku Journal of Experimental Medicine	Japan	1.244	17 (4)
12	International Journal of Nursing Studies	UK	2.178	15 (15)
13	Journal of Epidemiology	Japan	1.858	15 (12)
14	Journal of Occupational Health	Japan	1.55	15 (5)
15	Pediatrics International	Japan	0.626	15 (4)
16	International Journal of Nursing Practice	Australia	0.716	13 (5)
17	Journal of Advanced Nursing	UK	1.477	13 (11)
18	BioScience Trends	Japan	0.968	12 (11)
19	International Wound Journal	UK	1.458	12 (12)
20	Journal of Nursing Management	UK	1.181	12 (7)
21	Wound Repair and Regeneration	USA	2.911	12 (12)
		Japan (subtotal)		416 (217)
		Other countries (subtotal)		136 (98)

Numbers in parentheses are the numbers of papers published by the top 75 teachers.
"–" in 2012 Impact factor means that the journal was not indexed in the Journal Citation Reports.

Table 3B
Journals with the highest number of papers (first-authored).

Rank	Journals	Countries	2012 Impact factor	Number of papers
1	Kitakanto Medical Journal	Japan	–	36 (26)
2	Japanese journal of public health	Japan	–	31 (6)
3	Japan Journal of Nursing Science	Japan	0.2	26 (9)
4	Nursing and Health Sciences	Japan	0.684	25 (5)
5	Environmental Health and Preventive Medicine	Japan	–	12 (0)
6	Journal of Medical Investigation	Japan	–	10 (5)
7	International Journal of Nursing Studies	UK	2.178	10 (9)
8	Japanese Journal of Geriatrics	Japan	–	10 (5)
9	Journal of Clinical Nursing	UK	1.118	9 (7)
10	BioScience Trends	Japan	0.968	8 (7)
11	Journal of Occupational Health	Japan	1.55	8 (0)
12	Journal of Obstetrics and Gynaecology Research	Japan	0.942	8 (2)
13	Wound Repair and Regeneration	USA	2.911	8 (7)
14	Tohoku Journal of Experimental Medicine	Japan	1.244	7 (2)
15	Supportive Care in Cancer	USA	2.649	7 (7)
		Japan (subtotal)		181 (67)
		Other countries (subtoal)		34 (30)

Numbers in parentheses are the numbers of papers published by the top 75 teachers.
"–" in 2012 Impact factor means that the journal was not indexed in the Journal Citation Reports.

the primary aim is achieved, the next step is "to publish articles to be read," which requires submissions to more internationally subscribed journals with higher impact factors. We hope that many nursing teachers will follow the top 75 teachers who lead not only in numbers but also in quality of the papers published.

There were several limitations to the current study. First, some nursing journals were not included within the SCOPUS database, although we believe it covers most major journals. Second, this study examined papers only from national universities, although there are 193 nursing colleges/universities, 121 master's programs, and 61 doctoral programs as of 2010 in Japan (Japanese Nursing Association, 2011). Third, to distinguish papers by nurses from those by non-nurses such as physicians, we counted the number of "first-authored papers" separately. However, as papers in which first authors were nursing graduate students were not included in the "first-authored papers," counting the number of "corresponding-authored papers" in which corresponding authors were nursing teachers might have been better; however, this could not be done for technical reasons. Fourth, the number of papers not only involves proficiency in writing English, but also nursing research activities. Development of other methods to measure writing skills in English would be needed.

In conclusion, the number of papers published in English by the nursing departments of 42 universities in Japan is steadily increasing. This fact is not only an encouragement to nursing teachers in Japan, but also sheds light on the strategies for expanding nursing research studies to a wider global audience. The results of the present study provide a baseline for the long-term evaluation of English education in the future; we are planning to collect and publish data in 10, 20, and 30 years.

Disclosure Statement

All authors report no potential conflicts of interest.

Acknowledgments

We thank Ms. Yoko Ushio (the Japan Association of Nursing Programs in Universities) for sending us the lists of teachers between

Table 4
Papers published in the 20 highest impact factor nursing journals.

Rank	Journals	Impact factor 2009	Number of papers in the current study	
			Total	First-authored
1	Worldviews on Evidence-Based Nursing	1.944	0	0
2	Birth: Issues in Perinatal Care	1.919	0	0
3	International Journal of Nursing Studies	1.91	16 (15)	10 (9)
4	Oncology Nursing Forum	1.907	5 (2)	3 (1)
5	Cancer Nursing	1.878	5 (2)	5 (1)
6	Nursing Research	1.798	1 (0)	1 (0)
7	American Journal of Critical Care	1.658	0	0
8	Nursing Outlook	1.541	0	0
9	Journal of Cardiovascular Nursing	1.533	0	0
10	Journal of Advanced Nursing	1.518	13 (11)	6 (6)
11	Research in Nursing & Health	1.514	0	0
12	Journal of Nursing Scholarship	1.459	1 (0)	0
13	Advances in Nursing Science	1.414	0	0
14	Pain Management Nursing	1.306	3 (3)	3 (3)
15	Journal of Family Nursing	1.25	3 (0)	3 (0)
16	Nursing Science Quarterly	1.215	0	0
17	Journal of Clinical Nursing	1.194	17 (10)	9 (7)
18	Journal of Wound, Ostomy & Continence Nursing	1.173	0	0
19	Midwifery	1.163	7 (4)	3 (1)
20	Journal of Nursing Administration	1.15	1 (0)	0
	Total		72 (47)	43 (28)

Numbers in parentheses are the numbers of papers published by the top 75 teachers.

2004 and 2007. We also thank Dr. Hiroshi Kanatsuka (Office of Medical Education, Tohoku University), Dr. Miho Sato (Department of Health Sciences, Tohoku University), and the doctors of 13 national universities for their helpful suggestions, and Mr. Yutaro Arata, Ms. Emi Koguma, Mr. Shinya Otsuki, Ms. Sayaka Takahashi, Ms. Kyoko Okumura and Ms. Saori Sato (Office of Medical Education, Tohoku University) for their technical assistance.

References

Anazawa, R., Ishikawa, H., Kiuchi, T., 2012. The perceived need for Japanese nursing faculty members to learn English: issues related to career development. J. Contin. Educ. Nurs. 43 (4), 188–191.

Borbasi, S., Hawes, C., Wilkes, L., Stewart, M., May, D., 2002. Measuring the outputs of Australian nursing research published 1995–2000. J. Adv. Nurs. 38 (5), 489–497.

Georganas, S., Tonin, M., Vlassopoulos, M., 2013. Peer pressure and productivity: the role of observing and being observed. New IZA Discussion Papers No. 7523.

Huang, Y.-L., Ho, Y.S., Chuang, K.Y., 2006. Bibliometric analysis of nursing research in Taiwan 1991–2004. J. Nurs. Res. 14 (1), 75–81.

Japanese Nursing Association, 2011. Nursing in Japan. http://www.nurse.or.jp/jna/english/pdf/nursing-in-japan2011.pdf (accessed 16 March 2015).

Kondo, A., 2013. Advanced practice nurses in Japan: education and related issues. J. Nurs. Care S5, 004. http://dx.doi.org/10.4172/2167-1168.S5-004.

Ministry of Education, Culture, Sports, Science & Technology in Japan, 1956y. University Establishment Standards. the Ministry of Education Decree No. 28 of 1956. http://www.japaneselawtranslation.go.jp/law/detail_main?re=&vm=04&id=1864 (accessed 16 March 2015).

Miyake, M., Tremarco, J., 2005. Needs analysis for nursing students utilizing questionnaires and interviews. Kawasaki J. Med.Welf. 11 (1), 23–34.

Onjoji, Y., Roppongi, T., Watanabe, Y., 2006. Nursing and Information. A survey on English nursing articles published in Japan: Saishin Kango Sakuin (recent nursing index) 1999–2003. 13(13), pp. 59–66 (in Japanese).

Pardo, C., Reolid, M., Delicado, M.V., Mallebrera, E., García-Meseguer, M.J., 2001. Nursing research in Spain: bibliometrics of references of research papers in the decade 1985–1994. J. Adv. Nurs. 35 (6), 933–943.

Peng, J., Hui, Z.Y., 2011. Nursing research in three regions in China: a bibliometric study. 58(1) pp. 21–25.

Polit, D.F., Northam, S., 2011. Impact factors in nursing journals. Nurs. Outlook 59 (1), 18–28.

Traynor, M., Rafferty, A.M., Lewison, G., 2001. Endgenous and exogenous research? Findings from a bibliometric study of UK nursing research. J. Adv. Nurs. 34 (2), 212–222.

Yamanaka, M., 2000. An analysis of nursing English—needs vs tuition. http://mcyseki.com/nursing_survey.html (accessed 16 March 2015).