



# 'From Hygiene to Health' in Modern Korea: A Narrative Review

*Jae-Hak Do*<sup>1</sup>, *\*Sam-Hun Park*<sup>2</sup>

1. Department of Korean Language and Literature, Kyonggi University, Suwon, Korea
2. Asia Contents Institute, Konkuk University, Seoul, Korea

\*Corresponding Author: Email: syamony@konkuk.ac.kr

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## Abstract

**Background:** Previous research dealt with the concept of 'hygiene' in Korea, mainly regarding the modern transition summarized as 'from regimen to hygiene', has been based on qualitative research methods. However, because modern Korean language material had been constructed as a corpus with a considerable size, a quantitative approach based on language material has become possible. Through this, the provision of a new implication point can be received.

**Methods:** *The Corpus of Modern Korean Magazines*, which is a morph-tagged corpus constructed based on 20 kinds of original texts of modern magazines in Korea, was utilized. In this corpus, a list of the co-occurred words of 'wisaeng [hygiene], yangsaegang [regimen], geongang [health], and cheonggyeol [cleanliness]', importantly related to the concept of 'modern hygiene' and the strength of co-occurrence that was calculated with the *t*-score, were extracted and analyzed.

**Results:** Through a quantitative analysis of the corpus base, it was confirmed that the number of the co-occurred words of 'wisaeng [hygiene]' decreases and the strength of the co-occurrence gets low. In contrast, the number of the co-occurred words of 'geongang [health]' increases and the strength of the co-occurred words becomes heightened.

**Conclusion:** Regarding the change after 'from regimen to hygiene', an analysis based on the corpus has been attempted. Through the quantitative data, the conversion into 'from hygiene to health' was confirmed. Research with such a method proves the need and the feasibility of quantitative research that supplements the previous qualitative analysis.

**Keywords:** Modern; Hygiene; Health; Public health; Regulation; Corpus

## Introduction

'Wisaeng [hygiene]' as a modern concept closely related to public health is not a guideline for the well-being and long life of an individual, but a management system that operates in overall society. Originally, it is a historical product of the modern countries in the West, and with particular regard to the medical police who had appeared during the

era of mercantilism in the 18<sup>th</sup> century, it is evaluated as a pioneering concept of modern hygiene (1). While industrialization had proceeded in earnest, European society had gradually established a systematic framework for the modern country. At this time, public health also became an important ruling technology and management means (2). In



addition, these modern changes which established the maintenance of hygiene and cleanliness of an individual, have become indispensable habits (3). The concept of 'hygiene' as a ruling means of a modern country was accommodated as '*eisei*' in Japan in the middle and latter part of the 19<sup>th</sup> century. Afterward, it was transmitted as '*wèisheng*' in China and as '*wisaeng*' in Korea, and the process of systematization subsequently followed (4). It is well known that the traditional concept and knowledge regarding health in East Asia was converted into the modern concept and knowledge of the West in the initial phase of the Meiji period (5). The previous research mainly discussed the establishment of sanitary facilities and medical systems in the process of responding to contagious diseases such as cholera and tuberculosis (6). Also, they paid attention to the installation and management processes of the modern sanitary administration that had taken place in each country (7). In Korea, the installation of a modern sanitary administration in the latter half of the 19<sup>th</sup> century has been evaluated as the origin of the modern medical system (8).

The previous research, regarding the process of the establishment of the concept '*wisaeng* [hygiene]' in Korea, has mostly dealt with the modern transition that gets compressed as 'from regimen to hygiene' and is based mainly on qualitative research methods. Not being the regimen as a pre-modern lifestyle, the process and the context regarding hygiene as a modern lifestyle that had been socialized, institutionalized, and standardized is emphasized (9). Meanwhile, a discussion that specifically compared how the recognition of modern urban hygiene in the elite groups of both countries of Korea and Japan has also taken place (10). Furthermore, the modern 'hygiene' concept that was established in modern Japan was introduced from Busan in the latter half of the 19<sup>th</sup> century and has also been discussed (11).

In this research, such performance shall be the background. Except, it is intended to discuss 'after' the establishment of the concept of modern hygiene. Although previous research has examined changes in the sanitary administration system or the process of the maintenance of the medical

system, etc. under the colonial rule of the Japanese Empire, the aspect of changes in the concept domain that is related to hygiene is yet to be evaluated. As a result, since this part is a domain that has not been dealt with by previous research, this study is of particular value. Especially, by being based on data extracted from large-sized language materials, it gets differentiated methodologically regarding the point that it quantitatively examines how the concept of 'modern hygiene' in Korea has changed.

## Methods

This research adopted the corpus linguistic approach that extracts the co-occurred words and the strength of co-occurrence from a large-sized language resource. Currently, a new trend in humanities research, 'digital humanities', which utilizes digital resources and technology, has been receiving attention. This research will be used as a specific illustration that explores the modern conversion of East Asia through the digital humanities method.

The material analyzed was extracted from *The Corpus of Modern Korean Magazines*, which was constructed at the Hallym Academy of Science, Hallym University (12). This corpus is a morph-tagged corpus with a size of around 11.13 million words, based on the original texts of 13 types of magazines that were published before 1910 and the original texts of seven types of magazines that were published after 1920.

The fact that a magazine had been absent in the 1910s can be seen as a limitation in terms of the material. However, after the extortion of national sovereignty in the year 1910, with the colonial rule of Japan starting in earnest, the social implications of the rapid contraction of the publishing industry can be taken into account. Although the magazines had been published in the 1910s, those personalities and the ranges had been limited (13). It was only after the 1919 Independence Movement that the Governor-General permitted the freedom of publication in a limited way through a change

of governance called “cultural rule”, and the invigoration of the magazine publication occurred after the 1920s (14). Modern magazines, in addition to newspapers, were comprehensive media that were published for diverse purposes including literature, enlightenment, information delivery, international situation understanding, etc. Their value was great given that they were the language materials that reflected the social and cultural phenomena changes of the time (15).

The co-occurred words, so-called “related words”, extracted from a corpus refer to the words that appear together inside the range that is specifically restricted with a certain target word (16). By analyzing the co-occurred words that were used together with the target word and that have conceptually or semantically relationships with each other, the semantic characteristics of the target word can be understood. Also, if a large-sized corpus is utilized, the strength of co-occurrence can be calculated based on the frequency of actual use, together with certain target words, and the co-occurred words. With the numerical value of this strength of co-occurrence, it can be objectively compared as to whether the relevance between the target word and the co-occurred words is large or small. The t-score was used to measure the strength of co-occurrence in the corpus.

In this research, by designating every 10 words to the left and right of the target words of ‘*wisaeng* [hygiene], *yangsaeng* [regimen], *geongang* [health], *cheonggyeol* [cleanliness]’ as the search range, a co-occurred words material was extracted and the strength of co-occurrence was calculated. The WordSmith Tools (ver.6.0), provided by Lexical Analysis Software Ltd and frequently used for the analysis of language material, was utilized in this study.

## Results

The co-occurred words and the strengths of the co-occurrences of ‘*wisaeng* [hygiene], *yangsaeng* [regimen], *geongang* [health], and *cheonggyeol* [cleanliness]’ before 1910 and after 1920 were specifically compared and analyzed. Through this, any changes and special features between the two times were confirmed. The co-occurred word list for each target word excluded any stop words. The t-score was limited to any item more than 1.99 and was discretionarily set.

It must be considered that the t-score shows only the relative degree. The numerical value, which is discussed as the threshold value of the so-called “t-test”, is a meaningful thing only regarding the normal distribution. In the standard normal distribution with infinite degrees of freedom, if the degree of reliability is 95%, the threshold value of the t-test is presented as 1.96 (17). However, as language materials are non-normally distributed data, a t-score of 2.00 cannot be confirmed as significant or relevant at 95% or higher. It can merely be concluded that the relevance is larger than a result of 1.50 or 1.80. (18).

The co-occurred words are analyzed to distinguish them into semantic categories. Classifying a semantic category related to a certain target word is not an absolute thing and it cannot include all of the upper-ranking co-occurred words. However, this method does take into account the point that the characteristics of each target word can be broken down through the classification of the semantic category.

Firstly, through a method for analyzing the co-occurred word materials, the synonyms, of which the meanings are similar but the word forms are different, were confirmed. Table 1 shows that the native words and the Sino-Korean words are synonyms with each other.

**Table 1:** Several synonymies

| <i>Meaning</i>                  | <i>Word</i>                   |
|---------------------------------|-------------------------------|
| A first person singular pronoun | na, a, o                      |
| Human                           | in, inlyu, salam              |
| Body                            | mom, sin, che, sinche, yugche |

Since conceptually, the 1<sup>st</sup> person singular pronoun could be included in humans, the human as a subject of hygiene and health behavior, and the body as an object, gets generally classified. This suggests that the aspect of the mixture, in which many words that had similar meanings performed a synonymic rivalry, reflects the establishment of the modern ego and the process of clearly capturing the subject and the object of the modern act.

*An analysis of data for 'wisaeng [hygiene]'*

Regarding the co-occurred word of 'wisaeng [hygiene]' before 1910, the number is very much a lot and diverse. The t-score was mostly on the high side (Table 2). This gives circumstantial evidence that 'wisaeng [hygiene]' has considerably high semantic cohesion and has been used in diverse contexts with many words.

**Table 2:** List of co-occurred words and statistical information for 'wisaeng' before 1910

| Rank | Word†                  | t-score | Freq. | Rank | Word                      | t-score | Freq. |
|------|------------------------|---------|-------|------|---------------------------|---------|-------|
| 1    | in [human]             | 5.32    | 42    | 28   | Lee Dong-Cho††            | 2.23    | 5     |
| 2    | juui [caution]         | 4.56    | 29    | 29   | jugeo [dwelling]          | 2.23    | 8     |
| 3    | o [I]                  | 4.12    | 23    | 30   | deungsa [etc.]            | 2.23    | 5     |
| 4    | pilyo [need]           | 4.08    | 23    | 31   | jeogui [moderation]       | 2.23    | 5     |
| 5    | hoewon [member]        | 3.57    | 15    | 32   | gyeonje [economy]         | 2.21    | 7     |
| 6    | gita [other]           | 3.28    | 11    | 33   | undong [exercise]         | 2.21    | 5     |
| 7    | gwangye [relation]     | 3.27    | 15    | 34   | gyeolgwa [result]         | 2.19    | 5     |
| 8    | gonggi [air]           | 3.13    | 10    | 35   | bangbeob [method]         | 2.18    | 11    |
| 9    | gyoyug [education]     | 3.07    | 15    | 36   | sasang [ideology]         | 2.18    | 5     |
| 10   | yeogsul [translation]  | 3.00    | 12    | 37   | agug [my country]         | 2.16    | 6     |
| 11   | geongang [health]      | 2.82    | 9     | 38   | cheo [place]              | 2.16    | 5     |
| 12   | hae [harm]             | 2.81    | 9     | 39   | inmin [the people]        | 2.15    | 5     |
| 13   | baldal [development]   | 2.78    | 8     | 40   | gojo [high and barren]    | 2.00    | 4     |
| 14   | gugmin [people]        | 2.75    | 9     | 41   | eumsigmul [food]          | 2.00    | 7     |
| 15   | uibog [clothes]        | 2.64    | 15    | 42   | jidae [immense]           | 2.00    | 5     |
| 16   | sinche [body]          | 2.62    | 11    | 43   | mundab [Q&A]              | 2.00    | 4     |
| 17   | saenghwal [living]     | 2.60    | 7     | 44   | saengli [physiology]      | 2.00    | 4     |
| 18   | gugga [nation]         | 2.49    | 8     | 45   | yebang [prevention]       | 2.00    | 4     |
| 19   | Kim Bong-Kwan††        | 2.45    | 7     | 46   | cheonggyeol [cleanliness] | 1.99    | 4     |
| 20   | yuig [usefulness]      | 2.44    | 6     | 47   | chungbun [enough]         | 1.99    | 4     |
| 21   | eumsig [food]          | 2.44    | 6     | 48   | jilbyeong [disease]       | 1.99    | 6     |
| 22   | banghae [hindrance]    | 2.44    | 6     | 49   | geonjeon [healthy]        | 1.99    | 4     |
| 23   | yeonghyang [influence] | 2.43    | 7     | 50   | silsi [implementation]    | 1.99    | 4     |
| 24   | byeong [disease]       | 2.43    | 6     | 51   | gihu [climate]            | 1.99    | 4     |
| 25   | yeongu [research]      | 2.40    | 6     | 52   | yeongeob [business]       | 1.99    | 5     |
| 26   | beob [law]             | 2.36    | 12    | 53   | sigmul [food]             | 1.99    | 7     |
| 27   | yolam [handbook]       | 2.24    | 5     |      |                           |         |       |

† In the 'Word' column of the table, the Korean language words were marked with Roman characters. Inside each parenthesis, the meaning was indicated through the English translation.

†† The name of a person.

The semantic category related to hygiene was divided into 1) the subject, 2) the object, and 3) the relationship or the influence between the subject and the object of hygiene. If the words are classified by the semantic category, it is the same as below.

- 1) The subject of hygiene: in [human], o [I],

hoewon [member], gugmin [people], gugga [nation], agug [my country], inmin [the people]

- 2) The object of hygiene: sinche [body], gonggi [air], uibog [clothes], saenghwal [living], eumsig [food], jugeo [dwelling], cheo [place], eumsigmul [food], sigmul [food]

- 3) The relationship or the influence between

the subject and the object: juui [caution], pilyo [need], gwangye [relation], gyoyug [education], geongang [health], hae [harm], yuig [usefulness], banghae [hindrance], yeonghyang [influence], byeong [disease], yeongu [research], beob [law], jeogui [moderation], gyeolgwa [result], bangbeob [method], sasang [ideology], jidae [immense], yebang [prevention], cheonggyeol [cleanliness], jilbyeong [disease], geonjeon [healthy]

As shown above, the subjects carrying out the hygienic behavior such as all of the people, children, moms, etc. had been called throughout. As the object of hygienic behavior, the body, the clothes, the foods, the residence, etc. were mentioned. With regard to the relationship or the influence between

the subject and the object, it can be confirmed that diverse matters had been discussed, including the fact that one must be cautious with filthy things or a hygienic condition is needed, etc. Kim Bongkwan is a notable name because he was a 1<sup>st</sup>-time graduate of a medical school and had participated in social activities, including the contributions of writings regarding hygiene and medicine to the magazines of many enlightenment movement organizations. In this way, it is confirmed that the co-occurred words of 'wisaeng [hygiene]' before 1910 have been thoroughly showing in high relief the various facets of hygiene.

While after 1920, the co-occurred words of 'wisaeng [hygiene]' was confirmed as 17 pieces (Table 3).

**Table 3:** List of co-occurred words and statistical information for 'wisaeng' after 1920

| Rank | Word                | t-score | Freq. | Rank | Word                   | t-score | Freq. |
|------|---------------------|---------|-------|------|------------------------|---------|-------|
| 1    | gita [other]        | 2.64    | 7     | 10   | salam [human]          | 2.01    | 6     |
| 2    | gyoyug [education]  | 2.64    | 7     | 11   | boan [security]        | 2.00    | 6     |
| 3    | na [I]              | 2.51    | 10    | 12   | gyeonggido†            | 2.00    | 4     |
| 4    | siseol [facility]   | 2.45    | 10    | 13   | gangyeon [lecture]     | 2.00    | 4     |
| 5    | juui [caution]      | 2.45    | 6     | 14   | seonjeon [propagation] | 2.00    | 7     |
| 6    | saeob [work]        | 2.45    | 6     | 15   | johab [union]          | 2.00    | 5     |
| 7    | sasang [ideology]   | 2.44    | 17    | 16   | gyoengje [economy]     | 2.00    | 5     |
| 8    | gyeongchal [police] | 2.23    | 7     | 17   | bangmyeon [direction]  | 1.99    | 4     |
| 9    | sahoe [society]     | 2.22    | 5     |      |                        |         |       |

† The name of the administrative district.

Compared to before 1910, which reached 53 pieces, this was a significant reduction. The t-score for the highest co-occurred word is merely 2.64. This suggests that 'wisaeng [hygiene]' became a concept that was not as important to the previous extent. Or, in other words, compared to 1910, while having a considerably low semantic cohesion, it can be estimated to have been used with fewer words and a narrow context.

1) The subject of hygiene: na [I], sahoe [society], johab [union]

2) The object of hygiene: siseol [facility]

3) The relationship or the influence between the subject and the object: gyoyug [education], saeob [work], sasang [ideology], gyeongchal [police], boan [security], gangyeon [lecture], seonjeon [propagation]

From above, it is noteworthy that there are words related to the organizational activity regarding the

community such as 'gyoyug [education], saeob [work], gyeongchal [police], gangyeon [lecture], seonjeon [propagation]', etc. This suggests that, in the process of colonial rule, hygiene as a social control means was emphasized. Of particular note, 'gyeongchal [police], gangyeon [lecture], and seonjeon [propagation]', are important as they could not be seen before 1910.

#### **An analysis of data for 'yangsaeng [regimen]'**

In the case of 'yangsaeng [regimen]', as shown in Table 4 and Table 5, the ability to examine the data by dividing the semantic category was not secured. In the case of 'yangsaeng [regimen]', both the strength of co-occurrence and the frequency were low. It suggests that 'yangsaeng [regimen]' had not been an important word before 1910. It can also be evaluated that such a tendency deepened after 1920.

**Table 4:** List of co-occurred words and statistical information for 'yangsaeng' before 1910

| Rank | Word                 | t-score | Freq. | Rank | Word                        | t-score | Freq. |
|------|----------------------|---------|-------|------|-----------------------------|---------|-------|
| 1    | in [human]           | 1.96    | 5     | 5    | yangsin [mental discipline] | 1.00    | 2     |
| 2    | sinche [body]        | 1.41    | 2     | 6    | dangyeon [natural]          | 1.00    | 2     |
| 3    | wanjeon [perfection] | 1.41    | 2     | 7    | undong [exercise]           | 1.00    | 2     |
| 4    | o [I]                | 1.39    | 3     |      |                             |         |       |

**Table 5:** List of co-occurred words and statistical information for 'yangsaeng' after 1920

| Rank | Word              | t-score | Freq. | Rank | Word                     | t-score | Freq. |
|------|-------------------|---------|-------|------|--------------------------|---------|-------|
| 1    | songsu [funeral]  | 1.41    | 2     | 6    | yangchu [brushing teeth] | 1.00    | 2     |
| 2    | sageo [decease]   | 1.41    | 2     | 7    | chia [tooth]             | 1.00    | 2     |
| 3    | jungsi [emphasis] | 1.41    | 2     | 8    | bang [village]           | 1.00    | 2     |
| 4    | adong [child]     | 1.41    | 2     | 9    | wiseon [hypocrisy]       | 1.00    | 2     |
| 5    | ye [etiquette]    | 1.41    | 2     | 10   | in [benevolence]         | 1.00    | 2     |

In Table 2 above, the co-occurred words of 'wisaeng [hygiene]' before 1910 had been diverse and the strength of the co-occurrence had been high. In contrast, Table 4 and Table 5 show that the co-occurred words of 'yangsaeng [regimen]' are small in number and the strength of the co-occurrence was low. This shows that the modern transition of 'from regimen to hygiene', which proceeded until around the year 1910, is confirmed through the quantitative data.

**An analysis of data for 'geongang [health]'**

Among the co-occurred words of 'geongang [health]' before 1910, 'sinche [body],' and 'jeongsin [mind]' were important. They are the two elements that organize human beings. Those were recognized as the objects of health at that time, and it was reflected as the upper-ranking co-occurred words and higher strength of co-occurrence (Table 6).

**Table 6:** List of co-occurred words and statistical information for 'geongang' before 1910

| Rank | Word               | t-score | Freq. | Rank | Word                  | t-score | Freq. |
|------|--------------------|---------|-------|------|-----------------------|---------|-------|
| 1    | sinche [body]      | 6.63    | 56    | 11   | si [the time]         | 2.47    | 7     |
| 2    | in [human]         | 4.17    | 26    | 12   | jeogdang [moderation] | 2.44    | 6     |
| 3    | jeongsin [mind]    | 3.85    | 24    | 13   | yuig [usefulness]     | 2.23    | 5     |
| 4    | hae [harm]         | 3.45    | 16    | 14   | banghae [hindrance]   | 2.23    | 5     |
| 5    | o [I]              | 3.07    | 12    | 15   | hwalbal [liveliness]  | 2.23    | 6     |
| 6    | wisaeng [hygiene]  | 2.82    | 9     | 16   | hangsang [always]     | 2.22    | 5     |
| 7    | gonggi [air]       | 2.81    | 8     | 17   | hoewon [member]       | 2.20    | 6     |
| 8    | chug [wish]        | 2.64    | 7     | 18   | a [I]                 | 2.04    | 6     |
| 9    | yuji [maintenance] | 2.63    | 10    | 19   | yuhae [harm]          | 2.00    | 4     |
| 10   | gugmin [people]    | 2.60    | 9     | 20   | saengmyeong [life]    | 1.99    | 7     |

The semantic categories related to health were divided into 1) the subject, 2) the object, 3) the condition, and 4) the influence on health, etc.

1) Subject of health: in [human], o [I], gugmin [people], hoewon [member], a [I]

2) Object of health: sinche [body], jeongsin [mind] (The 1<sup>st</sup> and 3<sup>rd</sup> ranking co-occurred words in Table 6)

3) Condition of health: wisaeng [hygiene],

gonggi [air], jeogdang [moderation]

4) The influence on the health

- positive: yuji [maintenance], yuig [usefulness], hwalbal [liveliness]
- negative: hae [harm], banghae [hindrance], yuhae [harm]

As shown above, many kinds of co-occurred words, related to the subject, the object, the condition of health, and the influence regarding

health, etc. are confirmed. Especially, for cases in which such a condition had been possessed well, health can be maintained and protected, if it cannot be so, the fact that the knowledge that it is harmful to the body has been emphasized can be inferred.

After 1920, regarding the co-occurred words of 'geongang [health]', not only did the number increase but the averages, the strength of co-occurrence, and the frequency are also higher and confirmed (Table 7).

**Table 7:** List of co-occurred words and statistical information for 'geongang' after 1920

| Rank | Word                   | t-score | Freq. | Rank | Word                                   | t-score | Freq. |
|------|------------------------|---------|-------|------|--|---------|-------|
| 1    | mom [body]             | 4.21    | 22    | 17   | bojon [preservation]                   | 2.24    | 6     |
| 2    | na [I]                 | 4.12    | 29    | 18   | sin [body]                             | 2.23    | 7     |
| 3    | uri [we]               | 3.72    | 17    | 19   | sigan [time]                           | 2.23    | 5     |
| 4    | salam [human]          | 3.51    | 16    | 20   | pilyo [need]                           | 2.19    | 8     |
| 5    | hoebog [recovery]      | 3.00    | 9     | 21   | singyeongsoeyag<br>[nervous breakdown] | 2.00    | 4     |
| 6    | undong [exercise]      | 2.98    | 12    | 22   | simlyeong [spirit]                     | 2.00    | 5     |
| 7    | in [human]             | 2.76    | 16    | 23   | chungsil [fullness]                    | 2.00    | 4     |
| 8    | che [body]             | 2.64    | 9     | 24   | uisa [doctor]                          | 2.00    | 4     |
| 9    | choseon†               | 2.52    | 8     | 25   | jache [own body]                       | 2.00    | 5     |
| 10   | jeungiin [enhancement] | 2.45    | 7     | 26   | haengbog [happiness]                   | 2.00    | 4     |
| 11   | sinche [body]          | 2.45    | 6     | 27   | jogeon [condition]                     | 2.00    | 4     |
| 12   | hae [harm]             | 2.45    | 6     | 28   | yugche [body]                          | 2.00    | 4     |
| 13   | juui [caution]         | 2.45    | 10    | 29   | insaeng [life]                         | 1.99    | 5     |
| 14   | sangtae [fettle]       | 2.44    | 6     | 30   | mi [beauty]                            | 1.99    | 4     |
| 15   | saenghwal [living]     | 2.43    | 6     | 31   | gwangye [relation]                     | 1.99    | 4     |
| 16   | jilbyeong [disease]    | 2.24    | 5     |      |  |         |       |

† The name that referred to Korea during colonial times.

This implies that compared to before 1910, when the semantic domain of 'geongang [health]' had been widened, it became a word used while having a stronger association with related words.

1) Subject of health: na [I], uri [we], salam [human], in [human], choseon (The 1<sup>st</sup> person pronouns are the 2<sup>nd</sup> and 3<sup>rd</sup> ranking co-occurred words in Table 7)

2) Object of health: mom [body], che [body], sinche [body], sin [body], simlyeong [spirit], jache [own body], yugche [body]

3) The condition of health: undong [exercise], sangtae [fettle], saenghwal [living], pilyo [need], chungsil [fullness], uisa [doctor], jogeon [condition]

4) The influence on health:

- positive: hoebog [recovery], jeungiin [enhancement], bojon [preservation], haengbog [happy], mi [beauty]
- negative: hae [harm], jilbyeong [disease],

singyeongsoeyag [nervous breakdown]

Regarding every semantic category related to 'geongang [health]', the same or more co-occurred words are confirmed. In relation to the subject of health, the singular form and the plural form of the 1<sup>st</sup> person pronoun appeared as the 2<sup>nd</sup> and 3<sup>rd</sup> ranking co-occurred words which catches the attention. The other co-occurred words are mostly in the upper ranks. Through standing out point of the 1<sup>st</sup> person plural pronoun, it can be assumed that there has been a certain change regarding which the endeavor of a group, and not an individual, is emphasized.

In relation to the object of health, the words that denote the body appear considerably. This suggests that, after 1920, physical health had been paid relatively more attention to. Among the co-occurred words that are related to the condition of health, 'undong [exercise]' was ranked 6<sup>th</sup>. Of

particular note is the point that it is related to physical health. Also, it can be thought that the role of the doctor was emphasized more after 1920. Among the co-occurred words related to the positive influence of health, it is new and notable that 'haengbog [happiness]', which denotes the mentally satisfactory condition that is obtained from a healthy life, and 'mi [beauty]', which reveals mainly the external, sensory value, have appeared. Regarding 'haengbog [happiness]', it is noteworthy that it was a word used as a symbol of the civilization, in which the people are the subject in the public domain in Japan, during the modern transition period (19). Regarding 'haengbog [happiness]' and 'mi [beauty]', as words that were not seen before 1910, they can be evaluated as words that reveal the new value orientation. Meanwhile, as the co-occurred words related to negative influence, the point that 'singyeongsoeyag [nervous breakdown]', which is the specific name of an illness, appears indirectly

shows the universalization and officialization of Western medicine.

Before 1910, as the objects of health, only two kinds of words, 'sinche [body]' and 'jeongsin [mind]', appeared as upper-ranking co-occurred words. This suggests a way for the dichotomic understanding of the objects of health. However, after 1920, many co-occurred words that become the objects of health appeared and if 'simbyeong [spirit]' are excluded, all of them are synonyms of the body. This suggests that physical health was emphasized more and the so-called "health that became physical" discourse was spread.

**An analysis of data for 'cheonggyeol [cleanliness]'**

Regarding the co-occurred words for 'cheonggyeol [cleanliness]' before 1910, the number is large and the t-score is on the high side (Table 8).

**Table 8:** List of co-occurred words and statistical information for 'cheonggyeol' before 1910

| Rank | Word              | t-score | Freq. | Rank | Word                  | t-score | Freq. |
|------|-------------------|---------|-------|------|-----------------------|---------|-------|
| 1    | uibog [clothes]   | 4.00    | 18    | 13   | byeonso [toilet]      | 2.00    | 5     |
| 2    | gonggi [air]      | 3.60    | 17    | 14   | geosil [living room]  | 2.00    | 4     |
| 3    | juui [caution]    | 3.45    | 15    | 15   | oye [filth]           | 2.00    | 5     |
| 4    | beob [law]        | 3.29    | 12    | 16   | setag [laundry]       | 2.00    | 5     |
| 5    | hangsang [always] | 2.99    | 9     | 17   | geocheo [dwelling]    | 2.00    | 5     |
| 6    | sinche [body]     | 2.99    | 10    | 18   | dolo [road]           | 2.00    | 4     |
| 7    | soje [cleaning]   | 2.65    | 8     | 19   | heubsu [absorption]   | 2.00    | 4     |
| 8    | undong [exercise] | 2.64    | 8     | 20   | sanso [oxygen]        | 1.99    | 4     |
| 9    | silnae [indoor]   | 2.23    | 5     | 21   | wisaeng [hygiene]     | 1.99    | 4     |
| 10   | pibu [skin]       | 2.23    | 9     | 22   | jeogdang [moderation] | 1.99    | 4     |
| 11   | su [water]        | 2.21    | 5     | 23   | samlim [forest]       | 1.99    | 5     |
| 12   | in [human]        | 2.00    | 5     |      |                       |         |       |

The semantic category related to 'cleanliness' can be divided into 1) the subject, 2) the object, 3) the method, etc. of cleanliness. They do not appear diverse enough to be shown as a separate organizing list. But, especially in Table 8, words related to the clothes, the air, the body, the skin, the water, the toilet, the living room, etc. that become the objects of cleanliness, are confirmed diversely, and

detailed methods such as cleaning and laundry appear.

Meanwhile, after 1920, the number of co-occurred words was small and the t-score becomes markedly low (Table 9). As a subject of cleanliness, the 1<sup>st</sup> persons of 'na [I]' and 'uri [we]' becoming conspicuous is similar to the cases of 'geongang [health]'.

**Table 9:** List of co-occurred words and statistical information for 'cheonggyeol' after 1920

| Rank | Word     | t-score | Freq. | Rank | Word          | t-score | Freq. |
|------|----------|---------|-------|------|---------------|---------|-------|
| 1    | na [I]   | 2.24    | 7     | 3    | sinche [body] | 2.00    | 4     |
| 2    | uri [we] | 2.15    | 5     | 4    | dolo [road]   | 2.00    | 5     |



It can be said that '*cheonggyeol* [cleanliness] is a condition or method for possessing a hygienic state. Before 1910, as a co-occurred word of '*wisaeng* [hygiene]', there had been '*cheonggyeol* [cleanliness] (46<sup>th</sup> rank in Table 2) but after 1920, it was absent. That is, at the time when the discourse of hygiene had been dominant, cleanliness had also been emphasized, and hygiene became a thing that was a matter of course. In contrast, after 1920 when interest in health had become high, it can be concluded that '*cheonggyeol* [cleanliness]', the semantic domain, had been reduced.

## Discussion

'Hygiene' was a confronted task that had to be embraced as soon as possible for the establishment of a civilized modern country with regard to the enlightenment of intellectuals. However, after the colonial rule of Japan began, it had been utilized as a means of social control and a tool for regulating and managing the bodies of the people of Joseon, which had been a colony. This matter is a well-known fact and is acknowledged in this research.

However, regarding modern hygiene as a means for effective colonial rule, whether it had been consistently maintained throughout the period of colonial rule by the Japanese Empire without any conceptual and semantic change, is the critical aim of this research. As a matter of course, regarding all the techniques of the rule and social discourse at any time, according to a different pending issue and a matter of interest, there could be an emergent transformation regarding a specific system or content. From the viewpoint of the analysis of the co-occurred words that was adopted in this research, the list of the co-occurred words and the strength of the co-occurrence of a certain target word can change at any time. Furthermore, a different target word can show more co-occurred words and a higher strength of co-occurrence.

From the preexistent, qualitative research, it is difficult to find reference to the changes which occurred after 'from regimen to hygiene'. It is likely

that the concept of hygiene was established since it had been understood and become more consolidated. However, the data confirmed in this research show the fact that, after 1920, the discourse of hygiene had not been capturing a dominant position. Instead, it suggests that there had been a different conversion of 'from hygiene to health'. This is because when considering '*geongang* [health]' compared to '*wisaeng* [hygiene]', not only does it show more co-occurred words and a higher average strength of co-occurrence, but the body has been emphasized.

In the modern country system, the social regulation of the body of an individual becomes an everyday part of life and a matter of course. In order for a country to be preserved, the recognition that the people must be healthy is commonly used. The pursuit of health is a central value with regard to the formation of a modern identity. From the viewpoints of colonialism and imperialism, the eradication of illnesses through hygiene and the social preservation of the health of the body was a powerful ruling technique regarding the residents of the colony (20).

Especially in Joseon, under the colonial rule of the Japanese Empire, health hygiene, illness prevention, and health management had become a main area of interest and were seen as a plan for securing good quality workers and soldiers. This health discourse was strengthened during the time of the Pacific War and health was viewed as a military strength (21). From the Foucauldian perspective, which emphasizes the social personality of the body, it is considered that school education is something that normalizes, regulates, classifies, and surveils the student through an organization that can assess body weights, the extent of fitness, exercise ability, etc. (22). In colonial Joseon, the body and the health of the student have been the object of systematic management for militarization (23).

## Conclusion

In this study, unlike the previous studies that have only used qualitative methods, a quantitative analysis was performed based on a corpus not previously used. The study data significantly proved that the conversion of 'from hygiene to health' occurred after 1920. This research as an attempt through such a method shows the need for and the feasibility of quantitative research that supplements the preexistent, qualitative analysis.

## Journalism ethics considerations

Ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy) have been completely observed by the authors.

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## Conflict of interest

The authors declare that there is no conflict of interest.

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