

Comparing the Research Article Abstracts of Medicine and Nursing

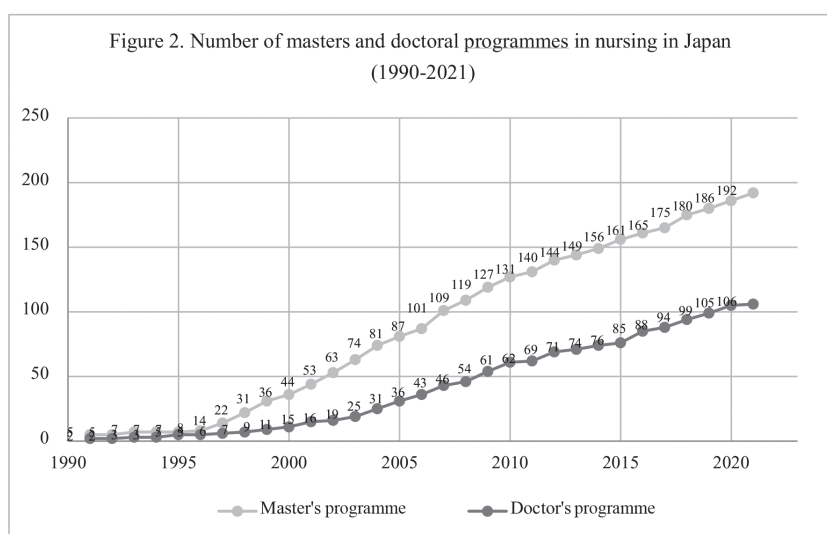
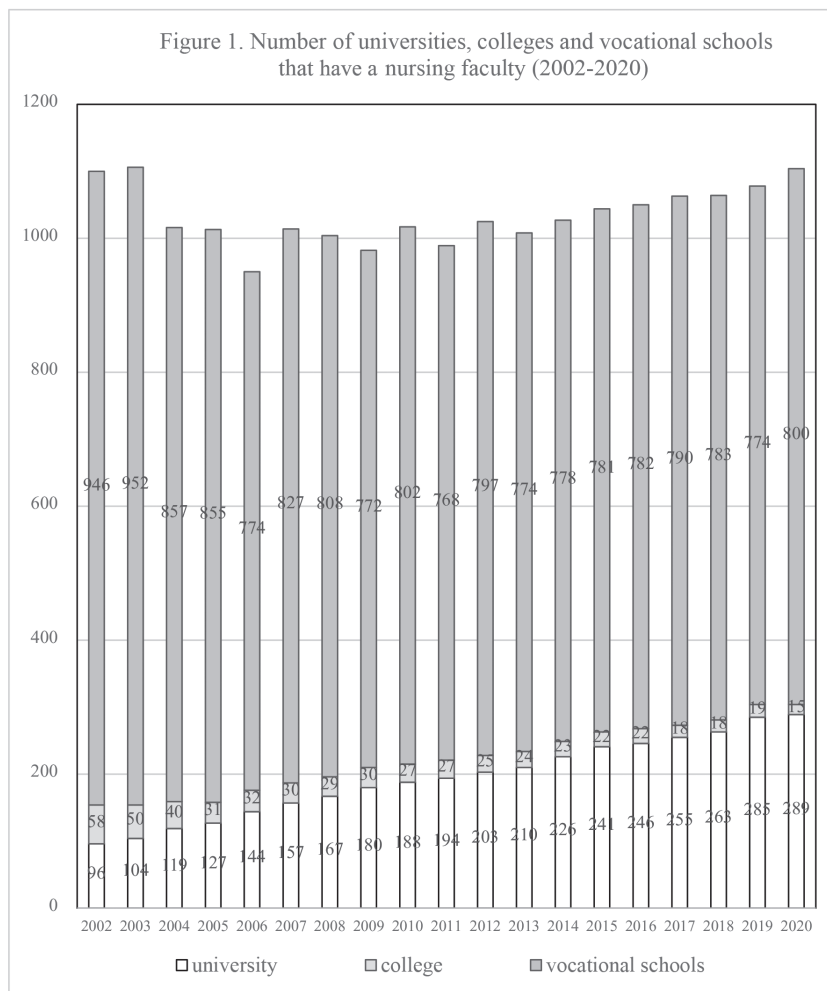
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Abstract

We examined the unique characteristics of research abstracts in medicine and nursing by reviewing 200 abstracts from four distinguished journals. The findings revealed significant differences not only across academic fields but also within the same discipline. These insights are particularly beneficial for English language learners and their instructors, especially those drafting their initial academic articles in English in the field of nursing.

1. Introduction

The number of universities with nursing faculties in Japan has seen a remarkable increase over the past two decades. As illustrated in Figure 1, under 100 universities provided such courses in 2002. By 2020, this number had rose rapidly to approximately 300. In accordance with the sharp rise of the number of the undergraduate courses, the number of the postgraduate courses has also surged. Over the 20 years up to 2020, the number of master's programs in nursing in Japan expanded by six times, while doctoral programs grew tenfold (Figure 2). This growth results from an increasing demand for professionals possessing advanced nursing knowledge. This demand rise parallels healthcare advancements and an aging society's nursing needs, contrasting with the past where vocational schools delivered most of the nursing education.



Despite a notable rise in the number of nursing faculty positions at universities and postgraduate schools, research publication in English within Japan's nursing field is reportedly struggling. For instance, Kameoka et al. (2016) revealed, after examining 2,114 papers from 42 Japanese universities over a 10-year span from 2004 to 2013, that there was a doubling of published research articles. However, it was observed that over 85% of all faculty members had not published a single paper in English over the past decade. Specifically, fewer than 10% of all lecturers had managed to publish one article, while less than 6% had published two or more. On the contrary, 75 lecturers had produced more than ten articles over 10 years. Of those, nine lecturers (representing 0.4%) had published over 10 papers as lead authors within that same timeframe. Additionally, the report found that the vast majority of these nine lecturers had published in highly respected international journals.

Identifying the reasons why Japanese researchers rarely submit papers to high-impact journals may not be straightforward, but the English language instruction in universities and graduate schools could play a role. This is suggested by a 2018 study by Porter that examined the syllabi of 859 English programs for undergraduate nursing students across 156 universities. The study revealed that the majority of these programs were offered to freshers and sophomores, leaving only about 10% of courses available to juniors and seniors. Furthermore, the course content was notably restricted, with just 14% related to medical English, most courses being titled 'English Communication' or 'Basic English'. Even the scant classes focusing on medical English were designed to enhance patient-nurse interaction and reading comprehension, with no emphasis on English writing skills. However, an abstract writing seems suitable for beginners learning English writing due to their concision and precision. The subsequent section summarizes the existing research on English article abstracts.

Numerous studies have analyzed the attributes of academic paper abstracts. Specifically, they have explored potential variances based on the author's English language proficiency level - differentiating between native and non-native speakers. They have also studied potential trends within various academic disciplines, including a comparison of linguistic features in hard science and soft science abstracts.

Çakır (2016) presents a study assessing 240 abstracts across six academic fields: sociology, psychology, linguistics, physics, chemistry, and biology. The research aimed to identify differences in the usage of stance adverbs between native and non-native English

speakers in various academic domains. The findings revealed that abstracts written by native English speakers contained more stance adverbs than those by non-native speakers. Additionally, the comparative frequency analysis observed a greater usage of stance adverbs in abstracts from soft sciences than in the hard sciences.

Haque and Hoque (2015) conducted a comparison of 240 agricultural paper abstracts published both nationally and internationally. They concluded that these abstracts held a higher overall quality than those from foreign professional papers. However, they rated the conclusions of national papers and the methodology of international ones as unsatisfactory. They urged for a focus on the writing style corresponding to the type of paper being submitted.

Previous research has examined article abstracts in various topics and fields, but nursing academic article abstracts have been largely overlooked. This study, therefore, aims to identify characteristics of abstracts from high-impact academic nursing articles by comparing them to those in the closely related field of medicine.

2. Methodology

This study examined 200 abstracts from research articles in the fields of medicine and nursing. These articles, which were all published between 2017 and 2021, have the highest impact factors in their respective disciplines, as indicated in Table 1.

Table 1. Names, impact factors, and number of abstracts collected from journals

Discipline	Medicine		Nursing	
Journal	<i>Journal A</i>	<i>Journal B</i>	<i>Journal C</i>	<i>Journal D</i>
Impact Factor of 2023	168.90	74.69	6.61	3.05
No. of Abstracts	50	50	50	50

Journal Citation Reports 2022 (Clarivate Analytics, 2022)

The journals were selected with references to Nwogu's (1997) three criteria for selecting data: degree of representativeness, reputation, and accessibility. In particular, the journal had to cover a wide range of disciplines, and the norms could not be limited to a relatively narrow field, impact factor, or readership. Additionally only original research papers were included excluding, reviews, short reports, recommendations, and editorials.

This study examined structural and linguistic discrepancies, abstracts from medical and nursing journals. It assessed section frequencies sentence length, the number of sentences per abstract and sections were examined. We also compared the tense usage in result sections of the abstracts from two journals, A and C.

Abstracts from the four journals were entered into an Excel spreadsheet and word and sentence counts were taken. The researcher also coded the tenses used in the results section of the abstracts from the two journals. A one-way analysis of variance (ANOVA) with Holm's multiple comparisons was used to analyse differences in the number of sentences and words in the four journal abstracts and the results sections in the research article abstracts of the two journals, A and C.

3. Results

Table 2 displays the distribution of five sections - Introduction, Methods, Results, Discussion, and Others - across four different journals. Both medical journals included all four primary sections. However, journal C displayed more structural flexibility in crafting its article abstracts.

Table 2. The number of articles that have the sections in the four journals

Field	Journal	Sections				
		Introduction	Methods	Results	Discussion	Others
Medicine	A	50	50	50	50	50
	B	50	50	50	0	50
Nursing	C	47	42	48	0	
	D	50	50	50	0	50

Table 3 shows the average number of words and sentences per abstract in the four journals.

Table 3. The average number of sentences and words per abstract in the four journals

Field	Journal	Average No. of sentences		Average No. of words	
		M	SD	M	SD
Medicine	A	20.140	0.944	455.420	9.676
	B	28.400	0.944	340.660	9.676
Nursing	C	22.140	0.944	335.460	9.676
	D	16.400	0.944	268.000	9.676

M: mean difference; SD: standard error of difference

3.1 Comparison of the number of sentences per abstract

The average number of sentences per abstract was analyzed by ANOVA followed by Holm's multiple comparison (Tables 4 and 5).

Table 4. Average number of sentences per abstract according to ANOVA

Journal	M	SD	95% lower band	95% upper band	<i>t value</i>	<i>df</i>	<i>P value</i>
<i>Journal A</i>	20.140	0.944	18.278	22.002	21.326	196	.000
<i>Journal B</i>	28.400	0.944	26.538	30.262	30.073	196	.000
<i>Journal C</i>	22.140	0.944	20.278	24.002	23.444	196	.000
<i>Journal D</i>	16.400	0.944	14.538	18.262	17.366	196	.000

M: mean difference; SD: standard error of difference; *df*: degree of freedom; *ns*: not specified

Table 5. Results of Holm's multiple comparison of the average number of sentences per abstract

Comparison	M	SD	<i>t</i>	<i>df</i>	<i>p value</i>	Adjusted <i>p value</i>	Significance
<i>Journal A - Journal B</i>	-8.260	1.336	-6.185	196	.000	.000	**
<i>Journal A - Journal C</i>	-2.000	1.336	-1.498	196	.136	<i>ns</i>	
<i>Journal A - Journal D</i>	3.740	1.336	2.800	196	.006	.011	*
<i>Journal B - Journal C</i>	6.260	1.336	4.687	196	.000	.000	**
<i>Journal B - Journal D</i>	12.000	1.336	8.985	196	.000	.000	**
<i>Journal C - Journal D</i>	5.740	1.336	4.298	196	.000	.000	**

M: mean difference; SD: standard error of difference; *df*: degree of freedom; *ns*: not specified; ** $p < .01$, * $p < .05$

Significant group differences were observed for the number of words in each section ($F_{3, 196} = 28.252, p = 0.000$). Residual analysis indicated that the mean number of words per section differed significantly between the *journal A* ($M = 10.14, SD = 0.94$) and the *journal B* ($M = 28.4, SD = 0.94$) and the *journal D* ($M = 16.4, SD = 0.94$), between the *journal B* and the *journal C* ($M = 22.14, SD = 0.94$) and the *Journal D* and between the *journal C* and the *journal D*. No differences were observed between the *journal A* and the *journal C*.

3. 2 Comparison of the number of words per abstract

The average number of words per abstract was analyzed by ANOVA followed by Holm's multiple comparison (Tables 6 and 7).

Table 6. Average number of words per abstract according to ANOVA

Journal	M	SD	95% lower band	95% upper band	<i>t value</i>	<i>df</i>	<i>P value</i>
<i>Journal A</i>	455.420	9.676	436.338	474.502	47.069	196	.000
<i>Journal B</i>	340.660	9.676	321.578	359.742	35.208	196	.000
<i>Journal C</i>	335.460	9.676	316.378	354.542	34.671	196	.000
<i>Journal D</i>	268.000	9.676	248.918	287.082	27.699	196	.000

M: mean difference; SD: standard error of difference; *df*: degree of freedom; *ns*: not specified

Table 7. Results of Holm's multiple comparison of the average number of words per abstract

Comparison	M	SD	<i>t</i>	<i>df</i>	<i>p value</i>	Adjusted <i>p value</i>	Significance
<i>Journal A - Journal B</i>	114.760	13.683	8.387	196	.000	.000	**
<i>Journal A - Journal C</i>	119.960	13.683	8.767	196	.000	.000	**
<i>Journal A - Journal D</i>	187.420	13.683	13.697	196	.000	.000	**
<i>Journal B - Journal C</i>	5.200	13.683	0.380	196	.704	<i>ns</i>	
<i>Journal B - Journal D</i>	72.660	13.683	5.310	196	.000	.000	**
<i>Journal C - Journal D</i>	67.460	13.683	4.930	196	.000	.000	**

M: mean difference; SD: standard error of difference; *df*: degree of freedom; *ns*: not specified; ** $p < .01$, * $p < .05$

Significant group differences were observed for the number of words in each section ($F_{3, 196} = 28.252, p = 0.000$). Residual analysis indicated that the mean number of words per section differed significantly between the *journal A* ($M = 455.42, SD = 9.67$) and the *journal B* ($M = 340.66, SD = 9.67$), the *journal C* ($M = 335.46, SD = 9.67$), and the *journal D* ($M = 268, SD = 9.67$), between the *journal B* and the *journal D*, and the *journal C* and the *journal D*. No differences were observed between the *journal B* and the *journal C*.

3.3 Comparison of the number of sentences per results section

The average number of sentences per abstract was analyzed by ANOVA followed by Holm's multiple comparison (Tables 8 and 9).

Table 8. Average number of sentences per results section according to ANOVA

Journal	M	SD	95% lower band	95% upper band	<i>t value</i>	<i>df</i>	<i>P value</i>
<i>Journal A</i>	6.896	0.301	6.299	7.493	22.938	94	.000
<i>Journal C</i>	4.188	0.301	3.591	4.784	13.929	94	.000

M: mean difference; SD: standard error of difference; *df*: degree of freedom; *ns*: not specified

Table 9. Results of Holm's multiple comparison of the average number of sentences per results section

Comparison	M	SD	<i>t</i>	<i>df</i>	<i>p value</i>	Adjusted <i>p value</i>	Significance
<i>Journal A</i> - <i>Journal C</i>	2.708	0.425	6.370	94	.000	.000	**

M: mean difference; SD: standard error of difference; *df*: degree of freedom; *ns*: not specified; ** $p < .01$, * $p < .05$

Significant group differences were observed for the number of words in each section ($F_{1, 94} = 40.57$, $p = 0.000$). Residual analysis indicated that the mean number of words per section differed significantly between the *journal A* ($M = 6.89$, $SD = 0.3$) and the *journal C* ($M = 4.18$, $SD = 0.1$).

3. 4 Comparison of the number of words per results section

The number of words per results section was analyzed by ANOVA followed by Holm's multiple comparison (Tables 10 and 11).

Table 10. Average number of words per results section according to ANOVA

Journal	M	SD	95% lower band	95% upper band	<i>t value</i>	<i>df</i>	<i>P value</i>
<i>Journal A</i>	190.250	7.440	175.478	205.022	25.573	94	.000
<i>Journal C</i>	99.208	7.440	84.437	113.980	13.335	94	.000

M: mean difference; SD: standard error of difference; *df*: degree of freedom; *ns*: not specified

Table 11. Results of Holm's multiple comparison of the average number of words per results section

Comparison	M	SD	<i>t</i>	<i>df</i>	<i>p value</i>	Adjusted <i>p value</i>	Significance
<i>Journal A</i> - <i>Journal C</i>	91.042	10.521	8.653	94	.000	.000	**

M: mean difference; SD: standard error of difference; *df*: degree of freedom; *ns*: not specified; ** $p < .01$, * $p < .05$

Significant group differences were observed for the number of words in each section

($F_{1,94} = 64.57, p = 0.000$). Residual analysis indicated that the mean number of words per section differed significantly between the *journal A* ($M = 190.25, SD = 7.44$) and the *Journal C* ($M = 99.2, SD = 7.44$).

3.5 Comparison of the number of tense verbs in results section

Table 12 shows the number of tense verbs in results section in two journals.

Table 12. The number of tense verbs in results section in two journals

Field	Journal	Present tense		Past tense		Present progressive		Present perfect		Past perfect	
		N	F	N	F	N	F	N	F	N	F
Medicine	A	162	51	122	38	20	6	9	3	5	1
Nursing	C	95	56	54	32	9	5	10	6	0	0

N: Number, F: Frequency

Some of the example sentences of the most frequent tenses are as follows:

Present tense:

Participants **are** most confident in their learning of clinical safety skills. (journal C, 42)

Past tense:

The response rate **was** 39.9% for midwives. (journal C, 24)

All sixty participants randomized **completed** the trial. (journal C, 34)

Present Progressive:

The themes that emerged from the interviews. (journal C, 185)

Present perfect:

Furthermore, assessment of missed nursing care has been mainly based on samesource methods. (journal C, 80)

Past perfect:

Most COVID-19 survivors had a good physical and functional recovery during 1-year follow-up, and **had returned** to their original work and life. (journal A, 48)

4. Discussion and Conclusion

The study aimed to pinpoint the linguistic features of medical and nursing research paper abstracts, studying four different journals for any substantial discrepancies. Our findings are generally aligned with prior research (Wang & Bai, 2007). Factors like the count of words and sentences demonstrated significant differences between the two disciplines. These results provide informative insights but cannot be generalised due to the study's small sample size. Future investigations should broaden the range and update the selection of journals. Nonetheless, considering the lack of studies in the EFL context, these results are a valuable starting point for further exploration.

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