Scientific
Research
Publishing

Identifying the Characteristics and Differences between Titles in Nursing Research Articles

Yoko Ichiyama

Kyoritsu Women's University, Tokyo, Japan
Email: yichiyama@kyoritsu-wu.ac.jp

Abstract

The study aimed to investigate the characteristics of 500 research article titles in nursing and explore any differences between the three types of journals: international high impact factor journals, domestic journals published in Japanese, and domestic journal published in English. The nursing article titles showed significant differences according to the journal type, which indicates the danger of generalizing discipline-specific norms. The results also showed that the article titles of international high impact factor journals show significant differences in four features: style, length, structure, and content. These results are useful, especially for novice writers who use English as a foreign language.

Keywords

Research Articles Titles, Characteristics, Differences, Nursing

1. Introduction

The selection of words in titles requires careful choices yet also audacity so that the title becomes appealing and memorable, and thus temps readers to read the whole paper. With the advent of internet search engines, research article titles have become one of the primary sources of drawing readers' attention to the articles, and thus the importance of the title has expanded. If the title is poorly written and fails to impress the reader, then the paper might lose the opportunity to be read or even cited. Therefore, this study investigates the characteristics of 500 nursing research article titles in terms of style, length, structure, and content. The study also explores if there are any differences according to the types of journals.

A good title reflects the content of the paper while illuminating and highlighting the significance of the study in few words. Achieving two goals effectively and efficiently is challenging for novice authors because each discipline and genre poses different norms on title writing (Nagano, 2015) and because each journal sets its own standards on the writing titles. For example, *International Journal of Nursing Studies* is a high impact factor nursing journal and provides a descriptive and thus precise instruction regarding titles: "The title should be concise and informative. The journal requires titles for research and review papers to be in the format Topic (or question): method (e.g., Nurse staffing in intensive care units: a systematic review)…" In the meantime, *Journal of Advanced Nursing* provides some restrictions as well as mandatory items: "A short informative title (max. 20 words) containing the major key words. The title should not contain abbreviations."

Writing a good research article title becomes more arduous for novice writers who use English as a foreign language (EFL) because of their disadvantages in language proficiency and the lack of the opportunities or materials to learn such norms (Slougui, 2018). Nursing English education in Japan predominantly focus on teaching oral communication within medical setting, medical terminology, and reading rather than teaching academic writing. This may have contributed to the lack of acquiring discipline and genre norms in writing English papers (Porter, 2018). Moreover, most domestic academic journals in nursing require authors to provide bilingual (English and Japanese) titles and abstracts; however, the journals rarely expect the native speaker to check for titles.

For example, the *Journal of Japan Society of Nursing Research* is a peer-reviewed journal publishing five volumes annually from Japan Society of Nursing Research; it provides a submission checklist for authors which states that the English abstract should receive an English check; however, nothing is mentioned on English titles. There are several reference books for writing nursing papers. These books provide valuable insights into writing and publishing research papers to international journals. However, they rarely, if ever, provide comprehensive instructions on title writing. One of the few exceptions is a *Writing for Publication in Nursing* (4th *ed.*) (2019) that has an entire page for title writing for a research paper. Some of the valuable information is as follows: titles should include keywords that reflect the key findings or the population of the study; subtitles may be used to provide information on valuable information such as methodology. Titles should avoid unnecessary or too general phrases such as "A Study of" (Oermann & Hays, 2019). The lack of instruction on writing good titles in English is well exemplified in the nursing research in Japan where a limited number of English articles have been published in high impact factor international journals.

According to Kameoka et al. (2016), while the number of research articles written in English has achieved a twofold increase in nine years between 2004 and 2013, most writers chose Japanese journals. In contrast, the top 75 authors who published more than ten papers in English chose high impact factor journals. The EFL authors' reluctance and hesitance to publish English articles to

high impact factor journals may not only impede young researchers' and educators' vocational developments but the entire nursing discipline might also be affected because significant findings or unique practices are never published internationally and thus remained unidentified. The identification of discipline-specific writings in titles as well as differences between high impact factor journals and domestic journals may be the starting point for the further development of writing skills for novice writers and educators in EFL.

2. Previous Studies

Research article title studies date back as early as that of Bottle (1970) who investigated title features in engineering. Recent titles studies in academic fields have predominantly focused their attentions on three research questions: identifying discipline-specific features (Wang & Bai, 2007; Cheng, Kuo, & Kuo, 2012; Afful, 2017), comparing differences between disciplines (sometimes called as a cross-disciplinary study; Afful & Akoto, 2010; Nagano, 2015), and exploring whether a specific title feature correlates with an impact factor (citation rate) (Jamali & Nikzad, 2011; Hudson, 2016; Milojević, 2017). For example, Wang and Bai (2007) found the dominant use of nominal groups (99%) in the discipline suggesting the existence of prescribed norms in the field of medicine. Cheng, Kuo and Kuo (2012) also found that compound titles, titles with two parts separated by colon, and nominal titles constituted more than 93 percent of the 796 research article titles in applied linguistics. As Nagano (2015) notes, there are certain preferences, or prescribed genre norms, in each discipline. Therefore, authors, especially novice writers, need to be acquainted with such discipline norms. However, as Nagano warns, novice writers should also be conversant with the variation of norms within a discipline and should thus determine which norm is most appropriate for their own title.

Regarding cross-disciplinary studies, Afful and Akito (2010) compared dissertation titles in two different disciplines: literature and chemistry. There were some differences in the use of preposition and punctuation with literature titles using more "from" (122) than that of chemistry (16) and chemistry titles using less punctuation (315) than that of literature (558). Some studies have extended their comparison to the titles of academic and non-academic materials. For example, Kaur, Lee, Tiew, and Sen (1997) have compared titles of research articles with textbooks. Similarly, Thelwall and Sud (2018) compared research article titles with Wikipedia page titles and found that Wikipedia page title rarely use synonyms of "analyzing." In regard to the impact studies of titles, Hudson (2016) found that the use of a colon has a negative impact on 16 disciplines whereas five disciplines show positive impacts. Milojević (2017) claimed that authors should be acquainted with the trends of titles. He found that title lengths as well as interrogatory and declarative titles show drastic changes in their practices. The use of all three features increased over time in most fields; only title length correlated positively with citation. Most importantly, even these trends show changes

over time. Thus, the authors should work in alignment with the change.

Previous studies suggest the need to investigate field-specific preferences as well as the variation in research titles particularly the most recent trends and norms. Somewhat surprisingly, research article title studies in nursing have received relatively little attention in this respect. Therefore, research should be performed to analyze the recent trends as well as variation in titles, especially in high impact factor journals and domestic journals to explore whether there are any differences between them. The study will be beneficial especially for EFL novice writers and educators who are less acquainted in writing article titles in English. Thus, the aim of this study was to investigate the differences in the title style, length, structure, and content according to the type of journals in nursing.

3. Material and Methods

This study used 500 titles of nursing research articles published between 2012 and 2019 to explore whether there are any differences according to the types of journals: 1) international high impact factor nursing journals (IJ), 2) domestic nursing journals published in Japanese (DJ), and 3) a domestic journal published in English (DE) (Table 1). Journals were chosen based on the following criteria: whether the journals address a wide range of subject areas and thus ensure that the norms are not restricted to relatively small subject areas, impact factors (IF), and target readers. The criteria correspond to the degree to which they are representative, their reputation, and their accessibility, which are three criteria proposed by Nwogu (1997) for selecting data.

Regarding the selection of the IJs, *International Journal of Nursing Studies* ranked as the highest of all the international nursing journals (IF = 3.570). Thus, it was assumed to be one of the representative nursing journals that publishes articles with a wide range of subject areas in nursing. *Journal of Advanced Nursing* also received a high IF score (2.376) among the international nursing journals targeted towards a wide variety of readers with different research interests. Of the two DJs, *Journal of Japan Society of Nursing Research* is published by Japan Society of Nursing Research—one of the largest nursing societies. The journal publishes five volumes every year and is assumed to be an appropriate material for the research. *Journal of Japan Academy of Nursing Science* is published annually by Japan Academy of Nursing Science, which is also one of the largest

Table 1. Names, impact factor, and number of research articles collected from journals.

	IF	n
International Journal of Nursing Studies	3.570	100
Journal of Advanced Nursing	2.376	100
Journal of Japan Society of Nursing Research	*ns*	100
Journal of Japan Academy of Nursing Science	*ns*	100
Japan Journal of Nursing Science	0.663	100

ns: not specified, IF: Impact factor scores by *Journal Citation Reports* 2019 (Clarivate Analytics, 2019).

and oldest nursing societies. Both journals require authors to submit articles in Japanese, however, titles and abstracts are expected to be in both Japanese and English. The *Japan Journal of Nursing* is also published by the Japan Academy of Nursing Science. The journal is the only domestic journal that requires research articles to be submitted in English and published by a large nursing society; thus, we determined that this journal represents the third type of journals, DE.

One hundred research article titles were collected from each journal by starting from the last issue of 2019 and proceeding back in time until 100 articles were reached (Table 1). Only original research articles were used disregarding reviews, short reports, recommendations, and editorials.

Titles were entered into an Excel spreadsheet to count the number of words, and coded for style, structure, and content. The classification of title structure and subtitle contents was done by the researcher. One-way analysis of variance (ANOVA) was used to analyze differences in title length, and the Chi-square test was used to compare the differences in style, structure, and content of the three types of journals.

4. Results

The titles were investigated for the following features based on the works of Nagano (2015) and Wang and Bai (2007):

- Title style (single title or multiple title)
- Title length (single title, multiple title, main title, subtitle)
- Main title structure: noun phrase, gerund, question form, statement, and beginning with a preposition
- Subtitle content (with or without methods)

These features were chosen because they are quantifiable and thus easily identified by novice EFL writers with a basic knowledge of linguistics.

4.1. Title Styles

Table 2 shows the numbers and percentage of title styles in three types of journals: 1) international high impact factor nursing journals (IJ), 2) domestic nursing journals published in Japanese (DJ), and 3) a domestic journal published in English (DE).

Table 2. Title styles of research articles in three types of journals.

	IJs		DJs		DE	
	n	*%*	*n*	*%*	*n*	*%*
Single title	43	21.5	147	73.5	65	65
Multiple title	157	78.5	53	26.5	45	45
Total	200	100	200	200	100	100

n: number.

A Chi-square test of independence was performed to examine the relationships between the type of journals and the title style. A significant interaction was found ($\chi^2(2) = 118$, $p < 0.001$). Residual analysis indicated that the IJs significantly preferred multiple titles ($p < 0.001$) more than the DJs and DE. The DJs and DE preferred single titles ($p < 0.001$) more than that of the IJs. The results indicated that high impact factor journals frequently use multiple titles more than domestic journals.

4.2. Title Lengths

Table 3 shows the descriptive statistics of title lengths, including the number of words in single and multiple titles, single titles, main titles, and subtitles in three types of journals IJs, DJs, and DE.

A one-way analysis of variance (ANOVA) was calculated on the differences of title lengths (single and multiple titles, single titles, multiple titles, main titles, and subtitles) among the three types of journals. The differences in the title lengths for the three journal types were statistically significant for the number of words in main titles ($F(2, 201) = 15.72$, $p < 0.001$). However, there was no statistical significance in the number of words in single and multiple titles, ($F(2, 499) = 3.01$, $p = 0.7$), single titles ($F(2, 293) = 0.471$, $p = 0.62$), or subtitles ($F(2, 201) = 2.21$, $p = 0.11$) among the groups. Residual analysis indicated that the mean number of words in main titles for IJs ($M = 11.4$, $SD = 23.7$) was significantly different from that of DJs ($M = 13$, $SD = 19.5$) and the DE ($M = 13.8$, $SD = 30.5$). However, the mean of DJs did not significantly differ from the mean of the DE. These results indicate that the high impact factor titles use fewer words in the main titles while domestic journals' main titles (the DJs and DE) tend to adopt lengthy wordings in the main titles.

4.3. Main Title Structure

In this section, the main titles were categorized into five groups based on title structures: 1) noun phrase; 2) gerund; 3) question form; 4) statement, or a declarative title; and 5) preposition at the beginning to explore whether there are differences in main title structures according to the types of journals. While main titles of the IJs show diversity in the use of structures (20%), only 4% of the DJs main titles and 8% of the DE main titles use structures other than noun phrases. (see the Table 4).

Table 3. Title lengths of research articles.

	IJs		DJs		DE	
	M	*SD*	*M*	*SD*	*M*	*SD*
Number of words in single and multiple titles	16.7	21.3	16.3	27.0	16.5	29.6
Number of words in single titles	14.4	0.51	15	0.38	15	0.58
Number of words in multiple titles	17.3	19.8	20.1	26.1	19.3	26.4
Number of words in main titles	11.4	23.7	13	19.5	13.8	30.5
Number of words in subtitles	5.9	12.5	7.1	10.7	5.6	11.2

M: Mean score, SD: Standard deviation.

Table 4. Number and percentage of types of structures used in main titles.

Type of structures in main titles	IJs		DJs		DE	
	n	%	n	%	n	%
Noun phrase	161	80	193	96	92	92
Gerund	21	10	7	4	5	5
Question form	8	4	0	0	0	0
Statement	7	4	0	0	3	3
Preposition	3	2	0	0	0	0

n: number.

We conducted a Chi-square test and the results revealed significant differences among conditions ($\chi^2(8) = 34.1$, $p < 0.001$). Residual analysis revealed that the IJs significantly preferred the gerund ($p < 0.001$), question form ($p < 0.001$), and preposition ($p < 0.03$) versus DJs and DE. The DJs significantly preferred noun phrase ($p < 0.001$) and significantly did not use gerund ($p = 0.02$), question form ($p = 0.02$), and statement ($p < 0.001$). The results indicate that the high impact factor journal articles have various title structures while domestic journals published in Japanese predominantly used noun phrase titles.

4.4. Subtitle Contents

Regarding subtitle contents, only 10% of the DJs titles and 30% of the DE titles included a description of methods in subtitles while 67% of the IJs titles described methods in the subtitles (see the Table 5).

Regarding the number of subtitles with methods, a Chi-square test of independence was calculated comparing the number of methods in subtitles in the IJs, DJs, and DE. A significant interaction was found ($\chi^2(2) = 47.1$, $p < 0.001$). The IJs significantly preferred ($p < 0.001$) subtitles with methods more than the DJs and DE. The DJs significantly preferred ($p < 0.001$) subtitles without methods more than the IJs and DE. The results indicate high impact factor research articles frequently use subtitles that describe methods while the articles published in Japanese commonly adopt a subtitle that does not describe methods.

5. Discussion

The purpose of the study was to identify the characteristics of nursing article titles and to investigate if there are any significant differences between the three types of journals: the IJs, DJs, and DE.

The first aim of the research was to identify the characteristics of nursing journals titles. Some of our findings agree with preceding title studies in medicine. For example, the average title length range (14 - 20 words) of the nursing papers moderately corresponds with that of Nagano (2015)'s in medicine (10 - 18 words). The proportion of the use of noun phrase (89%) also confirms Wang and Bai's (2007) and Nagano's (2015) findings (99% and more than 90% respectively). The variation found in the use of subtitles in nursing papers (the IJs; 79%; the DJs

Table 5. Number and percentage of titles with subtitles with a description of methods.

Subtitle contents	IJs (158)		DJs (54)		DE (45)	
	n	*%*	*n*	*%*	*n*	*%*
With methods	133	67	19	10	30	30
Without methods	25	13	45	23	15	15

n: number.

27%; the DE 45%, respectively) is consistent with previous findings. For example, Nagano (2015) found that more than 90% of the titles of *The Lancet* and *British Medical Journal* used multiple unit titles while 100% of the titles of T*he New England Journal of Medicine* and 48% the Journal of the American Medical Association used single title among the four general medical journals. This shows the danger of generalizing the discipline-specific norms. Nagano's (2015) claim is justified since numerous nursing journals show discrepancies in submission guidelines regarding titles. For example, regarding the title length, while two high impact factor journals set limitations on the number of words (*Journal of Advanced Nursing* (20 words) and *the International Nursing Review* (12 words), supporting Nagano's claim.

The second purpose of the study was to explore if there are any differences between the three types of journals, international high impact factor journals, domestic journals published in Japanese and a domestic journal published in English. The results show significant differences with the domestic journals in four features: title style, main title length, main title structure, and subtitle contents. The results indicate that high impact factor journals prefer multiple titles more than single titles; use fewer words in the main title; adopt various titles structures including the gerund, question form, statement, and preposition; and include methods in their subtitles. The findings are useful especially for EFL novice writers and teachers who are unacquainted with such tendencies.

The results indicate the need to draw more attention to the writing of titles which has received little attention in the past. In particular, EFL teachers should advise their students to refer to the submission guidelines and encourage them to analyze the features of the target journal's titles since there are variations. Moreover, EFL teachers and writers should acknowledge that high impact factor journals have certain preferences in title writings that are different from domestic journal titles. Paying more attention to title writing may contribute to an increase in EFL writers publishing papers in English in high impact factor journals in the future.

While the results are indicative and informative, these results cannot be generalized because of the limited sample sizes. Future studies should expand and update the number of journals represented. However, they can be taken as a point of departure for more research since this field lacks studies in the EFL context.

Acknowledgements

Conflicts of Interest

The author declares no conflicts of interests regarding the publication of this paper.

References

Afful, J. B. A. (2017). A Linguistic Analysis of Conference Titles in Applied Linguistics. *International Journal of Foreign Language Teaching and Research, 5,* 11-25.

Afful, J. B. A., & Akoto, O. Y. (2010). Cross-Disciplinary Study of Dissertation Titles: The Case of a University in Ghana. *English for Specific Purposes, 36,* 4-11.

Bottle, R. T. (1970). The Information Content of Titles in Engineering Literature. *IEEE Transactions on Engineering Writing and Speech, 13,* 41-45. https://doi.org/10.1109/TEWS.1970.4322437

Cheng, S. W., Kuo, C. W., & Kuo, C. H. (2012). Research Article Titles in Applied Linguistics. *Journal of Academic Language and Learning, 6,* A1-A14.

Clarivate Analytics (2019). *Journal Citation Reports—Full Journal List.* Web of Science Group. https://clarivate.com/webofsciencegroup/wp-content/uploads/sites/2/dlm_uploads/2019/08/JCR_Full_Journal_list140619.pdf

Hudson, J. (2016). An Analysis of the Titles of Papers Submitted to the UK REF in 2014: Authors, Disciplines, and Stylistic Details. *Scientometrics, 109,* 871-889. https://doi.org/10.1007/s11192-016-2081-4

Jamali, H. R., & Nikzad, M. (2011). Article Title Type and Its Relation with the Number of Downloads and Citations. *Scientometrics, 88,* 653-661. https://doi.org/10.1007/s11192-011-0412-z

Kameoka, J., Iwazaki, J., Takahashi, F., Sato, F., Sato, K., Taguchi, A. Nakamura, Y., Ishii, S., & Kagaya, Y. (2016). Number of Papers Published in English from the Nursing Departments of 42 National Universities in Japan in the Past Ten Years. *Nurse Education Today, 38,* 138-143. https://doi.org/10.1016/j.nedt.2015.11.028

Kaur, K., Lee, L., Tiew, W. S., & Sen, B. K. (1997). Titles of LIS Textbooks and Research Articles: A Bibliometric Study. *Malaysian Journal of Library & Information Science, 2,* 1-13.

Milojević, S. (2017). The Length and Semantic Structure of Article Titles—Evolving Disciplinary Practices and Correlations with Impact. *Frontiers in Research Metrics and Analytics, 2,* 2. https://doi.org/10.3389/frma.2017.00002

Nagano, R. L. (2015). Research Article Titles and Disciplinary Conventions: A Corpus Study of Eight Disciplines. *Journal of Academic Writing, 5,* 133-144.

Nwogu, K. N. (1997). The Medical Research Paper: Structure and Functions. *English for Specific Purposes, 16,* 119-138. https://doi.org/10.1016/S0889-4906(97)85388-4

Oermann, M. H., & Hays, J. C. (2019). *Writing for Publication in Nursing* (4th ed.). New York, NY: Springer. https://doi.org/10.1891/9780826147219

Porter, M. (2018). An Overview of Nursing English Curricula at Private Universities in Japan. *Nursing English Nexus, 2,* 22-30.

Slougui, D. (2018). Dissertation Titles in EFL and UK-Based Contexts: How Much Do

They Differ? *ASp. La Revue du Geras, No. 74,* 135-161.
https://doi.org/10.4000/asp.5466

Thelwall, M., & Sud, P. (2018). A Comparison of Title Words for Journal Articles and Wikipedia Pages: Coverage and Stylistic Differences? *El Profesional de la Información (EPI), 27,* 49-64. https://doi.org/10.3145/epi.2018.ene.05

Wang, Y., & Bai, Y. (2007). A Corpus-Based Syntactic Study of Medical Research Article Titles. *System, 35,* 388-399. https://doi.org/10.1016/j.system.2007.01.005